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United Nations Development Programme

Country: Lesotho PROJECT DOCUMENT¹

Project Title: *Reducing vulnerability from climate change in the Foothills, Lowlands and the Lower Senqu River Basin.*

UNDAF Outcome(s):

Outcome 2: By 2017 Lesotho adopts environmental management practices that promote a low-carbon, climate-resilient economy and society, sustainably manages natural resources and reduces vulnerability to disasters.

UNDP Strategic Plan Primary Outcome:

Outcome 5: Countries are able to reduce the likelihood of conflict, and lower the risk of natural disasters, including from climate change

UNDP Strategic Plan Secondary Outcome:

Outcome 1: Growth and development are inclusive and sustainable, incorporating productive capacities that create employment and livelihoods for the poor and excluded.

Expected CP Outcome(s):

Outcome 2: By 2017, Lesotho adopts environmental management practices that promote a low-carbon, climate-resilient economy and society, sustainably manages natural resources and reduces vulnerability to disasters.

Expected CPAP Output (s)

Number of national/sectoral policies and strategies that promote low-carbon, climate-resilient economy and society.

Number of national/sectoral policies that promote conservation of natural resources.

Number of local communities that implement disaster risk reduction measures.

Implementing Agency : UNDP

Executing agency/Implementing entity: *Ministry of Forestry, Range and Soil Conservation*


Responsible Partners: *Department of Environment, Ministry of Gender, Youth and Sports*

¹ For UNDP supported GEF funded projects as this includes GEF-specific requirements

Programme Period:	72 months
Atlas Award ID:	00084520
Project ID:	00092485
PIMS #	4630
Start date:	January 2015
End Date	December 2020
Management Arrangements	NIM
PAC Meeting Date	17 April 2015

Total resources required	35,998,172
Total allocated resources:	
• Regular (UNDP TRAC)	600,000
• GEF	8,398,172
○ Government	27,000,000
○ In-kind	_____
○ Other	_____
In-kind contributions	_____

Agreed by (Government): PS: Ministry of Development Planning




MAR 09/06/15
Date/Month/Year

Agreed by (Executing Entity/Implementing Partner): PS - Ministry of Forestry, Range and Soil Conservation



Shacana 09/06/2015
Date/Month/Year

Agreed by (UNDP):



3/6/15
Date/Month/Year

AKI VERES, UNDP RR a.i.

for Karla Hensley, UNDP RR





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Agreed by (Government): PS: Ministry of Finance and Development Planning

Date/Month/Year

Agreed by (Executing Entity/Implementing Partner): PS - Ministry of Forestry and Land Reclamation

Date/Month/Year

Agreed by (UNDP):

Date/Month/Year

Brief Description

Climate change – including rising temperatures, and a greater frequency of droughts and extreme rain events – is negatively affecting local communities living in rural parts of Lesotho. The fragile mountain ecosystems of Lesotho provide a range of benefits that increase the resilience of such communities to climate change. These include regulating services such as storing and retaining water as well as mitigating floods. However, these ecosystems are characterised by widespread degradation as a result of unsustainable land management and exploitation of natural resources. The effects of this ecosystem degradation in Lesotho include loss of vegetative cover and extreme soil erosion. Such effects reduce the capacity of these ecosystems to protect vulnerable communities from the increasingly negative impacts of climate change that are threatening their livelihoods.

The government of Lesotho does not presently have appropriate policies and sector-specific strategies in place to adapt to the anticipated impacts of climate change. For example, ongoing initiatives related to addressing ecosystem degradation currently do not take into account climate change-related risks and adaptation needs. Furthermore, the capacity of Lesotho's line ministries and various socio-economic sectors to plan and implement appropriate climate change adaptation interventions is hindered by the limited availability of technical skills, up-to-date climate information and best-practice examples to inform the design of locally appropriate adaptation measures.

The preferred solution to the climate change problem facing Lesotho is to strengthen the resilience of climate-vulnerable communities by: i) enhancing the capacity of government institutions and local communities to mainstream climate change risks into policies, plans and programmes; ii) implementing climate-smart ecosystem rehabilitation and management measures using a community/household based approach; and iii) establishing a system for monitoring and evaluating the effectiveness of various approaches to climate change adaptation to inform a process of adaptive management.

However, there are multiple barriers to achieving this preferred solution, including *inter alia*: i) limited technical capacity and information base for the analysis of climate risks; ii) limited application of cutting-edge technology in the planning and implementation of climate-smart ecosystem rehabilitation and management measures; iii) limited institutional and community awareness and knowledge regarding climate risks and adaptation measures; and iv) weak governance systems for the mainstreaming of climate risk into land use planning and decision-making.

The LDCF-financed project will contribute to overcoming these 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 will: i) develop 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) strengthen institutional capacity for land use planning and decision-making by integrating climate risks into development plans and policies; iii) provide access to knowledge and training on adaptation using an ecosystem

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List of Acronyms

AAKN	African Adaptation Knowledge Network
AAP	Africa Adaptation Programme
AMAT	Adaptation Monitoring and Assessment Tool
BOS	Bureau of Statistics
BSAP	Biodiversity Strategy and Action Plan
CBO	Community Based Organisation
CO	Country Office
DCOs	District Coordination Offices
DoF	Department of Forestry
DoLS	Department of Lands and Survey
DRM	Department of Rangeland Management
DoSWC	Department of Soil and Water Conservation
DWA	Department of Water Affairs
EESU	Environmental and Energy Statistics Unit
GAN	Global Adaptation Network
GCM	Global Circulation Models
GIS	Geographic Information System
GoL	Government of Lesotho
HFA	Hyogo Framework for Action
FNC	First National Communications
LDCF	Least Developed Country Fund
LMS	Lesotho Meteorological Services
LRP	Land Rehabilitation Programme
LUNDAP Lesotho	United Nations Development Assistance Plan
M&E	Monitoring and Evaluation
MAFS	Ministry of Agriculture and Food Security
MoDP	Ministry of Development Planning
MoE	Ministry of Energy
MoET	Ministry of Education and Training

MoF	Ministry of Finance
MFRSC	Ministry of Forestry, Range and Soil Conservation
MoGYS	Ministry of Gender, Youth and Sport
MTACMTAC	Ministry of Tourism, Arts and Culture
MoLGCA	Ministry of Local Government and of Chieftainship Affairs
MoPWT	Ministry of Public Works and Transport
MoSD	Ministry of Social Development
MTAC	Ministry of Tourism, Environment and Culture
MoSBDCM	Ministry of Small Business Development, Cooperatives and Marketing
NAPA	National Adaptation Programme of Action
NSDP	National Strategic Development Plan
NTFP	Non-timber Forest Product
NUL	National University of Lesotho
PM	Project Manager
PSC	Project Steering Committee
SEA	Strategic Environmental Assessment
SGP	Small Grants Programme
SLM	Sustainable Land Management
SNC	Second National Communications
PSC	Project Steering Committee
RSDA	Rural Self-Help Development Association
UNDP	United Nations Development Programme
UNFCC	United Nations Framework Convention on Climate Change
WAMPP	Wool and Mohair Production Project

List of Annexes

Annex 1: Risk analysis

Annex 2: Key assessment reports

Annex 3: Stakeholder involvement plan

Annex 4: Terms of reference for project personnel

Annex 5: Capacity assessment

Annex 6: Letters of co-financing

Annex 7: UNDP Strategic Plan

Annex 8: Detailed project activities

Annex 9: Site Selection

Annex 10: Maps

Annex 11: References

1. SITUATION ANALYSIS

1. The Kingdom of Lesotho (hereafter Lesotho) is a Least Developed Country (LDC) in southern Africa. It is a small, land-locked and mountainous country that occupies 30,588 km², with elevation varying from 1,388 m to 3,482 m above sea level. The population of Lesotho was estimated to be ~1.94 million people in 2014². Approximately 80% of the population lives in the lowland areas where there is a greater availability of arable land and better socio-economic opportunities compared with the highland areas. The vast majority of Lesotho's population (~86%) is dependent on agriculture related livelihoods, particularly in rural areas^{3,4}. However, agriculture only contributed ~7% of the GDP in 2011⁵. Progress has been made in the country's economic and financial performance over the past few years, but Lesotho still faces widespread poverty. Approximately 57% of the population live below the international poverty line of US\$1.25 per day⁶. Poverty is particularly prevalent among farmers, casual labourers and households with small land holdings.
2. Degradation of ecosystems has been identified as a major constraint to Lesotho's socio-economic development⁷. Current land management practices result in soil erosion, loss of plant cover, 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.
3. The Government of Lesotho (GoL) has responded to the dual challenges of ecosystem degradation and rural poverty by implementing catchment-based rehabilitation programmes in participation with local communities. Poverty is recognised as one of the underlying causes of land degradation and as a result the design of the GoL's land restoration efforts include measures to create temporary employment opportunities for local communities. For example, the Ministry of Forestry and Land Reclamation (MFRSC) is responsible for the implementation of the Land Rehabilitation Programme (LRP) since 2007. The targeted outcomes of the LRP include: i) increase the total area of rehabilitated and protected watersheds; ii) increase the area of productive rangelands under appropriate management plans; iii) protect wetlands to enhance the availability and quality of water resources; iv) contribute to the reduction of employment and resultant poverty; v) increase honey production; and vi) increase fruit tree production. As of January 2012, the LRP has created temporary jobs for ~387,836 labourers, rehabilitated ~250,000 ha of land, planted ~11,000,000 trees and implemented numerous land reclamation works⁸.
4. Despite the positive gains achieved by programmes such as the LRP, the sustainability of GoL's investments in rehabilitation of ecosystems is threatened by the anticipated effects of climate change across Lesotho. At present, the effects of future climate change, including variability, across Lesotho are not well understood.

² Bureau of Statistics 2010. *Statistical Yearbook 2010*; CIA World Factbook estimates derived from 2006 population census.

³ African Development Bank. 2013. Kingdom of Lesotho: Country Strategy Paper 2013-2017. Available at <http://www.afdb.org/fileadmin/uploads/afdb/Documents/Project-and-Operations/2013-2017%20-%20Lesotho%20-%20Country%20Strategy%20Paper.pdf>. Accessed on 11 June 2014.

⁴ Central Intelligence Agency (CIA). 2010. The World Factbook: Lesotho. Available at <https://www.cia.gov/library/publications/the-world-factbook/geos/lt.html>. Accessed on 11 June 2014.

⁵ African Development Bank. 2013. Kingdom of Lesotho: Country Strategy Paper 2013-2017. Available at <http://www.afdb.org/fileadmin/uploads/afdb/Documents/Project-and-Operations/2013-2017%20-%20Lesotho%20-%20Country%20Strategy%20Paper.pdf>. Accessed on 11 June 2014.

⁶ As determined by the World Bank. Available at: <http://data.worldbank.org/country/lesotho>.

⁷ UNDP. Country Programme for Lesotho (2013-2017).

⁸ These include the construction of diversion furrows, stonelines, gully structures, dams and ponds.

Furthermore, these effects are not being considered in present land use planning and decision-making at national or local government levels. For example, there are currently no comprehensive climate change policies in place to ensure that climate risks are integrated into sector-specific planning and strategies. As a result, GoL's response to the challenges of ecosystem degradation and rural poverty will be undermined by the negative effects of climate change.

1.1 Climate change-induced problem

1.1.1 Climate change scenarios and climate variability

5. Lesotho has a continental temperate climate with alpine characteristics. There are four distinct seasons, which are characterized by major seasonal fluctuations in temperature and precipitation. The summers are hot and wet, the winters are cold and dry. Furthermore, as a result of the country's high elevation and heterogeneous landscape, Lesotho's climate is influenced by several converging weather systems/events⁹. Under climate change conditions, these weather systems/events are becoming increasingly erratic, including the temporal and spatial variability of rainfall.
6. A comprehensive analysis of climate change scenarios in Lesotho has been undertaken using historical data. Projections from several global circulation models (GCM)¹⁰ predict: i) increased temperatures throughout the country; ii) decreased precipitation in the spring and summer seasons; and iii) increased precipitation in winter and autumn¹¹. Temperature across the country is predicted to increase by ~0.7°C by 2030 and ~2°C by 2075¹². Average annual rainfall is predicted to decrease 0.5–1.0 mm per day for spring and 0.5 mm per day for both the autumn and summer seasons by 2075. In contrast, winter is predicted to have an increase of 0.5 mm per day¹³. Consequently, it is predicted that precipitation patterns will shift from summer rainfall towards autumn rainfall. The climate models also predict that extreme events such as floods, droughts and snowfall will increase in severity and frequency. These extreme events are likely to result in increased loss of human lives as well as destruction of crops, livestock and infrastructure.

1.1.2 Climate variability impacts and vulnerabilities

7. Lesotho is already experiencing the negative effects of the above-described climate changes. These include the: i) increasing frequency of extreme events, *inter alia* droughts; ii) increased rates of soil erosion and desertification; and iii) reduced soil fertility¹⁴. Over the past ~20 years- in particular- Lesotho has experienced an unprecedented number and frequency of droughts. The Southern Lowlands have been affected particularly severely by droughts on an almost annual basis over the last decade. A national famine in 2002 was a direct result of such consecutive and severe droughts. In addition to the change in frequency of droughts, it has been observed that rainfall is increasingly variable within seasons (for example, extended dry spells have been noted

⁹ These include pressure and wind systems governed by the movement of the Inter-Tropical Convergence Zone as well as El Niño and La Niña events which create drier and wetter conditions in Lesotho, respectively.

¹⁰ United Kingdom Meteorological Office High Resolution Model (UKHI), the Canadian Climate Centre Model (CCCM), the USA Geophysical Fluid Dynamics Laboratory model (GFDL), the USA Oregon State University model (OSU), the Goddard Institute for Space Studies model (GISS), and the United Kingdom Meteorological Office Hadley Centre Transient model (UKTR).

¹¹ These projections are derived from climate change scenarios for the years 2030, 2050 and 2075.

¹² The models report increases of 2°C for both summer and autumn, 1.5°C for winter and 2.75°C for spring.

¹³ First National Communication to the Conference of the Parties to the United Nations Framework Convention on Climate Change. 2000. Ministry of Natural Resources.

¹⁴ National Adaptation Programme of Action on Climate Change. 2007. Ministry of Natural Resources.

to occur in the middle of the wet season). As a result of this recent unpredictability of rainfall, agricultural production has declined in the Foothills and Lowland areas of Lesotho. The reduced agricultural production has particularly negative consequences for poor households who are reliant on rainfed agriculture as the primary source of livelihood. Another observed impact of climate change is the increased frequency of rainstorms in the winter, which exacerbate the already severe soil erosion in the Foothills, the Lowlands and the Lower Senqu River Basin areas. Lastly, sudden snowfalls, strong winds and floods have affected the country periodically. The resulting damage to property and crops, as well as loss of livestock and human life, negatively affect multiple sectors including, *inter alia*: transport, agriculture, health and small-scale industry.

8. The predicted biophysical and socio-economic effects of climate change in Lesotho are summarised below.

Climate change effects on ecosystems

9. Mountain ecosystems provide services such as freshwater, timber, medicinal plants, and protect the surrounding Lowlands from hazards such as landslides and flooding. 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.

Climate change effects on water resources

10. The projected changes in rainfall and temperature will result in: 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. The reduction in water infiltration and increased erosion will diminish groundwater recharge and result in increased flooding. 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

11. 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 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 Basin¹⁵. 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.

Climate change effects on livestock

12. The livestock breeds kept by pastoralists in Lesotho are generally hardy and are adapted to the country's harsh climate. However, the effects of climate change are likely to result in negative impacts on the availability and productivity of palatable grass species in the rangeland areas. Therefore, the livestock sector is likely to be affected directly by the effect of climate change on the availability and quality of pastures for grazing.

¹⁵ National Adaptation Programme of Action on Climate Change. 2007. Ministry of Natural Resources.

Consequently, supplementary feeding will be required throughout the year under predicted climate change scenarios¹⁶. Additionally, increased average temperature and frequency of extremely hot days may result in negative impacts on livestock production as a result of heat stress¹⁷.

Climate change effects on forestry

13. Predicted climate changes are likely to have a positive effect on afforestation programmes. The predicted warmer climate will improve the growth and yields of various forest species¹⁸. Consequently, woody biomass production in Lesotho will increase. This will result in positive economic impacts if afforestation/reforestation programmes are implemented.

1.1.3 Root causes of Vulnerability to Climate Risks

14. Lesotho's vulnerability to climate change is the result of multiple environmental, institutional and socio-economic factors. These weaken communities' adaptive capacity and consequently increase their vulnerability to climate change. The underlying causes of Lesotho's vulnerability are described below:
- **Poverty levels.** Households in poor communities are the most vulnerable to climate change as they are the most dependent upon natural resources-based livelihoods and have the least capacity to adapt to climate change.
 - **Land degradation.** Decades of inappropriate environmental management and unsustainable resource use in Lesotho – particularly through overstocking, overgrazing, and harvesting of trees for fuel wood – have resulted in widespread ecosystem degradation. This degradation has been identified as a major barrier to effective climate change adaptation in Lesotho's NAPA.
 - **Dependence on rainfed agriculture.** The widespread dependence on rainfed agriculture and the lack of appropriate irrigation technologies limits agricultural productivity in Lesotho and increases the vulnerability of rural communities to reduced or erratic rainfall.
 - **Limited institutional and local capacity to adapt to climate change.** Lesotho has an inadequate capacity to plan and implement climate change adaptation interventions at the national and local level. This is as a result of limited technical knowledge on climate change.
 - **Limited financial resources.** The GoL is restricted in its capacity to finance climate change adaptation. This is a result of: i) limited national budget allocated to climate change adaptation; ii) limited capacity of technical government staff to identify and develop proposals to acquire funds for climate change adaptation; and iii) limited capacity of government staff to manage the distribution of funds for climate change adaptation.

1.2. Long-term solution and barriers to achieving the solution

1.2.1. Long-term preferred solution

15. The preferred solution is to reduce the climate change vulnerability of local communities in the Foothills, Lowlands and the Lower Senqu River Basin by: i) enhancing the capacity of government institutions and local

¹⁶ First National Communication to the Conference of the Parties to the United Nations Framework Conventions on Climate Change. 2000. Ministry of Natural Resources

¹⁷ St-Pierre N.R, Cobanov B, and Schnitkey G. 2003. Economic Losses from Heat Stress by US Livestock Industries. J. Dairy Sci. 86:(E. Suppl.):E52–E77

¹⁸ First National Communication to the Conference of the Parties to the United Nations Framework Convention on Climate Change. 2000. Ministry of Natural Resources.

communities to mainstream climate change risks into policies, plans and programmes; ii) implementing climate-smart ecosystem rehabilitation and management measures using a community-based approach; and iii) establishing a system for monitoring and evaluating the effectiveness of various approaches to climate change adaptation to inform a process of adaptive management. The preferred solution would be achieved by implementing multiple complementary interventions, as elaborated below.

16. *Increased institutional and local capacity to plan and implement climate change adaptation.*

The preferred solution would include strengthening institutional capacity in Lesotho to adopt improved approaches for rehabilitation and management of the country's ecosystems under conditions of climate change. This strengthening would include undertaking extensive capacity building and awareness raising activities with national and sub-national stakeholders, including: MFRSC, Ministry of Agriculture and Food Security (MAFS), Ministry of Gender and Youth, Sports, and Recreation (MoGYS), Ministry of Tourism, Environment and Culture (MTAC), Lesotho Meteorological Services (LMS) and Bureau of Statistics (BOS), as well as district and Community Councils. It would also be necessary to improve national structures for coordination and information-sharing between local communities, policy-makers, and technical staff – of the MFRSC, MAFS, LMS, BOS related to climate change adaptation and land use planning. Enhanced coordination and sharing of information between these stakeholders will support the integration of climate risk into cross sectoral planning pertaining to ecosystem management. In addition, capacity building at the national and sub national levels – including district development teams and Community Councils – would improve understanding of climate risks and the associated negative effects and management options. The increased awareness of the negative impacts of climate change at the level of national decision-makers in the MFRSC, MoGYS, Ministry of Local Government of Chieftainship Affairs (MoLGCA), Ministry of Development Planning (MoDP) and Ministry of Finance (MoF) will support efforts to increase the allocation of funding for the implementation of climate change adaptation programmes across agricultural, grassland and forest landscapes in Lesotho.

17. At the local level, the preferred solution would raise awareness of the impacts of climate change and the importance of ecosystem management in Community Councils. The increased awareness of the impacts of climate change would be complemented by increasing the capacity of Community Councils and local community members to effectively respond to and manage the negative effects of climate change, particularly related to water resources, agricultural productivity and livelihoods. Additionally, local communities would be equipped with knowledge of – and appropriate technologies for – innovative climate change adaptation that is specific to local needs and contexts. Local participation in planning and implementing interventions would promote community “buy-in”, ensure that activities are appropriate for the local context and improve the sustainability of the project.
- 18.

19. The preferred solution would entail the adoption of a flexible and adaptive management process whereby policies, plans and legislation are developed based on current knowledge of climate change risks. Climate change would also be integrated into the GoL's long-term planning development programs and budget allocations. The integration of climate change into cross sectoral planning by the MFRSC and MAFS would provide a sustainable long-term approach to assist climate vulnerable sectors – such as agriculture and forestry – to develop appropriate climate change adaptation strategies at local, district and national levels. In addition, the preferred solution would ensure that policies, plans and legislation are reviewed and updated regularly to respond to improved understanding of climate change risks.

20. *Ecosystem rehabilitation and management.*

The preferred solution would include the rehabilitation of rangelands and wetlands in Lesotho through the introduction of a climate-smart, ecosystem-based approach to adaptation. This solution would improve ecosystem functioning and increase the benefits derived from these ecosystems. These benefits include: i) improved water quality; ii) increased groundwater recharge; iii) reduced surface water runoff during intense

rainfall events; and iv) mitigating the impact of extreme weather events and natural disasters. As a result, the resilience of Basotho communities to climate change would be increased and sustainable water management improved. In addition, rehabilitation of degraded rangeland and wetland ecosystems would increase the potential for local communities to increase or diversify household income by supporting alternative livelihoods generated by ecosystem goods and services. The development of sustainable alternative livelihoods would reduce the pressure placed on natural resources by traditional livelihood practices such as agriculture, thereby increasing the climate resilience of vulnerable communities in Lesotho.

21. *Improved M&E of climate change adaptation.*

The preferred solution would include the development of Lesotho's institutional capacity – particularly the MFRSC, MAFS, MTAC, LMS and BOS – to monitor and analyse the efficacy and cost-effectiveness of ongoing adaptation activities. This approach would require the establishment of a comprehensive monitoring and evaluation system (M&E) system. The information collected through this M&E would be collated within a centralised platform that is mandated to disseminate such information to all relevant institutions, including the National University of Lesotho (NUL) and other vocational training institutes, non-governmental organisations (NGOs) and local communities. The collection and dissemination of this information would support ongoing and future adaptation interventions in ecosystems across Lesotho.

1.2.2 Barriers to achieving the long-term solution

22. There are multiple institutional, technical and financial barriers to the implementation of the preferred solution in Lesotho. The project will contribute to the long-term preferred solution by implementing a suite of complementary measures to address the barriers described below.

23. **Limited institutional and technical capacity to plan and implement climate-smart ecosystem rehabilitation and management.** The technical capacity to plan, implement and upscale adaptation interventions is limited at national, sub-national and local levels. This technical limitation is a result of: i) insufficient training of staff employed in relevant departments within the MFRSC and MAFS; and ii) understaffing of the MFRSC and MAFS. As a result, mainstreaming of an ecosystem management approach to adaptation into sub-national development strategies is hampered. The institutional and technical capacity to implement the LRP is also limited. In 2012, a review of the programme reported that the Department of Forestry (DoF) and Department of Soil and Water Conservation (DoSWC) within the MFRSC are in need of additional staff with updated skills¹⁹. The Geographical Information System (GIS) unit in MFRSC and the unit within MAFS are both particularly understaffed. This is compounded by: i) the low level of GIS skills among the technicians working within the LRP; and ii) inadequate collaboration between the GIS units. Additionally, implementing units responsible for cooperation and coordination in the MFRSC and MAFS are inadequately staffed and coordination between these offices is weak. As a result, there is limited capacity to analyse the outputs of the LRP programme to improve its effectiveness and climate-proof its activities.

24. Technical and institutional capacity is particularly limited at district and local levels of government²⁰. As an example, the District Offices for the various ministries are under-capacitated and have insufficient resources to carry out their existing workload. Extension officers working for these centres do not have an adequate

¹⁹ Ministry of Forestry and Land Reclamation. March 2012. *Review and Assessment of Integrated Watershed Management Project.*

²⁰ *Pers. comm.* with national consultants.

understanding of emerging environmental issues – such as climate change impacts and vulnerability – to effectively implement climate change adaptation programmes over and above their existing tasks.

25. **Limited information to inform climate-smart decisions.** The information that is available to guide climate-smart land use planning and management is ineffectually packaged and disseminated. There is currently no information system that compiles land use, climate, agro-ecological and hydrological information for Lesotho. As a result, information available within different departments on the consequences of changes to land cover across multiple ecosystem services is underutilised. A lack of synthesis and aggregation is particularly evident. For example, the MAFS collates data on crop distribution, whilst the MFRSC collates data on catchments. However, this information is not analysed in combination. One reason for this poor collaboration is that no GIS unit has been mandated to ensure efficient and integrated capturing, storage, sharing and management of data. This results in: i) weak application of science in the selection and development of rehabilitation techniques and measures; and ii) poor monitoring and evaluation of interventions.
26. **Weak resource governance systems.** In Lesotho, the number of proven and replicable governance models for the management of natural resources by contemporary community structures is limited. Community Councils have no institutional model for natural resource management and lack governance mechanisms – such as a planning documents and technical guidelines – that could organise and empower resource users at the local level. Additionally, it is not clear – between the local community councillors and Chiefs – who is mandated to determine practices for land management²¹.
27. Current resource governance systems to support a climate-smart approach are weak because climate change considerations have been poorly integrated into national policies and plans such as the Rangeland and Wetland Management Strategies. Although climate variability is recognised as a potential limiting factor for socio-economic development in the country²², progress on a national climate change policy has been limited. Additionally, no systematic effort has been made to integrate future climate change scenarios into sectoral policy- and decision-making processes. The policy framework for climate change adaptation is therefore fragmented and inadequate. Consequently, climate change interventions have predominantly been undertaken on an *ad hoc* basis as opposed to adopting nationwide strategies. Limited mainstreaming of environmental considerations into cross-sectoral policies – coupled with inadequate progress on a national climate-change policy – prevents socio-economic development in Lesotho that is environmentally sustainable and climate-resilient.
28. The project addresses the abovementioned barriers to the long-term solution through two components. Component 1 will: i) develop a **scientific knowledge base to support improved land use planning and decision-making**; ii) enhance the **technical capacity** of relevant departments and units (e.g. DoSWC; Department of Rangeland Management (DRM) in MFRSC; LMS and DWA in Ministry of Energy, Meteorology and Water Affairs (MoE); and BOS;) iii) realign the LRP to **integrate climate risk considerations** into localised policies, development plans and bylaws iv) introduce **climate-smart ecosystem rehabilitation and management practices**; and v) **train local communities** to implement climate-smart rehabilitation and management practices. Component 2 will **strengthen the integration of climate risk considerations into sub-national development strategies and promote effective knowledge management**.

²¹ *Pers. comm.* with national consultants.

²² Government of Lesotho, National Poverty Reduction Strategy 2004/2005 – 2006/2007, which was extended to 2010.

29. No single initiative can completely remove all of the barriers aforementioned. Nonetheless, this project will work in coordination with other adaptation and water-related initiatives both in government and NGO community to build on their advances in overcoming these barriers.

2. STRATEGY

2.1. Country ownership: country eligibility and country drivenness

30. In line with the LDCF eligibility criteria²³, Lesotho is an LDC that has ratified the United Nations Framework Convention on Climate Change (UNFCCC)²⁴ and has formulated its National Adaptation Programme of Action (NAPA). Under the UNFCCC and the Hyogo Framework for Action (HFA), Lesotho has committed to: i) adapt to climate change; and ii) manage existing climate risks, including enhancing preparedness for and response to climate-induced disasters. The LDCF-financed project will contribute towards achieving these goals. In addition, the project is consistent with country priorities identified in the NAPA (see Section 2.2).
31. Lesotho submitted the First (FNC) and Second National Communications (SNC) to the UNFCCC in 2000 and 2013, respectively. These reports guide the development of Lesotho's policy, legal and institutional framework for adaptation to climate change. The LDCF-financed project is aligned with the FNC and SNC through: i) promoting the efficient use of land resources by integrating climate risk considerations into land use planning and decision making; ii) empowering rural communities with skills to maintain a balance between agricultural production and demands for non-agricultural land uses; iii) strengthening the community-based management of natural resources; and iv) addressing institutional and technical limitations. Furthermore, the project addresses several objectives identified within various national policies and strategies related to rural development, poverty alleviation, and improved land management, including *inter alia* the GoL's Vision 2020, National Strategic Development Plan (NSDP, 2012/13-2016/17), Poverty Reduction Strategy, and the National Biodiversity Strategy and Action Plan (see Section 2.2).
32. The LDCF-financed project will be aligned with the **Lesotho United Nations Development Assistance Plan** (LUNDAP, 2013-2017), by supporting the following LUNDAP outcomes:
- Outcome 2: by 2017, national institutions (public and private) deliver quality services for increased agricultural growth and food security;
 - Outcome 4: by 2017, national and lower level institutions make evidence based policy decisions; and
 - Outcome 6: by 2017, Lesotho adopts environmental management practices that promote a low-carbon climate-resilient economy and society, sustainably manages natural resources and reduces vulnerability to disasters.
33. Extensive stakeholder consultations were conducted during the inception mission on 11-20 June 2014 as well as during later consultations led by national consultants. Stakeholders included local communities, NGOs and government departments. The objectives of the stakeholder consultation phase included: i) identify specific climate change effects to be addressed in each of the selected Community Councils ii) collect baseline data; and iii) inform stakeholders about the LDCF-financed project. The main stakeholder consultation events are described below:
- An inception workshop was held in Maseru on 12 June 2014. This workshop served to inform stakeholders of the outline of the LDCF project.

²³ Updated Operational Guidelines for the Least Developed Countries Fund. GEF/LDCF.SCCF.13/04. Available at: <http://www.thegef.org/gef/sites/thegef.org/files/documents/Updated%20Operational%20Guidelines%20LDCF%20Oct.16.pdf> Accessed on 26 May 2014.

²⁴ Ratification occurred on 7 February 1995.

- A preliminary field trip to the Mphahle's Hoek District was held on 19 June 2014. Introductory meetings were held with representatives from the MFRSC, Khoelenya Community Council and NGOs.
- The national consultants conducted field-visits from 5-9 August 2014. During the field-visit, meetings were held with the relevant Community Councils in Lithipeng, Khoelenya and Thaba-Mokhele to establish the baseline with regards to the communities' climate change vulnerability and to assess the communities' priorities for ecosystem adaptation.

2.2. Project rationale and policy conformity

34. The LDCF-financed project will enable the GoL to strengthen institutional capacity for climate change adaptation, particularly at the community and district level. By doing so, the project will reduce the vulnerability of the communities and ecosystems in the Foothills, Lowlands and the Lower Senqu River Basin to climate-induced disasters. The LDCF-financed project focuses on the implementation of NAPA Priority 2 "Promoting Sustainable Crop Based Livelihood Systems in Foothills, Lowlands and Senqu River Valley." Other relevant priorities include: i) Priority 1 "Improve Resilience of Livestock Production Systems under Extreme Climatic Conditions in Various Livelihood Zones in Lesotho"; and ii) Priority 3 "Capacity Building and Policy Reform to Integrate Climate Change in Sectoral Development Plans".
35. **Lesotho's Vision 2020** was formulated to provide a long-term perspective within which national short to medium-term plans could be developed. The objectives of this vision include: i) exploring options for economic, political and human development up until 2020; ii) identifying alternative development strategies suitable for the Lesotho situation; iii) promoting a process of open dialogue and consultation with socio-economic groups countrywide; and iv) developing a focused direction in which development plans can be rolled out. To realise this vision, the current limitations of management capacity, strategic and operational planning, and research in science and technology need to be addressed. Therefore, technical and institutional capacity building in ecosystem management and the use of a community-based approach aligns the LDCF-financed project with the priorities of the Vision 2020.
36. Lesotho's **NSDP 2012/13-2016/17** is the implementation strategy for the National Vision 2020. The NSDP succeeded the Poverty Reduction Strategy Paper and the Interim National Development Framework 2009/10-2010/11 in March 2012. The LDCF-financed project will support the following strategic goals identified by the NSDP:
- *Strategic Goal 1: create high, shared and employment generating growth.* The project will contribute to promoting sustainable commercialisation and diversification of agriculture, strengthening the capacity of farmers and institutions, as well as reducing vulnerability and managing risk.
 - *Strategic Goal 2: develop key infrastructure.* The project will contribute to the sustainable management of the water sector by expanding water-harvesting infrastructure.
 - *Strategic Goal 3: enhance skills base, technology adoption and foundation for innovation.* The project will contribute to the revision of curricula to align with national development needs and include climate risk management, as well as the development of retention strategies and mechanisms to use skills to reduce the migration of labour skilled in climate science to South Africa and elsewhere.
 - *Strategic Goal 5: reverse environmental degradation and adapt to climate change.* The project will contribute to the following strategic objectives under this goal: i) reverse land degradation and improve watershed management; ii) increase biodiversity conservation and promote sustainable use; iii) improve national resilience to climate change; iv) improve land use, administration and management; v) improve the delivery of environmental services; and vi) improve coordination, enforcement of laws, information and data for environmental planning and increase public knowledge and protection of the environment.

37. The Lesotho **Biodiversity Strategy and Action Plan (BSAP)** aims to protect Lesotho’s biodiversity while supporting the sustainable use of the country’s natural resources. The LDCF project will contribute to the following goals of the BSAP:
- Goal 1: conserve the diversity of landscapes, ecosystems, habitats, populations, species and genes in Lesotho;
 - Goal 2: attain sustainable use of Lesotho’s biological resources and minimise adverse impacts;
 - Goal 4: expand Lesotho’s capacity to conserve and manage biodiversity; and
 - Goal 5: create conditions and incentives for biodiversity conservation and sustainable use.
38. The LDCF-financed project is consistent with the strategic objectives of the LDCF, namely: i) reduce vulnerability to the adverse effects of climate change; ii) increase adaptive capacity to respond to the effects of climate change; and iii) promote transfer and adoption of adaptation technologies. The project aligns with these LDCF objectives in that it will: i) increase adaptive capacity to respond to the effects of climate change; ii) enhance national and sub-national institutional and technical capacity for managing ecosystem resilience; iii) implement on-the-ground interventions that increase the resilience of Basotho communities and their supportive ecosystems to the effects of climate change; iv) enhance communities’ capacity for natural resource management to increase the adaptive capacity of surrounding ecosystems; v) demonstrate cost-effective interventions for rehabilitating ecosystems; vi) improve the quality and availability of water through sustainable land use and watershed management practices; vii) promote food security by decreasing agricultural losses resulting from climate change; and viii) reduce vulnerability to the adverse effects of climate change.
39. The LDCF-financed project is aligned with the GEF Results-Based Management Framework for Adaptation to Climate Change. By strengthening the governance systems to mainstream climate risks in policies across all sectors²⁵, the project will support the upscaling of successful land rehabilitation initiatives. This is in line with Objective CCA-1 – *Reduce vulnerability to the adverse impacts of climate change, including variability, at local, national, regional and global level*. Particularly, the project will contribute to Outcome 1.1 – *mainstreamed adaptation in broader development frameworks at country level and in targeted vulnerable areas*, and Outcome 1.2 – *reduced vulnerability to climate change in ecosystem and land based productive sectors*. By increasing the resilience of communities and enhancing the adaptive capacity of national and sub-national governments to plan, budget and deliver climate change interventions, the project also supports Objective CCA-2 of the LDCF Programme Framework – *Increase adaptive capacity to respond to the impacts of climate change, including variability, at local, national, regional and global level*. Within this Objective, the project is consistent with Outcome 2.1 – *Increased knowledge and understanding of climate variability and change-induced threats at country level and in targeted vulnerable areas*, and Outcome 2.3 – *Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level*.

2.3. Design principles and strategic considerations

Alignment with the LDCF Results-Based Management Framework for Adaptation to Climate Change

National Policy processes

40. The Basotho have enshrined environmental concerns in the National Constitution. This underscores the notion that Lesotho considers the right to a healthy environment as a fundamental human right. The National Environmental Policy (1998) was developed to enable the GoL, the public and the private sector to integrate environmental considerations in their development plans. The objectives of the Policy are to address a broad range of environmental problems. In particular, the Policy identified key national development priorities: i)

²⁵ particularly water and agriculture

social and economic dimensions of the environment; ii) sustainable management of natural resources; and iii) people's participation in environmental planning and management.

41. The National Vision 2020 was projected against the backdrop of the National Environmental Policy. Contextually, the National Vision 2020 signalled the opportunity for all national development plans –including environment, natural resources and agriculture – to articulate and align with the National Environment Policy for sustainable development.
42. The National Forestry Action Plan was launched in 1996 to pursue Lesotho's development objectives, focusing on forestry as a means to alleviate poverty, increase livelihood security and environmental protection, as well as enhance the participation of women in forestry. Consequently, the GoL has committed to promoting the use of trees in support of soil conservation and improvements of catchments areas. A new National Forest Policy was subsequently launched in 2008, which focuses on: i) sustainable forest management; ii) social and economic dimensions of forestry development; and iii) enhancing peoples' participation in forestry development.
43. The Department of Forestry is currently piloting programmes for devolving the management of State Forest Reserves to the Local Government Community Councils under the Forest Policy and Programme. This process is accompanied by training of communities and their councils on various aspects of forest management, business opportunities and cottage industries. This project is in the spirit of decentralisation and empowers local government council in the management of natural resources.
44. In light of the apparent failures of the traditional *Maboella* system within the grazing zones, several strategies of managing communal grazing lands have been implemented in Lesotho. A National Range Resources Management Policy is currently in draft format. The key objectives of this policy are to: i) raise public awareness and promote community and stakeholder participation in rangeland resources management; ii) develop and implement efficient and effective strategies to avert land and vegetation degradation; iii) improve and maintain productivity of rangeland resources at optimum level so as to promote ecosystem balance; iv) rehabilitate and improve the quality of rangeland so as to enhance productivity of livestock and wildlife habitat; v) conserve and increase the availability of native plant species for economic, social and cultural use; vi) protect water resources and improve the water quality and yield; vii) enhance the aesthetic beauty of the landscape to increase opportunities for sustainable eco-tourism; and viii) promote disaster risk reduction.
45. The need to address the problems of land administration in Lesotho precipitated the need for a new Land Act. This provided an opportunity and the means for land administration reform that has four sub-activities: i) policy and legal reform; ii) improvement of rural allocation processes; iii) modernisation and improvement of land administration services; and iv) public outreach and training. The Land Act 2010 was subsequently promulgated and a Land Administration Authority established in 2011. This provides a clear legal framework for land use planning.

On-going country interventions

Wool and Mohair Promotion Project

46. The LDCF-financed project will complement IFAD's Wool and Mohair Promotion Project to address rural poverty. The livelihoods of the smallholder procedures of merino sheep and angora goats are threatened by the degradation of the rangelands and the predicted effects of climate change. The rangelands are overstocked with cattle, horses, donkeys, sheep and goats. This has negatively affected the production performance of sheep and goats, which includes poor reproductive performance and low yields of wool or mohair. In addition, the loss of ground cover on the rangelands leads to increased water runoff which leads to soil erosion. Consequently, Lesotho's limited agricultural land is further reduced. WAMPP identified various issues that need

to be addressed in order to increase overall productivity, increase financial returns from wool and mohair and maximise the project's impact on reducing poverty and increasing employment.

47. WAMPP will focus on introducing climate-smart rangeland management to establish a sustainable system of communal grazing and rangeland management. The project will build climate change resilience of those involved in the rangeland sector through delineating grazing areas, establishing stocking rates and developing grazing plans. In addition, the WAMPP will improve livestock production and management through increasing the quality of wool and mohair produced by smallholder farmers in Lesotho. In doing so, production standards will be raised and returns will be maximised for smallholder producers. The increased returns from wool, mohair and animal sales will also contribute to improving food security within herding communities.

National and Local Benefits

48. The LDCF-financed project will address the problems of land degradation, poverty and vulnerability of the Basotho to climate change in the Foothills, Lowlands and the Lower Senqu River Basin. Community and District Councils will also be assisted to mainstream climate change considerations into local development strategies. These interventions will directly contribute to the Millennium Development Goal (MDG) 7: "ensure environmental sustainability" – Target 7A: "integrate the principle of sustainable development into country policies and programmes and reverse the loss of environmental resources." Because local communities depend on natural resources for their livelihoods, improved environmental management will reduce poverty and increase food security, thereby contributing to attaining MDG 1: "eradicate extreme poverty and hunger" as well as other MDGs that are closely linked to the natural resource base. Additionally, training communities to rehabilitate and manage ecosystems in a climate-smart manner will increase their resilience to climate shocks as well as improve their livelihoods through greater income-generating opportunities. The project will therefore contribute to reducing poverty in the Lithipeng, Khoelenya and Thaba-Mokhele Community Councils of the Mophale's Hoek District.
49. Without the project, local communities and the ecosystems upon which they depend will be increasingly at risk from the impacts of climate change. As a result, progress towards poverty reduction and socio-economic development is likely to be hampered. The project will provide practical tools, technologies and capacities for an adaptation programme that promotes ecosystem management by communities. Households will be trained to implement climate-smart rehabilitation. This will be done through practical demonstrations over 50,000 ha to improve the maintenance and enhancement of ecosystem functioning, integrity and resilience. At least 7,000 households in the Mophale's Hoek District will directly benefit from LDCF resources. These benefits will accrue because improved soil quality and ground cover will lead to increased water infiltration and reduced run off, as well as a decrease in soil erosion. The combined effect of improved soil and vegetation cover will also increase rangeland productivity. Strengthening the livelihood assets on which communities depend – such as rangelands – safeguards household income as households are less prone to – and in a better position to recover from – climate-induced disasters. In addition, the project will upscale the lessons learned to enable replication elsewhere in Lesotho.²⁶
50. The immediate benefits of the project will be that government institutions, NGOs and vulnerable communities have increased adaptive capacity as they: i) are more aware of the linkages between climate resilience and ecosystem management; and ii) acquire the necessary skills to apply adaptive approaches. This increased capacity will also support long-term benefits by promoting adaptation planning beyond the life-span of the project.

Site Selection

²⁶ Scaling up of the project initiatives over 200,000 ha will upscale the benefits to potentially cover 50,000 households throughout the country.

51. The site selection process for the LDCF-financed project was designed to be transparent and inclusive. The overlap of NAPA and the Lesotho Vulnerability Assessment Committee delineations is important to understanding climate change adaptation and livelihood resilience in Lesotho, as the effects of climate change are worse on poor livelihoods. Consequently, overlapping these two delineations is fundamental to the site selection process. The intersection of NAPA and LVAC delineations resulted in the identification of three Community Councils in the Molele's Hoek District: Khoelenya, Lithipeng and Thaba Mokhele (see Annex 10). These Community Councils have been selected because they provide a contiguous stretch of the Lowlands, Foothills and Senqu River Valley. The approach for selecting participating villages was watershed/catchment-based in accordance with on-going criteria utilised by the MFRSC in selecting participating communities in the LRP. GIS databases were used to delineate important catchments using topography and major drainage systems. These were enlarged to highlight the main land uses – for example rangelands, forests and other range resources, water and wetlands.
52. A national village map was overlaid on the catchments – prioritised in each physiographic region within the three Community Councils – to show villages within the major catchments. The GIS technology was also used to estimate the area of the various catchments to ensure that the overall target area exceeded 50,000 ha and that each ecological zone was well represented.
53. The site selection criteria were validated in a meeting of the national consultants, key line ministries and NGOs held during July 2014. The *ad hoc* committee included representatives from MFRSC; MoGYS; and MAFS. The following NGOs were also represented in the *ad hoc* committee: Rural Self-Help Development Association (RSDA); Send-A-Cow; and World Vision. Thereafter, an extensive site selection process was conducted, which included consultations with Community Councils to identify possible project areas. This was followed by further consultation with community structures to confirm areas where the baseline projects were active and where there were resources under threat from climate changes. The following selection criteria were then applied to select the 50 most appropriate villages, covering an area of ~50,000 ha:
 - poverty level (using NAPA and LVAC compound index approach);
 - water supply (focus on domestic use), reliability and sanitation;
 - reliance on rainfed agriculture (crops and livestock): all communities in the region equally reliant on rainfed agriculture;
 - frequency and intensity of intense rain events (predicted and existing);
 - frequency and intensity of drought (within each zone this is uniform);
 - land degradation in the rangelands, croplands and wetlands;
 - local governance structures, especially grazing associations and/or youth associations;
 - willingness/awareness/readiness of local community; and
 - avoidance of duplication.

Gender and youth considerations

Youth considerations.

54. In Lesotho, the youth (people between the ages of 15 and 35) unemployment rate is 34%²⁷. Youth currently make up a large portion of the LRP workforce, and will continue to do so under the LDCF-financed project. To encourage youth participation, the project will adopt a consultative approach using recreational activities as a means to engage the youth in training and awareness-raising initiatives (see section 2.4).

²⁷ http://www.undp.org/content/undp/en/home/ourwork/povertyreduction/projects_and_initiatives/projects_lesotho/ (Accessed on 4 September 2014)

Gender Considerations.

55. The GEF recognises that climate change can affect men and women in different ways, and adaptation efforts tend to be most effective when the gender perspectives are reflected in the climate change risk management solutions²⁸. Gender is a complex issue in Lesotho, as the Bill of Rights of the Constitution prohibits discrimination on the basis of sex, but exempts customary law from the non-discriminatory principle²⁹. Significant attempts have subsequently been made to redress the situation including the enactment of gender responsive laws such as the Capacity of Married Persons Act (2006). Consequently, there is increasing recognition for women as natural resource managers, evident in their greater leadership representation in structured community organisations³⁰. The LDCF-funded project will build on and seek to alleviate gender disparities likely to be imposed by climate change regimes on natural resource based livelihoods.
56. In alignment with the rights-based approach to development put forward by Lesotho's Gender and Development Policy, the LDCF-financed project will identify opportunities to increase youth and female participation in the project's activities and decision-making processes. These will include:
- Inclusion of youth and gender-disaggregated indicators and targets in the result framework of the project, specifically for participation at government and community training workshops, demonstration activities and management committees.
 - Targeting of gender- and youth-differentiated vulnerabilities into project interventions so that the most climate vulnerable groups within a community receive support from the LDCF-financed project.
 - Participation of stakeholders in the MoGYS throughout project planning and implementation to ensure that youth and gender considerations are appropriately mainstreamed into project activities.

Comparative Advantage of UNDP

57. The LDCF-financed project is aligned with UNDP's comparative advantage in capacity building, providing technical and policy support, as well as providing expertise in project design and implementation. Specifically, the project will build upon UNDP's comparative advantage stemming from experience in working with governments and communities in Lesotho as well as globally on: i) establishing and strengthening institutional, policy and legislative mechanisms; ii) building capacity; iii) undertaking risk assessments; iv) mainstreaming climate change adaptation, disaster risk reduction and early warning systems into development planning; and v) harnessing best practices and community-based approaches across different thematic areas for climate change adaptation and disaster risk reduction.
58. UNDP is particularly well positioned to provide support for the design and implementation of demonstration activities at the community level. This is largely owing to the CO's: i) on-the-ground presence, established networks and working relationships in country; and ii) extensive experience in implementing projects in constrained institutional and organisational environments at the local level, while still maintaining quality and responsiveness to local needs. The UNDP has supported Lesotho to reduce poverty and increase food security through sustainable livelihoods from appropriate land management and biodiversity conservation³¹. In supporting Lesotho to achieve MDGs, UNDP has: i) implemented integrated watershed management plans; ii) supported Lesotho in implementing international conventions related to climate change and desertification; iii) provided technical and financial assistance to improve the Poverty Reduction Strategy; iv) increased capacity of government for land and environmental management; urban development and settlement planning; v)

²⁸ GEF programming strategy on adaptation to climate change for the Least Developed Countries Fund and the Special Climate Change Fund (2014)

²⁹ African Development Bank (2005) Kingdom of Lesotho: Multi-sector country Gender Profile

³⁰ Shackelton, S and Campbell, B (2000) Empowering Communities to Manage Natural Resources: Case Studies from Southern Africa

³¹ Lesotho Country Action Programme 2005 -2007.

promoted sustainable land management to combat desertification and degradation³², for example through the UNDP's Sustainable Land Management Project; vi) been instrumental in implementing "Youth and Environment for Development" programmes; and vi) strengthened the role of communities and of women in promoting sustainable development.

59. The project will benefit from the UNDP's considerable experience in implementing a wide range of climate change adaptation projects – including those focusing on ecosystems as well as the agriculture and water sectors – in LDCs. For example, UNDP has already assisted the GoL to design and implement several adaptation programmes, including the Africa Adaptation Programme (AAP) and other GEF projects. Through the AAP, UNDP has supported the GoL to formulate a Climate Change Policy and build national level institutional capacities for tackling climate change and development.
60. UNDP also has a successful track record of facilitating the implementation of the GEF Small Grants Programme (SGP) in Lesotho since 2007. This is a fully fledged Country Program with a portfolio of 16 projects that are being implemented by 16 local NGOs and/or Community Based Organisations (CBOs). The total grant amount is US\$ 500,000. UNDP is also supporting various green jobs/cash for work initiatives in Lesotho, including: i) designing, funding and piloting a community-based project on risk management; and ii) implementing the Strengthening Rural Livelihoods Severely Affected by Climate Change-Induced Drought, project, which seeks to mainstream management for climate change into council plans. As an implementing agent, UNDP thus has the experience and capacity to support the 'cash for work' initiatives of the LRP.
61. The UNDP CO is also supported by Regional Technical Advisors at UNDP offices in Bratislava and Addis Ababa, as well as by policy, adaptation, economics and climate modelling experts in New York, Cape Town and Bangkok. A network of global Senior Technical Advisors provide additional technical oversight and leadership helping to ensure that programs on the ground achieve maximum policy impact. There are also other LDCF, SCCF and Adaptation Fund-financed projects within the region with similar objectives currently supported by UNDP. Consequently, there is substantial in-house technical expertise that can support the GoL with project implementation. UNDP is also uniquely positioned to exercise Results-Based Management and leverage its extensive knowledge of the similarities and differences between countries at different stages of development, and to translate that into evidence-based recommendations for effective, adaptable development solutions.

2.4 Project Objective, Outcomes and Outputs/activities

62. The project objective is "to mainstream climate risk considerations into the Land Rehabilitation Programme of Lesotho for improved ecosystem resilience and reduced vulnerability of livelihoods to climate shocks." The project will support the integration of climate change adaptation into national and sub-national land use planning and decision-making. By doing so, the project will reduce the vulnerability of local communities in the Foothills, Lowlands and the Lower Senqu River Basin to climate change through the implementation of climate-smart ecosystem rehabilitation and management measures.
63. The LDCF project will address the barriers to mainstreaming climate risk considerations into local development plans and policies by creating an enabling environment that will guide interventions on climate change adaptation. Furthermore, the adaptation interventions in this project will focus on implementing Priority 2 of Lesotho's NAPA, which focuses on promoting sustainable crop based livelihood systems in the Foothills, Lowlands and the Senqu River Valley. The project activities will include capacity-building of youth, women and CBOs to enable them to prepare more effectively for the risks and natural hazards associated with climate change.

³² Lesotho Country Action Programmes (2005-2007) (2008-2012).

64. The GoL has consequently requested LDCF funding to increase ecosystem resilience to climate change in the Foothills, Lowlands and the Lower Senqu River Valley by delivering five integrated and complementary project Outcomes. Outcome 1 will increase technical capacity and management of climate risks.) Outcome 2 will increase the technical capacity of technical staff and communities regarding climate change adaptation and appropriate interventions. Outcome 3 will improve natural resource management through the implementation of climate-smart ecosystem rehabilitation and management measures. Outcome 4 will review national strategies for rangeland and wetland management strategies and make recommendations to include climate risk considerations. Outcome 5 will integrate the provisions of the NSDP and climate risk considerations into sub-national development plans. Climate-smart ecosystem rehabilitation and management measures that reduce climate change vulnerabilities will be identified and integrated into the LRP. These will inform the upscaling of adaptation interventions throughout Lesotho.

COMPONENT 1. KNOWLEDGE, SKILLS AND INSTITUTIONAL CAPACITY TO SUPPORT LAND REHABILITATION PROGRAMME TO FACTOR IN ADDITIONAL RISKS FROM CLIMATE CHANGE, INCREASE RESILIENCE AND REDUCE VULNERABILITY

Outcome 1: Increased technical capacity of the Ministry of Forestry and Land Reclamation and relevant departments to apply up-to-date climate science for the management of evolving risks and uncertainty linked to climate change.

Co-financing amounts for Outcome 1: US\$ 4,000,000

LDCF project grant requested: US\$ 1,000,000

Without LDCF intervention (baseline):

GIS Resources for climate-smart ecosystem rehabilitation

65. Lesotho has several independent GIS units within the MFRSC, MAFS, Department of Water Affairs within MEMWA, Department of Lands and Survey (DoLS) within MoLGCAMoLGCA, BOS, and Department of Geography and Environmental Sciences of the National University of Lesotho. The national GIS capability is, however, in its infancy and is characterised by a lack of coordination and linkages between the government ministries with relevant expertise. Furthermore, the GIS units within each ministry are relatively small and generally have a sector-specific focus. For example, MAFS focuses on GIS information related narrowly to land under crops whilst the MFRSC focuses on catchment areas. As a result, the geospatial data and information on Lesotho's ecosystems are fragmented. This is because there is no mechanism to analyse and collate these fragmented geospatial datasets nor to disseminate harmonised geospatial data for use by GIS practitioners. Consequently, ongoing initiatives relating to land management, water management, ecosystem rehabilitation and climate change adaptation are implemented without the benefit of appropriately packaged geospatial data. For example, land rehabilitation works are implemented without an understanding of the localised impacts of climate variability on important ecosystem characteristics such as productivity of plants and susceptibility to erosion. In addition, there is limited capacity within initiatives such as the LRP to apply GIS modelling techniques that incorporates local information related to climate change, land degradation and the generation of income streams from natural resources.

Capacity development for climate risk management

66. In general, institutional capacity for climate risk management is weak in Lesotho. This is a result of limited resources and technical skills within line ministries – a point highlighted in Lesotho's NAPA as a challenge to implementing climate change adaptation programmes. It is widely recognised that the MFRSC and other relevant government departments and institutions – including the MAFS, DWA and BOS – require training and

capacity building to support the implementation of climate change adaptation interventions. For example, the MFRSC's district offices have insufficient resources – particularly in terms of technically skilled staff and equipment – to carry out their present workload in a timely and efficient manner. The capacity of MAFS' extension offices to supervise climate change projects is also constrained by the limited number of staff within the district's GIS units who have had formal training in GIS. In addition, the collection of data by extension offices is challenged by the inadequate allocation of budget for field work.

67. The end result of the gaps in capacity within various line ministries is that climate risks and climate change-related information are not included within business-as-usual development planning at local and national levels. Policy- and decision-makers have limited information regarding the costs of environmental degradation, particularly as they relate to risks emanating from climate change. Consequently, the impacts of current land use practices, and the implications of ongoing land degradation for local livelihoods under climate change scenarios, are not properly understood by government officials. Technical staff are unable to apply up-to-date, localised scientific information to support implementation of on-the-ground interventions. Activities are therefore not focused on forward-looking risk reduction, preparedness and adaptation. Currently, on-the-ground interventions are not designed and implemented to manage evolving risks and uncertainty linked to climate change. Technical staff are in need of capacity building and training to assist communities, planners and decision makers to understand the implications of their immediate planning decisions and land use practices. In addition, there is a low level of understanding within local communities regarding the predicted impacts of climate change in Lesotho and potential adaptation options to reduce the negative impacts of climate change. In consequence, without interventions, the livelihoods and wellbeing of local communities in Lesotho will remain vulnerable to the current and future impacts of climate change.

With LDCF Intervention (adaptation alternative):

68. The LDCF-financed project will strengthen capacities for the generation and timely use of information on ecosystem-specific risks related to climate change. In addition, appropriate methods and approaches will be developed for the LRP to guide ecosystem rehabilitation to improve productivity and resilience under climate change scenarios. The MFRSC will be provided with information on climate risks that are currently reducing the effectiveness of the baseline project described in Section 1.1. By using cutting edge knowledge, skills and technologies, the project will identify effective climate-smart ecosystem rehabilitation and management practices that will reduce the vulnerability of local communities and their livelihoods to the impacts of climate change.
69. Under outcome 1, the LDCF-financed project will: i) improve the GIS capacity of relevant line ministries and institutions, as well as increase the quality of the available GIS and climate science data; ii) study the socio-economic benefits of climate-smart ecosystem rehabilitation and management measures and use the results of these assessments in the selection of adaptation interventions; iii) identify climate-smart ecosystem rehabilitation and management interventions for the Lithipeng, Khoelenya and Thaba-Mokhele Community Councils; and iv) generate and disseminate technical guidelines for climate change adaptation. To support the design and implementation of effective climate change adaptation measures in the short- and long-term, the project will address information and knowledge gaps relating to the following questions *inter alia*: i) which landscapes/ecosystems are critical for what aspect of vulnerability; ii) how climate change is likely to impact the ability of these critical ecosystems to continue providing ecosystem services that reduce vulnerability and promote resilience; iii) how management choices affect the interactions between ecosystem health and resilience of livelihoods; iv) how degradation of natural ecosystems aggravates vulnerability of production systems and livelihoods; and v) how vulnerability and associated impacts are likely to evolve under the projected effects of climate change.
70. This outcome will strengthen the GIS skills and decision-making capacity of institutions to promote the integration of climate risk considerations into the selection of adaptation interventions. Consequently, the

project will contribute to reducing the climate change vulnerability of local communities in the Lowlands, Foothills and the Lower Senqu River Basin.

Output 1.1: A geo-based climatic agro-ecological and hydrological information system to support better planning for climate change adaptation under the Land Rehabilitation Programme.

71. This output will increase the availability of information and knowledge to support the integration of climate risks into planning and decision-making. Furthermore, up-to-date climate change predictions will be included within ongoing planning in the Lithipeng, Khoelenya and Thaba-Mokhele Community Councils to reduce the vulnerability of local communities. The LDCF-financed project will strengthen the role of existing GIS units to support better land use planning with the benefit of a geo-based climatic, agro-ecological and hydrological information system. The information system will combine multiple existing geospatial datasets – particularly those relating to ecosystems, natural resources, land use planning and climate change vulnerability – to support the identification of critical areas for agro-ecological and hydrological services and their role in livelihoods. The improved availability of geospatial information will form the basis for future monitoring of the impacts of climate variability and climate change, particularly with respect to the impacts of climate change on ecosystems and resilience of livelihoods. The information system will be used as a national hub for all research and data collection on geo-based, climatic, agro-ecological and hydrological information including land use systems and changes in Lesotho and will support other ongoing and future initiatives.
72. The cross-sectoral nature of the geo-based information system requires that access be made available to the MFRSC, MAFS, MEMWA and other institutions involved in climate change adaptation. The BOS is the institution which is mandated to collate and host a national database including environmental data and is, therefore, considered to be the most appropriate institution to host the central geo-based information system. At present, BOS is developing an Environmental and Energy Statistics Unit (EESU). Therefore, the LDCF-financed project will capacitate the EESU to host the information system in close collaboration with the technical ministerial departmental and institutional GIS units including the NUL. Memoranda of understanding will be established between the EESU and relevant institutions to support collaboration and sharing of data and expertise. In addition, an inter-ministerial committee will be established to assist in the design of the information system and its linkages with the existing GIS units. The committee will also evaluate the status of the existing GIS units and advise accordingly with respect to capacity building needs. Furthermore, the committee will advise on the hardware and software requirements for the EESU as well as the existing GIS units. Expert input will be secured to develop training materials and programmes for GIS specialists.
73. Under Activity 1.1.6, the project will develop a strategy to build technical capacity and GIS skills within the EESU, MFRSC, MAFS, MEMWA GIS units. The project will collaborate with NUL to develop the skills required to interpret multiple layers of information, run simulation models/assessments and undertake climate risk analysis to support MFRSC and other relevant line ministries to incorporate climate change adaptation into land use planning and decision-making.
74. The project will address the challenge of human resource constraints at the level of technical staff within individual GIS units through a combination of strategies that will include: i) better linkages to other capacitated entities; ii) specialised training of climate scientists and GIS specialists; and iii) on-the-job training of the current staff. These complementary measures will support the MFRSC to undertake comprehensive analyses of geospatial data. As a result, MFRSC technical staff will benefit from enhanced capacity to identify and prioritise appropriate activities related to improved management of natural resources and ecosystems in addition to the design of appropriate climate-smart ecosystem rehabilitation and management practices.
75. Indicative activities under Output 1.1 include:
 - 1.1.1 Collate existing data from existing GIS units as well as remote-sensing imagery to develop a GIS-based database of climatic, geographical, geological, hydrological, soils, agricultural and

- land use characteristics of the Foothills, Lowlands and the Lower Senqu River Basin. Data should include biophysical and meteorological data.
- 1.1.2 Develop models that incorporate climate projections and land use changes to identify priority locations for ecosystem rehabilitation.
 - 1.1.3 Establish an inter-ministerial committee which will be responsible for providing technical guidance to the EESU.
 - 1.1.4 Memoranda of understanding are to be prepared and entered into between the various GIS units regarding data collection and information sharing.
 - 1.1.5 Undertake capacity assessments to identify gaps in staffing and skills of the GIS units.
 - 1.1.6 Develop a strategy to build technical capacity of GIS units to enable comprehensive analysis of climate data through both on-the job training and engaging local researchers.
 - 1.1.7 Train the various GIS units, relevant line ministries and departments as well as institutions on climate science, the application of GIS and integrated vulnerability mapping.

Output 1.2: A socio-economics unit in the Ministry of Forestry and Land Reclamation

76. This output will allow for the integration of social capital and livelihood considerations into the design, implementation and M&E aspects of climate change adaptation interventions. The MFRSC's planning unit is currently responsible for financial analysis and forecasting, cost-benefit analysis and M&E of the activities of the LRP. This planning unit will provide a foundation for the pilot socio-economic unit, which will undertake socio-economic and baseline analysis of community livelihoods in addition to the planning unit's ongoing activities.³³ Furthermore, the proposed socio-economic unit will undertake monitoring and evaluation of the changes in social capital structures and livelihoods as a result of the LDCF-financed project's activities.
77. The results of the baseline and socio-economic analyses will be used in conjunction with the assessment undertaken in Output 1.3 to identify appropriate strategies and techniques for ecosystem rehabilitation and management. In addition, the analyses will inform the development of proposed revisions to the rangelands and wetlands management strategies. All research and analysis on the potential benefits and effects of ecosystem rehabilitation and management will be made available to policymakers through the Lesotho Sustainable Land Management Platform. The results of the analyses undertaken by the project will be used to inform the selection, implementation and design of further adaptation interventions. The pilot socio-economic unit has the potential to be integrated into the MFRSC's planning unit following project termination. Should the MFRSC decide to make the socio-economic unit a permanent feature, this would enable the integration of socio-economic considerations into future climate-smart land rehabilitation and climate change adaptation projects.
78. Indicative activities under Output 1.2 include:
 - 1.2.1 Undertake a capacity assessment to identify gaps in staffing and skills within the MFRSC's planning unit and targeted districts.
 - 1.2.2 Develop and implement a capacity development programme to bridge the capacity gaps identified in the above assessment.
 - 1.2.3 Prepare technical protocols to support the integration of social capital and livelihoods needs into the LRP.
 - 1.2.4 Undertake a cost benefit analysis of recommended mitigation measures identified in Activity 1.3.5.

Output 1.3: Assessment of climate-driven vulnerability in the Lithipeng, Khoelenya and Thaba-Mokhele Community Councils and cost-benefit analysis of specific adaptation interventions.

³³ The Socio-economics unit will collaborate with representatives from the Ministry of Development Planning.

79. The LDCF-financed project will support the EESU and MFRSC – in collaboration with existing GIS units – to produce an integrated map of climate-related hazards, vulnerabilities and climate-sensitive natural resources. Information from existing geographical, geological and land use maps will be combined with remote sensing imagery using GIS-based technology. This output will rely upon the information system developed under Output 1.1.
80. Under this output, a strategic environmental assessment (SEA) will be undertaken to identify threats to ecosystem resilience and the generation of associated ecosystem goods and services. The SEA will include *inter alia*: i) mapping and quantifying of benefits generated by ecosystems at the landscape level; ii) assessment of localised distribution of ecosystem benefits; and iii) areas of overlap between ecosystem services. In addition, the SEA will provide information on the implications of land use change for the capacity of ecosystems to buffer communities from the adverse effects of climate change.
81. Under Activity 1.3.1, the information and data generated by the information system established under Output 1.1 will be used to: i) identify specific locations for ecosystem rehabilitation and management in Activity 1.3.2; ii) support research in Activity 3.2.1; and iii) support the proposed revisions of policies and strategies to include climate risk considerations in Activity 4.1.1 and Activity 5.2.1. The information gathered will be collated in detailed maps that integrate data on climate-related hazards and the climate change vulnerability of local ecosystems and communities at a sub-district level for the pilot Community Councils. The information gathered under this output will be used to identify appropriate interventions to be implemented at each selected site based on local context.
82. Indicative activities under Output 1.3 include:
- 1.3.1 Undertake a strategic environmental assessment using the GIS-based data generated under Output 1.1 with the cost-benefit analysis generated under Output 1.2.
 - 1.3.2 Generate maps identifying risk areas posing a threat to ecosystem resilience and livelihoods of local communities in the selected Community Councils.
 - 1.3.3 Undertake integrated map-based assessment of climate-related hazards, vulnerabilities and climate sensitive natural resources based upon the maps generated under Activity 1.3.2.
 - 1.3.4 Develop recommendations for mitigating threats to ecosystem resilience for inclusion into the LRP based upon the assessment undertaken in 1.3.3.
 - 1.3.5 Propose ecosystem rehabilitation and management measures for implementation in the Lithipeng, Khoelenya and Thaba-Mokhele Community Councils. Social capital and livelihoods needs should be addressed in the selection, implementation and maintenance of ecosystem rehabilitation and management practices using the protocols established in Activity 1.2.3.

Output 1.4: Technical guidelines for climate change adaptation interventions

83. The LDCF-financed project builds on lessons learned from other initiatives that have experience in climate change adaptation, agro-forestry and conservation agriculture in Lesotho. Based upon these lessons – and in conjunction with the integrated map-based assessments generated under Output 1.3 – the project will develop technical guidelines for the design and implementation of appropriate climate change adaptation interventions.
84. The design of the climate-smart ecosystem rehabilitation and management measures will include considerations of simplicity, sustainability and ease of maintenance. Therefore, wherever possible, the project will promote techniques that are user-friendly and easy to maintain in favour of complex and expensive systems that require technical knowledge for maintenance and repairs.

85. The list of potential adaptation interventions to be promoted by the project will be developed with explicit consideration of local socio-economic and environmental context. Criteria that will be considered in the design of the adaptation interventions will also include *inter alia*: i) demonstrable effects in reducing risk of climate-induced disasters; ii) clear, viable and sustainable benefits to youth, women and other vulnerable groups; iii) cost-effectiveness and iv) minimal maintenance requirements.
86. Indicative activities under Output 1.4 include:
- 1.4.1 Develop technical guidelines for the implementation of selected climate change adaptation interventions in each of the agro-ecological zones – the Foothills, Lowlands and the Lower Senqu River Basin.
 - 1.4.2 Disseminate the technical guidelines to relevant line ministries, departments, institutions and other stakeholders that will be involved in the implementation of rehabilitation measures.
 - 1.4.3 Review and adapt training programmes – where necessary – to take into account the technical guidelines developed under Activity 1.4.1.

Outcome 2: Communities empowered with skills, knowledge, partnerships and institutions for managing natural resources to reduce vulnerability to climate change and increase resilience of natural and social capital (over 7,000 households with potential for upscaling to cover over 20,000).

Co-financing amounts for Outcome 2: US\$ 2,000,000

LDCF project grant requested: US\$ 642,000

Without LDCF Intervention (baseline):

87. Legal instruments – including customary laws – are the oldest instruments used to govern the management and rights of access to environmental resources. In Lesotho, the overarching legislation that guides environmental management is the National Environment Act (2008). In addition, there are multiple pieces of parallel legislation and sector-specific strategies, including *inter alia* the Draft Range Management Policy (2013), Soil and Water Conservation Strategy (1998) and the National Water Resources Management Plan (1999). Furthermore, Lesotho is a signatory to multiple international conventions related to management of natural resources. However, Lesotho is constrained in its ability to translate global conventions and agreements into national environmental management policies that can be effectively implemented. The problem is not the lack of policies or knowledge, but rather limited technical, financial and human resources. Consequently, existing laws are not being effectively applied or enforced. This has led to widespread land use practices that threaten natural resources. These practices include deforestation, overgrazing, unsustainable cropping systems and the poor use of soil and water conservation measures.
88. In the context of governance of natural resources, the Local Government Act (1997) provides for the decentralisation of natural resource use and management from national ministries to Community Councils. The process of decentralisation of governance of natural resources is further detailed in the Lesotho Local Development Programme Concept Paper. However, the existing legislation does not clearly indicate the implications of the decentralised functions in terms of the roles of central and local government in facilitating the process of decentralisation of natural resource management. The laws only state that local authorities will control natural resources and environmental protection activities without differentiating between different types of natural resources. As a result, confusion and duplication of efforts are reportedly relatively common. As a result of multiple logistic and capacity challenges, MFRSC's extension staff have a limited capacity to transfer climate change awareness and potential adaptation options to local communities.

89. The process of capacitating Community Councils to take leadership roles in the management of natural resources and planning of ecosystem rehabilitation activities is slow and challenged by capacity and logistic constraints. Furthermore, there is no explicit strategy or policy that provides guidance to support Community Councils to initiate and develop local development plans that respond to local climate change adaptation needs. Significant development of capacity building and measures to improve coordination between stakeholders – including local government representatives, technical and extension staff within line ministries, NGOs and local community members – is required to support the implementation of Lesotho’s environmental and climate change policies.
90. The GoL has made significant investments in addressing land degradation, in participation with local authorities and community members, to encourage smallholder farmers to engage in rehabilitation activities. However, information related to climate change and the expected consequences for ecosystems is not included in the training provided to local communities. At present, there is little support for raising awareness of climate change amongst local communities. Information on climate change is also conceptually inaccessible as it has yet to be translated into a format that local communities can understand. As a result, the success and the long-term sustainability of climate change adaptation programmes – and indeed of land rehabilitation related to such programmes – is at risk of being undermined by the constraints that hinder the adoption of decentralised approaches to climate-smart ecosystem rehabilitation.

With LDCF Intervention (adaptation alternative):

91. The LDCF-financed project will advance knowledge on the climate resilience of livelihoods. This will enable policy-makers and other stakeholders to have a comprehensive understanding of the factors and processes influencing vulnerability and resilience at the community and household levels. LDCF funds will enable the GoL to strengthen institutional capacities to secure benefits emerging from the ecosystem under the effects of climate change. Consequently, community members and government officials will receive targeted training on their specific roles in the mainstreaming and implementation of climate change adaptation.
92. Capacity development will take place through providing districts and technical staff with current skills, tools and technologies to implement an updated extension service package. In addition, the operational capacity of the extension services will be boosted to enable communities to mainstream climate risk considerations into the implementation of baseline projects. Effective advisory services and deeper involvement of extension staff in training and field activities will foster wider acceptance of climate-smart ecosystem rehabilitation and management practices. Technical staff will also engage with the local communities in the design and implementation of climate-smart ecosystem rehabilitation and management practices. In combination with awareness raising campaigns, these actions will ensure the buy-in of local communities and the sustainability of the adaptation interventions beyond the duration of the project.
93. The project will establish the framework for a regulatory body at the community level, which will be responsible for overseeing environmental planning at a landscape level. Furthermore, community-led committees will be established to draft local bylaws regulating natural resources. Rather than seeking to offset damage already done to the environment, the bylaws will focus on supporting the sustainable use of natural resources.

Output 2.1: Training of technical staff of the District Technical Teams, Community Council staff and land managers on restoring and managing ecosystems and agro-ecological landscapes in a climate-smart manner.

94. Output 2.1 will provide knowledge and training for technical staff and land managers to undertake climate change risk assessments. Training will be provided at all levels within the current institutional framework, but will also include other stakeholders at the national, district and community levels. Participants will include elected officials and resource users from the three selected Community Councils: Lithipeng; Khoelenya and

Thaba-Mokhele. A target of 50% youth participation is set for the training sessions to support meaningful engagement of the youth.

95. Existing training protocols and programmes within MFRSC, MGYSR and other line ministries will be updated based upon a comprehensive needs assessment which will identify gaps in staffing skills. Training will be informed by international best practices as well as technical inputs generated by other past and ongoing initiatives related to climate change adaptation. The design of training and capacity-building activities will emphasise the inclusion of mid- and long-term climate change projections in the design, implementation and maintenance of climate-smart interventions. Various innovative approaches for the design and implementation of both traditional and modern conservation agriculture, agroforestry and water harvesting technologies will also be included in the training. The project will aid extension services by assisting farmers to adopt these new and additional climate-smart technologies and methodologies.
96. In addition to building the technical expertise of LRP, the project will design a skills development programme for land managers. Specifically, the skills development programme will focus on enhancing the capacity of land managers to: i) assess the economic viability of community-based climate change adaptation interventions; ii) carry out community-based vulnerability assessments for climate change adaptation; and iii) develop community-driven climate-smart ecosystem rehabilitation and management practices. The enhanced capacity of land managers and LRP technical staff will support the implementation of climate-smart ecosystem rehabilitation and management practices in accordance with the revised LRP.
97. Indicative activities under this Output include:
 - 2.1.1 Assess MFRSC's and MEMWA's capacity for developing and presenting training on climate change adaptation. This should include in-house capacity and outsourcing to service providers.
 - 2.1.2 Develop an organisational strategy to strengthen MEMWA's and MFRSC's capacity for delivering training on climate change adaptation. This strategy will outline the respective roles of MFRSC and other agencies in developing and delivering the training.
 - 2.1.3 Undertake a detailed capacity needs assessment of the LRP to identify gaps in staffing and skills of the MFRSC.
 - 2.1.4 Conduct a comprehensive needs assessment for climate change adaptation training. This will be initiated and coordinated by MEMWA and MFRSC following its standard procedures. The needs assessment will include a stock-taking exercise to identify existing training materials on climate change adaptation in Lesotho as well as an assessment of the types of training required to build district and sub-district capacities.
 - 2.1.5 Update and extend the portfolio of training modules to include aspects that are not covered within the current portfolio. The training programme will be tailored to the local context with respect to: i) types of climate-induced disasters; ii) prevailing socio-economic conditions; iii) environmental considerations; and iv) the needs of women and the youth, as well as other vulnerable groups.
 - 2.1.6 Develop and disseminate easily comprehensible, user-friendly literature on climate change adaptation and monitoring for NGOs, CBOs and land managers. Knowledge products will provide guidance on how to: i) assess the economic viability of community-based climate change adaptation interventions; ii) carry out community-based vulnerability assessments for climate change adaptation; and iii) develop community-driven climate-smart ecosystem rehabilitation and management practices.

Output 2.2: Training of engineering, planning and monitoring sections of the Ministry of Forestry and Land Reclamation on climate science.

98. A skills development plan for the engineering, planning and monitoring section of the MFRSC will be formulated. The LDCF-financed project will provide the MFRSC staff with training on climate science and the

benefits of incorporating climate risk considerations into the design, implementation and maintenance of hard infrastructure, land use planning and decision-making.

99. Indicative activities under this output include:

2.2.1 Review current awareness on climate science in the MFRSC and the effect of current awareness raising initiatives. Use the results as a basis for developing a training programme under Activity 2.2.2.

2.2.2 Formulate and implement a training programme for various sections of the MFRSC focused upon climate science and the benefits of integrating climate risk considerations into the design of hard infrastructure, land use planning and decision-making, including the socio-economic benefits thereof.

Output 2.3: Local community members (farmers, pastoralists and rural households) from the Lithipeng, Khoelenya and Thaba-Mokhele Community Councils trained on the construction and maintenance of climate-smart ecosystem rehabilitation and management interventions

100. Under this output, a skills development plan will be established for the local communities. The skills development plan will include training on the following topics: i) the recognition of land management practices that decrease the vulnerability of local communities to climate shocks and change; ii) the adoption and maintenance of climate-smart land rehabilitation techniques that increase resilience of the individual farms, community projects and landscapes to climate shocks, while improving the productivity of the land; iii) maintaining soil and water conservation technologies and infrastructure on individual farms and the landscapes; and iv) monitoring trends in weather variation and using the information in decision-making. The training will also incorporate indigenous knowledge that has been traditionally used to deal with climate variability and change.

101. Back up support and training will be provided to the selected local communities in the Khoelenya, Lithipeng and Thaba-Mokhele Community Councils. Extension officers and NGOs will participate actively in facilitating community-based work as part of the on-going learning-by-doing approach throughout the duration of the LDCF-financed project. Such training will include adaptive management practices that will prepare communities to assume responsibility for management of the project's interventions beyond the implementation period. To support the ongoing management of project interventions by community-based structures, the project will also develop a strategy to gradually phase out the involvement of MFRSC and other government departments from the demonstration sites.

102. The training and capacity-building activities of this output will be complemented by activities focused on raising awareness of the benefits of climate-smart ecosystem rehabilitation and management using locally appropriate media. Awareness-raising materials will be based on data and information generated at pilot interventions and demonstration sites under Output 3.1 and Output 3.2. This information will be analysed and collated for dissemination to District Councils, Community Councils, schools, media outlets and the public. Messages will be tailored towards the intervention sites where they are disseminated. For example, certain areas will focus on the benefits of rooftop harvesting, whereas other areas will include lessons to prevent soil erosion. Local community discussion forums will be hosted to share lessons learned on water harvesting, conservation agriculture, agro-forestry and other ecosystem management interventions successes and failures. These lessons will also be collated to create material for use in other discussion forums.

103. Indicative activities under this output include:

- 2.3.1 Review current awareness in local communities and the effect of such initiatives. Use the results as a basis for developing a training programme under Activity 2.3.2.
- 2.3.2 Formulate and implement a training programme for local communities incorporating: i) indigenous knowledge; ii) climate-smart land rehabilitation techniques that increase resilience of the individual households as well as landscapes to the negative effects of climate change while improving productivity of the land; and iii) maintaining soil and water conservation technologies and infrastructure on individual/ organised group farms and landscapes.
- 2.3.3 Train NGOs and/or CBOs to monitor and advise farmers, pastoralists and rural households on appropriate climate change adaptation interventions.
- 2.3.4 Host local community discussion forums to share lessons learned on climate change adaptation experiences.
- 2.3.5 Use local media – including radio – to target specific audiences with appropriate ecosystem management information.

Output 2.4: Inter-council land rehabilitation committees operational in the Lithipeng, Khoelenya and Thaba-Mokhele Community Councils.

104. The Local Government Act (1997) makes provision for the establishment of inter-council committees. At present, there are no standing inter-council committees. The LDCF-financed project will facilitate the establishment of an inter-council committee on land rehabilitation. This committee will fall within the auspices of the standing Land Committees of the Community Councils. The establishment of such committee will be aligned with the existing structures such that an elected representative from each of the Community Councils' Land committees will sit on the committee. The chairperson of the committee will rotate annually as shall be agreed upon by the members. The Community Council Secretaries shall be *ex-officio* members and may also rotate annually to service the inter-council land rehabilitation committee. Akin to user groups or associations, inter-council land rehabilitation committees will adopt defined and agreed resource management roles and functions on behalf of their respective Community Councils. These roles will include the development and implementation of community council bylaws on natural resource use and management, as well as developing working agreements between neighbouring Chiefs and user groups.
105. The inter-council land rehabilitation committees will facilitate the management of landscapes and ecosystems in their entirety. The rehabilitation and management interventions under Output 3.1 will be implemented across a landscape, rather than be limited to a community council's jurisdictional area. Adjacent landscapes will therefore be taken into consideration when determining appropriate rehabilitation and management measures. Consequently, activities on site will not be determined in isolation of the surrounding landscape.
106. These committees will also be responsible for implementing and enforcing community council bylaws through a policy advocacy programme. The programme would provide aggrieved communities with an opportunity to raise environmental concerns – particularly where activities have caused environmental degradation – which have resulted in harm to land users within the community. By establishing an inter-council committee, land users would be able to lay complaints against other land users who have undertaken activities that result in loss or harm to the individual or community. This would enable the management of a landscape and an ecosystem in its entirety.
107. Indicative activities under Output 2.4 include:
- 2.4.1 Develop an organisational strategy for the establishment of inter-council land rehabilitation committees.
 - 2.4.2 Propose recommendations for community bylaws for the management of natural resources.
 - 2.4.3 Develop practical guidelines for monitoring cross-landscape/ecosystem risk management.
 - 2.4.4 Facilitate the establishment of a policy advocacy programme for dealing with grievances regarding environmental damage.

Output 2.5: A strategy for maintaining technical capacity in the Ministry of Forestry and Land Reclamation and relevant departments.

108. There is a general tendency in Lesotho for trained professionals to seek opportunities outside the public sector or the country. This contributes to a negative cycle of capacity constraints and high rates of staff turnover in government departments. The LDCF-financed project will strengthen the capacity of government departments through training and the addition of supplemental staff, if necessary.
109. A capacity development strategy will be formulated that will include measures to increase the sustainability of LDCF investments in technical staff, skills and procured equipment. Implementation of the strategy will support the retention of adequately skilled technicians and climate scientists. The LDCF-financed project will also establish links with existing platforms for knowledge management on climate change science and development to support ongoing capacity development and the exchange of techniques, methodologies and information on climate change adaptation.
110. Indicative activities under this Output include:
- 2.5.1 Develop and implement a capacity development strategy.
 - 2.5.2 Develop and disseminate easily comprehensible, user-friendly literature on climate change adaptation and monitoring for NGOs, CBOs and village leaders.

Outcome 3: Over 50,000 ha of land across the Foothills, Lowlands and the Lower Senqu River Basin rehabilitated through operationalization of the climate-smart Land Rehabilitation Programme.

Co-financing amounts for Outcome 3: US\$ 15,000,000

LDCF project grant requested: US\$ 5,716,358

Without LDCF Intervention (baseline):

111. Agriculture is the main source of income for many Basotho despite only 9% of land in Lesotho being arable. Because Lesotho's ecosystems are fragile and characterised by widescale degradation, agricultural productivity is increasingly being carried out in marginal areas. As a result, indigenous vegetation cover is being reduced and steeper slopes are increasingly being cleared. The Basotho have adopted several techniques to combat erosion, such as construction of terraces, water diversion furrows and contour ploughing. However, these techniques are inconsistently applied and poorly maintained. Furthermore, these conventional techniques are merely stopgaps that cannot avert long-term erosion without substantial changes in water catchment and land management such as conservation agriculture³⁴ and crop rotation.
112. Multiple ongoing initiatives with a focus on land rehabilitation are being implemented. However, these initiatives do not yet take the predicted effects of climate change into account in their approaches. The combined impacts of unsustainable land management and climate change impacts will undermine the effectiveness of the existing initiatives. In particular, rural communities who depend on natural resources for their livelihoods will be affected detrimentally. A new approach – based on climate risk and resilience – is required to enable these initiatives to provide increased protection of assets and livelihoods from the negative effects of climate change.
113. Another factor that reduces the effectiveness of ongoing initiatives is a lack of a system for collecting and collating relevant data and information from the various sectors and their lead ministries. Results-based

³⁴ which incorporates aspects of reduced tillage, crop rotation and crop residue cover or adaptation strategies based on crop substitution and /or alternative crops and associated value chain enterprise developments.

management principles – working with baseline indicators, tracking of output, and documentation of concrete results – are not yet mainstreamed into operational practice. The benefits of adaptation interventions are therefore not analysed and do not contribute to the knowledge base.

With LDCF Intervention (adaptation alternative):

114. To address the anticipated effects of climate change, the LDCF-financed project will promote land use practices that reduce the vulnerability of local communities to the negative effects of climate change. Such land use practices will include a range of climate-smart agriculture, agro-forestry, water harvesting and other ecosystem rehabilitation techniques in the Foothills, Southern Lowlands and the Lower Senqu River Basin.
115. Local communities in the Community Councils of Lithipeng, Khoelenya and Thaba-Mokhele will be trained in the implementation and maintenance of various adaptation techniques. In addition, awareness raising of the benefits of ecosystem rehabilitation and management will be undertaken in the selected Community Councils. The project will identify appropriate adaptation interventions that reduce the extractive pressure on existing water and land resources under climate change scenarios. These adaptation interventions will include measures based on traditional wetland and rangeland management techniques – such as stone lines and diversion furrows – that have been proven to be effective over time. New techniques – such as micro catchments– will also be introduced to provide additional water resources.
116. Under Outcome 3.2, the LDCF-financed project will implement a research programme to assess the environmental and socio-economic effects of demonstrated adaptation interventions in Lesotho. The purpose of the research programme will be to measure the effectiveness of adaptation interventions using vegetation cover as a proxy for ecosystem productivity³⁵. The results generated will be used to determine the environmental and socio-economic effects of the various treatments. The MFRSC will use the evidence generated to inform a replication strategy for other areas at risk of soil erosion.
117. The identified adaptation interventions of the LDCF-financed project will: i) incorporate traditional and innovative adaptation techniques; ii) require locally available or simple inputs; and iii) respond to the anticipated effects of climate change on youth, women and other vulnerable groups. This project will include local communities in selecting and prioritising interventions that are tailored to the local context and in accordance with the Lithipeng and Khoelenya Community Council Adaptation Plans. This approach will promote local community “buy-in” and ownership of the project’s activities. Households and community members in these selected Community Councils will directly benefit from the project through an increased capacity for climate risk management, as well as increased community coordination and ownership. This will have a direct effect on the capacity of communities to prepare for climate change impacts and minimise the damage caused.
118. The sustainability of the project will be further enhanced by establishing collaborative relationships with stakeholders who are active in the Mphahle’s Hoek District, including MAFS extension officers, MGYSR district officers and local NGOs/CBOs. The LDCF-financed project will build on lessons learned from other initiatives related to agro-forestry and conservation agriculture in Lesotho. In addition, a comprehensive monitoring framework will be developed and implemented to: i) measure progress on specific interventions to determine the efficacy of implementation; ii) track changes in vulnerability to climate change to determine effectiveness of interventions; and iii) support cost-benefit analysis of adaptation interventions.

Output 3.1: Climate-smart ecosystem rehabilitation and management interventions in the Lithipeng, Khoelenya and Thaba-Mokhele Community Councils, including: i) protection of critical fens and bogs; ii) adoption of

³⁵ The project will directly manipulate the variable – stone lines – to test the cause-and-effect relationship between treatments and effects.

conservation agriculture and agro-forestry practices; and iii) strategic interventions in sensitive areas, including construction of check dams, and rehabilitation of old gulleys and rills.

119. Under this output, the LDCF-financed project will support local communities to rehabilitate critical landscapes identified via the information system and climate-driven vulnerability assessments developed under Output 1.1 and Output 1.3. In particular, the project will facilitate improved management, protection and rehabilitation of ecosystems in the Lithipeng, Khoelenya and Thaba-Mokhele Community Councils – covering over 50 000 ha of the Foothills, Lowlands and the Lower Senqu River Basin.
120. The identified adaptation interventions will increase vegetation cover, water infiltration and baseflow³⁶ of rivers, thereby increasing the ability of the landscape to regulate water flow during droughts and floods. As a result, the project will increase ecological protection from climate change-induced droughts and floods. Adaptation interventions will include: i) changes in land use practices; ii) reforestation of degraded lands; iii) the construction of contour stone walls, farm ponds, check dams and silt traps; iv) slope stabilisation measures; v) water-efficient irrigation practices; vi) conservation agriculture, including the planting of short-cycle, drought-tolerant crop varieties; and vii) planting of multiple-use tree species for agroforestry. A more detailed description of these interventions is provided in Annex 8.
121. Local communities in the Lithipeng, Khoelenya and Thaba-Mokhele Community Councils will be provided with training on appropriate techniques to decrease their vulnerability to the negative effects of climate change by addressing localised environmental degradation. Project activities will be implemented on demonstration plots – either on communal land or within volunteer’s farms – in areas that have been identified as being particularly vulnerable to climate-induced disasters by the information system and maps developed under Outcome 1. The demonstration of adaptation interventions will be complemented by community outreach campaigns to sensitise communities to the benefits of the project’s activities in an appropriate language and format.
122. This output will also comprise the adoption of climate-smart farming practices, including: i) the diversification of crop mixes on farms; ii) crop-livestock integration; iii) fodder production schemes; iv) gravity-fed irrigation and v) the adoption of higher yielding varieties.
123. Conservation agriculture (CA) has proven to be an effective solution to reversing the spiral of declining productivity caused by land degradation. In particular, those practices suitable for small-scale and poor resource farmers will be implemented through this project. When implemented correctly, CA should increase the efficiency of nutrient and water use, as well as generate higher yields. Intensive training and support for local farmers will be required. This will include training in conservation tillage – no/minimum tillage, ridge plantation and mulching. If done effectively, adoption of this form of cultivation can reduce production costs because it minimises the cost of ploughing while increasing yields.
124. Agroforestry will benefit groundwater recharge through: i) reducing erosion; and ii) reducing soil degradation by raindrop impacts on bare soil. Farmers will be provided with assistance to establish agroforestry plots on their land and will receive training on water harvesting and conservation agriculture. The climate-smart ecosystem rehabilitation and management measures will include planting trees along terraces, on rehabilitated land and around homesteads to: i) stabilise the banks; ii) provide shade to reduce evaporation; and iii) create windbreaks for homesteads to reduce wind damage, provide shelter for the livestock and fodder. Agroforestry species will be selected according to the specific local agro-climatic conditions of the intervention sites³⁷. These species will provide additional benefits such as the supply of fruit, forage for livestock and other non-timber forest products (NTFPs). Areas in which these activities will likely be implemented include the Monehela,

³⁶ Base flow is the dry weather flow in a stream or river. It is the primary source of running water in a stream during dry weather.

³⁷ Species that are already found growing in proximity to the intervention sites will be prioritised.

Thaba-Phiri and Ramamonyatsi Electoral Divisions within the Thaba-Mokhele Community Council, the Soko and Maphutsaneng Electoral Division within the Khoelenya Community Council, as well as the Lithipeng and Shalane Electoral Divisions within the Lithipeng Community Councils.

125. The LDCF-financed project will also undertake water harvesting activities to increase drinking water availability for vulnerable households in the targeted electoral divisions. These activities will take place in areas for which water harvesting has been identified as a priority activity. Likely areas in which water harvesting activities will take place include the Morifi, Soko and Maphutsaneng Electoral Divisions within the Khoelenya Community Council.
126. Various water harvesting techniques will be demonstrated, including rooftop harvesting, which is a simple and cost-effective technique that does not contribute to the depletion of existing water resources. Another technique that will be demonstrated is inter-row water harvesting to improve water infiltration. These systems consist of small contour ridges or bunds between rows of planted crops that increase the infiltration of water by causing water to concentrate in the crop row. This technique has the dual effect of reducing evaporation from soils and promoting development of crop roots, thereby preventing heat damage to the shallower root system of a flat field.
127. Catchment harvesting systems will also be demonstrated. Micro-catchment harvesting systems will be demonstrated in sloped areas. Their function is to channel run-off towards crops and increase the rate of water infiltration. Sediment and organic material is also trapped to provide nutrients for crops. These harvesting systems will be demonstrated on rehabilitated terraces and in unterraced hillside fields. Medium catchment water harvesting systems – including terracing – will also be demonstrated in sloped catchments ranging in size from 0.1–200 ha. These catchments will increase the infiltration of water into agricultural soils and will also be used to supply water into storage tanks.
128. To complement the abovementioned simple approaches, other more technologically complex approaches to water harvesting – including check dams – will also be demonstrated. Local communities will be trained in the required maintenance to support sustainability of check dams. This will include the removal of silt, fine sand, clay and organic material to retain recharge rates. The training will also promote the use of the trapped sediment as mulch for the creation of inter-row ridges and micro-catchments for the agricultural fields. Finally, water use efficiency in small scale irrigation systems will be promoted to address climate-induced irregularity of rainfall patterns while improving productivity of the land.
129. Due to the limited operational capacity in the Mohale’s Hoek District, the LDCF-financed project will subcontract the services of a local NGO to facilitate the field work, under the supervision of a technical advisor. MFRSC staff will assist in the implementation of activities envisaged under this Output.
130. Overall, the activities under this Output will provide practical, low-cost and low-input methods. It is anticipated that many of the measures will be simple and can be implemented through the LRP’s “cash for work” programme.
131. Indicative activities under Outcome 3.1 include:
 - 3.1.1 Identify appropriate adaptation interventions for each site utilising the information generated under Output 1.1 and Output 1.3. These interventions will be tailored to reflect the geographical context of local communities concerning community livelihood strategies as well as the type of climate risks at individual sites. Activities to be undertaken will include *inter alia* identification of critical landscapes for rehabilitation; selecting the appropriate measures for rehabilitation; establishing tree nurseries; planting selected multi-purpose trees/shrub species on field boundaries; planting of deep-rooted plant species in gullies and creeks on sloping land to control soil erosion.

- 3.1.2 Implement selected adaptation interventions according to the technical guidelines developed under Output 1.4.
- 3.1.3 Develop and disseminate information and materials to promote public awareness on climate-smart ecosystem rehabilitation and management approaches to reduce vulnerability to climate change. This dissemination will take place through appropriate media such as national/local radio programmes. Information materials to be distributed include: i) best practices for climate-resilient agriculture; ii); best practices for climate-resilient agro-forestry and iii) best practices for climate-resilient biophysical interventions.
- 3.1.4 Develop strategies for the withdrawal of NGOs, CBOs and government agencies from the intervention sites at the end of the project. These strategies should include handing over responsibilities to community groups, youth and households.

Output 3.2: A long-term strategy for monitoring and evaluating climate-smart ecosystem restoration and management interventions for the Ministry of Forestry and Land Reclamation and relevant departments, including an experimental design impact evaluation using grass cover as a proxy for rangeland productivity.

132. Under this output, a research programme will be designed and implemented to assess the effectiveness of adaptation interventions to address soil erosion under predicted climate change scenarios. The LDCF-financed project will focus on soil erosion because it is highlighted as one of Lesotho's major environmental challenges. The project will: i) identify areas at risk of soil erosion; ii) collect baseline information on soil erosion, soil type, soil chemistry, susceptibility of the soil clay to disperse and form a crust, grass cover and local measures to control soil erosion; and iii) select treatment and comparison groups at a household/village level; and iv) implement different treatments at the selected sites. Proposed sites for inclusion in the research programme include the Ha Makhabane and Anone Electoral Divisions within the Khoelenya and Lithipeng Community Councils respectively. These areas are characterised by extensive erosion gullies covering areas of approximately 20–30 ha.
133. The LDCF-financed project will use the information system developed under Output 1.1 and the maps generated under Output 1.3 to identify locations for the construction of stone walls. Chosen locations will be divided into treatment and control units. These control units will continue implementing soil erosion interventions – stone walls – as per the current techniques in the LRP while the treatment units will implement experimental techniques.
134. Data from each of the treatment and control units will be collected and analysed. The results of the research programme will be used by the MFRSC to inform best practices and support the development of a replication strategy and climate-proofing LRP future interventions.
135. A participatory monitoring and evaluation (M&E) system will be designed and implemented at all intervention sites, including the treatment and control units for the research programme. The participation of local communities in M&E activities will increase local awareness of the benefits of climate-smart ecosystem rehabilitation and management measures, and inform a process of adaptive management – whereby adaptation interventions will be continuously modified as the circumstances change to improve their efficiency. The M&E system will include representatives from Community Councils, MFRSC extension officers and NGOs throughout the implementation period to enable the replication and sustainability of project interventions beyond the period of implementation. In addition, the M&E system will provide for the regular monitoring of the interaction between local bylaws, national policy and the LRP. This will be necessary to ensure that the field experience in the Mohale's Hoek District informs and facilitates the replication of the intervention measures through the climate-smart LRP across Lesotho.
136. Indicative activities under output 3.2 include:

- 3.2.1. Identify treatment and control sites for the research programme, utilising the information system and maps generated under Outcome 1.
- 3.2.2 Design various different techniques for addressing soil erosion. These will include stone lines of varying proportions – height, width and length – as well as varying distances between each stone line.
- 3.2.3 Undertake baseline assessments of soil erosion, soil type, soil chemistry, susceptibility of the soil clay to disperse and form a crust, grass cover and existing techniques to control soil erosion.
- 3.2.4 Implement the research programme techniques within the selected treatment sites.
- 3.2.5 Review current M&E systems used by institutions and donor agencies to identify best practices and opportunities.
- 3.2.6 Develop and implement a participatory M&E system based upon the information gathered in Activity 3.2.1.
- 3.2.7 Develop a results-based monitoring framework to enable harmonised monitoring, evaluating and reporting of expenditure as well as progress of interventions for climate change adaptation.
- 3.2.8 Assign responsibilities and mandates for data collection to specific institutions, agencies and community groups. Follow up with required training, monitoring and support.
- 3.2.9 Establish monitoring points at intervention sites and set up systems – in conjunction with the MFRSC – to collect data on the long-term impacts of climate-smart ecosystem rehabilitation and management measures. Monitoring points should also be established at the treatment and control units.
- 3.2.10 Analyse data from pilot interventions and research programmes. Collate the results for dissemination to schools, media, public institutions and other stakeholders.

COMPONENT 2: CLIMATE CHANGE ADAPTATION MAINSTREAMED INTO LOCAL AND NATIONAL DEVELOPMENT PLANNING AND FINANCE

Outcome 4: National strategies for rangelands and wetlands management strengthened by the integration of climate change/variability and ecosystems management.

Co-financing amounts for Outcome 4: US\$ 1,500,000

LDCF project grant requested: US\$ 219,908

Without LDCF Intervention (baseline):

- 137. The management of Lesotho’s environment and natural resources is guided by a multitude of sectoral laws, policies and strategies, including *inter alia* the National Environmental Action Plan (1989), Land Act (2010), Environment Act (2008), draft Range Management Policy (2013), Soil and Water Conservation Strategy (1998), and National Water Resources Management Policy (1999).
- 138. The National Environment Act (2008) is the overarching legislation, which makes provision for the protection and management of the environment and the sustainable utilisation of Lesotho’s natural resources. Despite including extensive provisions for environmental management – including management of rangelands, reforestation/afforestation and land use planning – the Act does not include explicit provisions for climate change adaptation.
- 139. Decision-makers and planners rely upon implicit policy guidance from strategic papers, policies and plans which guide Lesotho’s approach on climate change adaptation. For example, the NSDP provides a policy framework guiding the integration of climate change into national development plans. The NSDP therefore commits to

providing resources to relevant line ministries to reverse land degradation, protect water resources and improve natural resilience to climate change. This is because Lesotho does not, at present, have a comprehensive climate change policy.

140. Despite the growing awareness of climate change and adaptation issues in Lesotho, policy-makers and planners lack the practical tools and methodologies to apply climate analyses to their work. Where national policies address climate change, there are no specific guidelines for adaptation. Consequently, sectoral policies and strategies related to wetland and rangeland management contain limited information related to climate change. This is partly due to limited accessible information and guidelines on best practices for integrating climate risk considerations into land use planning. Consequently, the objectives of the LRP will be undermined as a result of the inadequate consideration of climate change in the design of the programme.

With LDCF Intervention (adaptation alternative):

141. Under this Outcome, the LDCF-financed project will strengthen the institutional framework to support effective national and local strategies for natural resource-based livelihoods in Lesotho. Sectoral policies will be reviewed and opportunities for amending such policies to address climate risk considerations will be identified. The review process will be based upon information generated by the analytical studies undertaken in Outcome 1. Furthermore, the revised sectoral policies will be informed by the additional measures identified to strengthen programmes such as the LRP. Thereafter, recommendations will be provided for the integration of climate change and variability into the policies.

Output 4.1: Policy guidelines for incorporating climate science in the review/formulation processes of national sectoral strategies by the Departments of Rangelands Management and Water Affairs

142. The LDCF-financed project will support the integration of climate change adaptation measures into policies which regulate natural resource management. For example, the DoRRM and DWA will be supported in reviewing sector-specific national policies on natural resource management – particularly for rangelands and wetlands – through the development of evidence-based policy briefs. These briefs will inform policy- and decision-makers on the importance of climate change adaptation in their specific sectoral mandates. Consequently, existing national policies – including the draft Rangeland Management Policy and Wetlands Management Policy – will be revised to better reflect the risks posed by climate change and provide a climate-smart management approach. By doing so, the strategies will also influence the sustainability of programmes implemented in accordance therewith, including the LRP.

143. Indicative activities under Output 4.1 include:

- 4.1.1 Review the existing rangelands and wetlands management strategies and identify opportunities for strengthening policy support for climate change adaptation utilising information from the analytical studies undertaken in Output 1.3.
- 4.1.2 Develop policy briefs for the integration of climate change adaptation into the national wetland and rangeland management strategies. The briefs are to address the implications of climate change adaptation for vulnerable groups, including youth and women.
- 4.1.3 Conduct capacity assessments of the DoRRM and DWA and other stakeholders to identify institutional and organisational capacity gaps for the implementation and enforcement of policies.
- 4.1.4 Develop recommendations for relevant sector policies, plans and strategies describing institutional and implementation modalities, functional and technical capacities, assessment methods and M&E systems for climate change adaptation.

Outcome 5: NSPD mainstreamed into local development strategies to support the constituency-wide adoption of the climate-smart Land Rehabilitation Programme.

Co-financing amounts for Outcome 5: US\$ 3,600,000

LDCF project grant requested: US\$ 419,994

Without LDCF Intervention (baseline):

144. The Local Government Act (1997) provides for the decentralisation of governance through the establishment of local authorities, including *inter alia* Community Councils, to transfer certain decision-making powers from national to local authority level. In accordance with the Act, the local authorities will be responsible for management and protection of natural resources (e.g. forest and rangeland areas) as well allocation of land and rights of use.
145. District Coordination Offices (DCOs) are mandated to facilitate the formulation of development strategies at a local level with technical support from the relevant line ministries – including MFRSC. Despite efforts to improve the effectiveness of decentralisation through DCOs and the provision of technically-skilled extension services, there are still some challenges which impede implementation of initiatives and the integration of climate change adaptation into development planning at a local scale. These challenges include: i) inadequate operational resources (human, material and financial); ii) inadequate understanding of climate change information; iii) inadequate capacity-building opportunities; iv) limited coordination, collaboration and networking amongst state and non-state actors; and v) weak linkages between researchers, extension officers, resource managers, and land users – which weakens the application of climate science to ecosystem management.

Capacity constraints

146. The GoL maintains advisory services/technical support in multiple sectors, including agriculture, forestry and others. However, the DCOs and implementing units at the community council levels are challenged by multiple capacity constraints, including coordinating logistics and implementing technical works. The MFRSC's 2012 review of the LRP states that the MFRSC's district offices have both limited staff and equipment. In addition, many extension offices lack technical expertise which undermines the efficacy of their services. Furthermore, the extension packages generally have a sector-specific focus and do not include information or techniques related to climate change adaptation and climate risks. Poor governance and inefficient governing institutions therefore contribute to continuous environmental degradation.
147. The DCOs and local authorities are also unclear about their responsibilities for integrating climate change adaptation into development planning. In addition, they have limited skills and finances to enforce the mainstreaming of climate change considerations into development plans. Consequently, there is a need to improve access to and mobilisation of resources for climate change adaptation.

Coordination and cooperation

148. Planning is largely decentralised between the various line ministries and departments, resulting in duplication and poor coordination of activities. Discussions with district officers and community councillors highlighted the problem of ineffective inter-ministerial and inter-departmental coordination. This is evidenced in the MFRSC's 2012 review of the LRP, which states that inter-ministerial cooperation in project implementation is minimal despite three additional ministries being concerned with the extent of land degradation in Lesotho, namely the MEMWA, Ministry of Tourism, Environment and Culture (MTAC), and MAFS.
149. Limited coordination between government institutions hinders collective decision-making; allocation of resources; and active engagement and support from partners to achieve shared objectives. Furthermore, it increases the likelihood of there being duplication of efforts. Coordination efforts by government need to be strengthened to ensure alignment, resourcing and integration of responses into development planning.

With LDCF Intervention (adaptation alternative):

150. The requirements for creating an enabling policy environment to promote local development – led by climate-smart ecosystem rehabilitation and management measures – include greater collaboration and coordination between government departments and institutions at various levels. Coordination and cooperation from the MFRSC, MAFS and other relevant line ministries is essential for providing inputs required to sustain climate change adaptation interventions. In particular, there should be greater coordination between DCOs.
151. The LDCF-financed project will support the decentralisation process through the establishment of an institutional framework and capacity development of local authorities. The decentralisation process provides an opportunity to mainstream climate change considerations into land use planning and development decisions at a local level. Mainstreaming mandatory climate change considerations into district and Community Councils' policies, programmes and plans will make developments more resilient to the effects of climate change.
152. With LDCF resources, the capacity of DCOs to integrate climate risk management approaches into existing planning and budgeting processes will be strengthened at district and community council levels. The capacity built within this output will be complementary to the technical skills developed under Outcome 1 and Outcome 2.
153. The efficiency of governance, at a national and sub-national level, will be increased by developing mechanisms to improve coordination between line ministries, government departments and local government. Examples of such mechanisms include, *inter alia* delegating technical staff from different line ministries to work for the project and the establishment of an inter-ministerial committee for project implementation with rotational chair responsibility. Improved coordination of development plans and projects will allow for the prioritisation of projects and streamlining of public expenditure. Consequently, the duplication and overlap of activities related to climate change adaptation will be reduced, resulting in more efficient use of investments and wider distribution of adaptation benefits to communities.

Output 5.1: Strategy for improved coordination between regional and district development teams to reduce vulnerability to extreme climatic events in the Foothills, Lowlands and the Lower Senqu River Basin

154. The LDCF-financed project will support the process of mainstreaming the provisions of the NSDP into development strategies at a local level. In particular it will include consideration of the role of healthy ecosystems in buffering livelihoods and natural capital against the negative effects of climate change. The mainstreaming process will be supported through the strengthening of inter-ministerial and departmental coordination at the district and Community Council levels – particularly of the DCOs.
155. The institutional framework for inter-sectoral cooperation will be strengthened following an in-depth analysis of institutional arrangements. Based upon the findings of the institutional analysis, the project will develop innovative institutional mechanisms that will integrate climate change risks into planning and management across all sectors. For example, inter-council land rehabilitation committees will strengthen the coordination between Community Councils and provide a forum for developing draft bylaws to regulate land use. Furthermore, inter-ministerial cooperation will be facilitated by the expansion of multi-disciplinary teams to include specialists from Public Works, Agriculture, Livestock and Social Science. This will require collaboration between the respective line ministries.
156. Indicative activities under this output include:
 - 5.1.1 Review institutional arrangements and prepare recommendations to improve coordination of decision-making processes and project management by DCOs, as well as the extension officers from *inter alia* the MFRSC and the MAFS.

- 5.1.2 Develop innovative institutional mechanisms to increase collaboration through improved coordination of the DCOs.
- 5.1.3 Expand the MFRSC's multi-disciplinary team to provide linkages between the ministries who are involved in land rehabilitation activities. These expanded teams should include specialists from the district offices of the Public Works, Agriculture and Livestock.

Output 5.2: Revised local policies across productive sectors – particularly agriculture, infrastructure development and rural development – include identified best practices for climate-smart interventions

- 157. The LDCF-financed project will capacitate the district authorities and officers of the relevant line ministries and department officials to recognise climate risk problems in new and existing projects. Relevant line ministry staff and department officials will be capacitated to understand how to integrate data and information on the expected impacts of climate change on local communities and ecosystems into local policies. Community Council members will also be sensitised and familiarised with the new planning process.
- 158. To support the improved mainstreaming of climate risks into local development programmes and planning, the project will review, and propose revisions to, local policies. The DCOs and technical staff – who received training in climate resilient development under Outcome 2 – will play a strategic role in developing the climate-smart local policies. Consequently, targeted risk reduction and risk management measures will be recommended and applied. The policies will be guided by the information generated under Outcome 1, particularly the technical guidelines under Output 1.4.
- 159. Bi-annual briefing sessions will be held for the relevant line ministries on the progress achieved in promoting climate adaptation technologies and mitigation of risks in sectoral policies through the project.
- 160. Indicative activities under this output include:
 - 5.2.1 Review local policies for the productive sectors, including *inter alia* agriculture and rural development.
 - 5.2.2 Develop guidelines to support the integration of climate risks and ecosystem management into the design and approval processes of local development programmes, plans and activities.
 - 5.2.3 Integrate climate-smart interventions into *inter alia* agricultural, rural development and infrastructural policies at the local level.
 - 5.2.4 Update the relevant line ministries including, *inter alia* MFRSC, MAFS and MoLGCAMoLGCA on a quarterly basis regarding progress in promoting and integrating climate change into sectoral policies.

Output 5.3: Policy recommendations for the integration of climate risk considerations in the Lithipeng, Khoelenya and Thaba-Mokhele Community Councils' development plans, as well as the Mohale's Hoek District development plan

- 161. The LDCF-financed project will build climate resilience into both district and community council development plans by creating discussion forums to coordinate and facilitate discussions between relevant district and community council stakeholders. These discussions will be guided by information generated under Outcome 1 and Outcome 4. GIS information and socio-economic analyses generated in Output 1.1 and Output 1.2, respectively, will support the inclusion of up-to-date information and evidence-based approaches into the local development plans. This will include the information generated by the project on the costs and benefits of climate-smart ecosystem rehabilitation and management interventions. In so doing, the project will support increased investment in ecosystem restoration and climate change adaptation interventions.

162. By enhancing coordination of efforts between the district level and community council technical teams, the project will support the incorporation of climate risk considerations into the design, appraisal and approval process of council, district and communal development plans. Policy-makers will have the benefit of the best available information and technical guidance to inform the development of appropriate sector-specific budgets and adaptation plans in the Mohale's Hoek District. This approach will facilitate upscaling of lessons learned through the field implementation at the intervention sites to the rest of the district and nationally.
163. Indicative activities under output 5.3 include:
- 5.3.1 Create a discussion forum to facilitate dialogue on climate change adaptation between the district and community council stakeholders.
 - 5.3.2 Review district and community council development plans
 - 5.3.3 Integrate climate risk considerations into the district and community council development plans using models and maps developed under Activity (output 1.3).

Output 5.4: Training on climate-resilient construction, climate-smart land uses, climate-smart water resource planning, and climate risk management for relevant officials. Trained staff will include: structural engineers; urban and rural infrastructure planners; local authorities; district planning units; officers of the Ministry of Development Planning; and teaching staff from technical colleges and vocational training institutes.

164. To support the integration of climate change adaptation into local development planning, training undertaken in Outcome 2 will be further extended to other stakeholders. Participants will include representatives from the following sectors: land use planning, construction, financial, administration and education. In so doing, the project will encourage the inclusion of climate risk considerations into all aspects of development planning. Support will be provided to institutions and vocational training colleges to revise their curricula to emphasize the role of ecosystems and their impact on climate resilience of local communities.
165. Indicative activities under this output include:
- 5.4.1 Formulate and implement training programmes for a wide range of stakeholders, including: structural engineers; urban and rural infrastructure planners; local authorities; district planning units; officers of the Ministry of Development Planning and Ministry of Finance; and teaching staff from technical colleges and vocational training institutes.
 - 5.4.2 Collaborate with institutions of higher learning to support the integration of the above courses into the regular training curricula.

Output 5.5: Best practices and documentation on climate-smart land management in the Lithipeng, Khoelenya and Thaba-Mokhele Community Councils disseminated through existing national and international platforms

166. Under this output, the research and knowledge products generated by the project's activities –under Output 1.4 and Output 3.2 – will be made publicly available to support other ongoing and future climate change adaptation initiatives. The project will disseminate knowledge on climate-smart land management to local communities in all regions through a versatile approach. Experience-sharing programs – combining workshops, visitations to model farming systems, networking and distribution of training manuals and relevant literature materials – will be promoted by responsible organisations.
167. Conventional extension methodologies will be improved with the adoption of a facilitative, “learning by doing” approach that introduces participatory experiential learning methods. To support the sharing of lessons and successful approaches on a national scale, the project will facilitate the establishment of the Farmer Field

Schools' mode of extension. The Field School approach will include the organisation of field visits to pilot demonstration sites by the project's target constituencies as well as communities from adjacent landscapes and ecosystems. The purpose of the field visits will be to support the replication and upscaling of successful approaches to other districts across Lesotho.

168. The project will implement awareness-raising measures to increase the understanding of Basotho communities on the effects of climate change, as well as potential methods for adaptation, through the use of appropriate local media. Awareness-raising initiatives will be facilitated by using local media and community radio networks to assist in the broadcasting of adaptation advice such as: i) adapted planting calendar – sowing, planting and harvesting times; ii) climate-smart farming methods – including drought-resistant varieties of local crops, suitable seed provision and mulch application; and iii) water-efficient irrigation technologies. Finally, best practice guides for climate risk management will be published in local languages to support the widespread adoption of the approaches promoted by the project.
169. Youth and school groups will be encouraged to participate in various climate change adaptation interventions. This will be undertaken through field days and study tours, as well as school projects and youth competitions. Lessons learned from the project will be made available for inclusion into educational curricula.
170. The LDCF-financed project will support the wide scale dissemination of information and lessons generated from the pilot initiatives. This will be done in conjunction with output 3.2. Best practice and lessons learned from the project on climate change adaptation will be disseminated nationally through the Lesotho SLM Platform – established under the GEF LD project – and globally via the UNDP's Adaptation Learning Mechanism (ALM), wikiADAPT. Knowledge sharing platforms will be used to advocate for a shift from fragmented and/or sectoral to joint planning.
171. Indicative activities under this output include:
 - 5.5.1 Publish guideline documents including, *inter alia*: i) best practices for climate resilient agriculture; ii) best practices for climate-resilient agroforestry; and iii) best practices for climate-resilient biophysical interventions in local languages.
 - 5.5.2 Conduct a public awareness campaign using local media to inform local populations on the effects of climate change and appropriate adaptation measures.
 - 5.5.3 Adopt experiential learning methods by facilitating the establishment of Farmer Field Schools.
 - 5.5.4 Coordinate field visits and study tours to publicize project activities and lessons learnt from implementation experience. These field visits will include school and youth groups who will be encouraged to participate in various activities and competitions.
 - 5.5.5 Collate and synthesise lessons learned and best practices from project results, including the benefits of adaptation interventions.
 - 5.5.6 Best practices and lessons learned under Activity 5.6.5 to be disseminated nationally through the Lesotho SLM platform.
 - 5.5.7 Best practices and documentation to be shared globally via the UNDP's Adaptation Learning Mechanism (ALM) and wikiADAPT, as well as the Global Adaptation Network (GAN) and the Africa Adaptation Knowledge Network (AAKN).

2.5. Key indicators, risks and assumptions

2.5 Key indicators, risks and assumptions

172. Indicators for the LDCF-financed project are based on UNDP's Monitoring and Evaluation Framework for Climate Change Adaptation. In addition, project indicators are aligned with the UNDP Adaptation Monitoring and Assessment Tool (AMAT). The Project Results Framework in Section 3 details indicators, baseline information, targets and sources of verification at the Objective and Outcome level (See Annex 1).

173. The Project objectives are aligned with the following Climate Change Adaptation focal areas:

- CCA-1: Reducing Vulnerability: Reduce vulnerability to the adverse impacts of climate change, including variability, at local, national, regional and global level.
- CCA-2: Increasing Adaptive Capacity: Increase adaptive capacity to respond to the impacts of climate change, including variability, at local, national, regional and global level.

The project's Outcomes and Objectives will be monitored according to the following indicators:

Outcome 1: Increased technical capacity of the Ministry of Forestry and Land Reclamation and relevant departments to apply up-to-date climate science for the management of evolving risks and uncertainty linked to climate change.

Indicators:

- Capacities of the Ministry of Forestry and Land Reclamation and relevant departments to identify, prioritize, implement, monitor and evaluate adaptation measures.
- A geo-based climatic, agro-ecological and hydrological information system formulated, tested in pilot area and ready for upscaling to the rest of the districts in Lesotho.
- A socio-economics unit established within the Ministry of Forestry and Land Reclamation.
- Number of climate-driven vulnerability assessments and cost-benefit analyses of specific adaptation interventions undertaken for each of the selected Community Councils.
- Number of technical guidelines on climate change adaptation interventions identified for the selected Community Councils.

Outcome 2: Communities empowered with skills, knowledge, partnerships and institutions for managing natural resource to reduce vulnerability to climate change and increase resilience of natural and social capital (over 7,000 households with potential for upscaling to cover over 20,000).

Indicators:

- % change in climate change vulnerability index in targeted populations.
- % change in targeted population's awareness of predicted adverse impacts of climate change.
- Number of technical staff trained in climate change adaptation, including restoring and managing ecosystems and agro-ecological landscapes.
- Number of training sessions conducted and participants within the engineering, planning and monitoring sections of the MFRSC trained in climate science.
- Number of households participating in training programmes on implementation of climate-smart ecosystem rehabilitation and management measures.
- An inter-council land rehabilitation committee established and operational.
- Finalised strategy for maintaining technical capacity of relevant departments and agencies.

Outcome 3: Over 50,000 ha of land across the Foothills, Lowlands and the Lower Senqu River Basin rehabilitated through operationalization of the climate-smart Land Rehabilitation Programme.

Indicators:

- The number of ha of land successfully protected, better managed and rehabilitated under the climate-smart Land Rehabilitation Programme. .
- Number of villages and households therein adopting climate-smart livelihood strategies
- Appropriate climate-smart ecosystem rehabilitation and management interventions identified, including *inter alia*: conservation, agro-forestry and water harvesting for the Lithipeng, Khoelenya and Thaba Mokhele Community Councils.
- Number of functioning long-term monitoring field sites established at intervention sites for measuring the effects of climate-smart ecosystem rehabilitation and management interventions on relevant ecosystem services.

Outcome 4: National strategies for rangelands and wetlands management strengthened by the integration of climate change/variability and ecosystems management.

Indicators:

- Number of briefs on suggested policy revisions to the rangeland and wetland management strategies developed by the LDCF-financed project to address climate change and ecosystem management.

Outcome 5: NSPD mainstreamed into regional development strategies to support the constituency-wide adoption of the climate-smart Land Rehabilitation Programme.

Indicators:

- Climate change adaptation (as provided for in the NSDP) integrated into local development strategies.
- Appropriate coordination strategy – tailored for inter- ministerial and departmental coordination at all levels – is clearly defined.
- Local policies across productive sectors – agriculture, infrastructure and rural development – revised to include best practices and budgets for climate-smart interventions. (AMAT 1.1.1.2)
- Number of policy briefs for design, appraisal and approval processes for council, district and communal development plans for Mohale’s Hoek District and in each of the Community Councils.
- Number of people trained by the LDCF-financed project on climate-resilient construction; land use and water resources planning; climate risk problems; and risk reduction and management measures.
- Best practices identified and guidelines developed for climate-smart land management in the Khoelenya, Lithipeng and Thaba Mokhele Community Councils.

2.6. Cost-effectiveness

174. The activities of the LDCF-financed project have been designed to be cost-effective. At least 7,000 households will benefit directly from LDCF resources. These benefits will include, *inter alia* increased fodder production, increased crop yields, food security, increased household water supply and opportunities for income-generative activities (see section 2.3). The total land-area directly benefitting from the implementation of climate-smart ecosystem rehabilitation and management practices that increase protection against the effects of climate change will be at least 50,000 ha.

175. In order to reduce costs and to avoid duplication, the LDCF-financed project will pursue an active partnership strategy with other ongoing initiatives, including projects such as the GEF SGP and collaborative synergy with NGOs on the ground. Through this collaboration, the LDCF-financed project will build on the lessons learned and best practices from past and current projects and ensure that cost-effectiveness is included as a selection criteria for identification of appropriate adaptation practices and implementation protocols.

176. Interventions under Component 1 form a package of enabling activities designed to strengthen the GoL’s capacity for assessing, analysing and addressing climate change. Enhancing the GoL’s capacity will support improved decision-making at the policy-level. Additionally, the project will take a comprehensive multi-sectoral

approach to addressing capacity constraints in Lesotho, rather than focusing on a single sector. Furthermore, facilitation of an economy-wide approach to reducing climate vulnerability will promote more sustainable and efficient management of climate risks.

177. The LDCF-financed project will enhance and make use of existing national and sub-national structures where possible. For example, the BOS' EESU will coordinate data collection and analyses undertaken by ministerial GIS units as well as host the geo-based agro-ecological and hydrological database established under Output 1.1. The project will also utilise the MFRSC's planning unit as the nucleus of the socio-economic unit. Increasing the capacity of existing agencies will reduce project costs, strengthen institutional buy-in and increase the potential for project approaches and newly capacitated staff to be integrated into departments, ministries and institutions beyond project termination. This will contribute to an enabling environment for integrating climate change adaptation into long-term planning.
178. The LDCF-financed project focuses on building adaptive capacity and the use of both hard and soft adaptation measures that are locally appropriate. The use of exclusively hard infrastructure – such as check dams, gabions and stone lines – was rejected for various reasons. Firstly, hard adaptation measures are considerably more expensive than softer measures like ecosystem management. Therefore, the exclusive implementation of hard interventions would result in fewer interventions being implemented and consequently fewer beneficiaries. Secondly, hard interventions may have unintended negative consequences such as transferring local risks up- or down-stream. Finally, hard interventions often have a focus on preventing damage from climate change and disaster events rather than reducing the risk of these occurring. Instead, a mix of hard and soft climate-smart ecosystem-based rehabilitation and management adaptation interventions were proposed. These interventions will be thoroughly assessed and costed by the socio-economic unit established under Output 1.2. The analysis will demonstrate the cost effectiveness and likely effect of the following adaptation interventions: i) changes in land use practices; ii) reforestation of degraded lands; iii) the construction of contour stone walls, farm ponds, check dams and silt traps; iv) slope stabilisation measures; v) water-efficient irrigation practices; vi) conservation agriculture, including the planting of short-cycle, drought-tolerant crop varieties; and vii) planting of multiple-use tree species for agroforestry. The use of both hard and soft adaptation interventions, is expected to prove less costly and provide protection to more beneficiaries than the exclusive implementation of hard infrastructure.
179. Costs were determined for small-scale, on-the-ground adaptation measures identified through consultations undertaken with community members as well as other national and sub-national stakeholders. Using a community-based approach to adaptation – while ensuring that development plans are informed by science and local knowledge – empowers vulnerable communities to plan for and adapt to the impacts of climate change. Interventions proposed in the project were selected based on available knowledge of proven or promising adaptation technologies. Furthermore, project activities will be informed by the expertise of relevant GoL institutions – such as the MFRSC and MAFS – to ensure their suitability to the local context. For example, the MFRSC and MAFS will provide guidance on the most appropriate trees to plant in the 'greening the village' and 'greening the gullies' activities as well as supervision and skills development for management of drip irrigation sites.
180. In addition, the effectiveness of these activities in reducing vulnerability to climate change will be tested and measured – through socio-economic and cost-benefit analyses – during the course of the project. The most successful activities will be prioritised for up-scaling to neighbouring communities. Furthermore, details regarding their implementation will be widely disseminated at workshops and training events undertaken by this project.
181. The project aims to reach approximately 7,000 households. These households will directly benefit from initiatives that focus on reducing climate vulnerability through community livelihood enhancement. Crop insurance was identified as a potential solution to compensate farmers for losses incurred through climate-induced natural disasters. However, such insurance mechanisms are reliant on *inter alia*: i) comprehensive

climate monitoring systems that are explicitly linked to crop yields; ii) the ability of farmers to pay insurance premiums; and iii) the willingness and ability of government to subsidise insurance premiums. The implementation of such an insurance scheme was deemed unfeasible for Lesotho for a number of reasons. Firstly, there is insufficient capacity for climate monitoring that is directly linked to crop yields to inform if/when insurance pay-outs should occur. Secondly, the majority of farmers in Lesotho practice rainfed subsistence agriculture which leads to low levels of income. As such, they would be unable to service insurance premiums and would consequently be unable to participate in insurance schemes. Finally, the GoL is not able to subsidise insurance premiums to the extent required to implement such a scheme. Based on this analysis, the LDCF-financed project will instead focus on diversifying and strengthening agricultural livelihoods to increase the income earned by subsistence farmers. The project will for example explore the possibility of value chains with low investment and high return such as fruit and honey production and processing. This will allow farmers to increase their savings and/or further invest in productive assets, thereby strengthening their capacity to recover from climate shocks.

2.7. Sustainability

182. The LDCF-financed project has been designed to support the sustainability of the project interventions beyond the implementation period. Sustainability will be supported by multiple measures, such as:
183. A consultative approach supports the sustainability of interventions beyond the duration of the project by ensuring that the long-term needs of climate-vulnerable local communities are prioritised. Local stakeholders were consulted during the PPG phase and similar consultation will be ongoing as part of the LRP work programme. The project design team engaged with relevant national stakeholders and experts to align activities with national priorities and development goals. This will support long-term political and financial commitment of policy- and decision-makers to the project interventions. Additionally, a decentralised approach will foster and support community and household ownership of project interventions, resulting in greater buy-in by the project beneficiaries. Several project interventions – including terraces, stone walls, catchment harvesting, homestead windbreaks and inter-planted orchards – will be implemented at a community and household level. The maintenance of such interventions is relatively low cost and does not require technical skill, enabling maintenance by local communities beyond the duration of the project.
184. To support the mainstreaming of climate change into planning and policies across multiple sectors, the project will strengthen the capacity of relevant government stakeholders and departments to plan and implement climate-smart land use. This capacity building will be complemented by a strategy for maintaining technical capacity in the MFRSC and relevant departments. These interventions will strengthen the institutional environment for adaptation planning both during and after the project period. In addition, the project will propose revision of policies to better integrate climate change adaptation by initiating the policy revision process. Close involvement of numerous GoL institutions and departments in the project's development and implementation promises potential for future incorporation of the project's approaches into on-going planning and strategies.
185. Improved generation and collation of information on climate-smart land use planning will support technical staff within MFRSC to apply the project approach on an ongoing basis. Specifically, the project will establish a socio-economic unit in the MFRSC (Output 1.2), which will conduct socio-economic analyses of livelihoods and will also develop the evidence base for integrating climate risk into sector policies. Once the LDCF-financed project is complete, this unit will be integrated into MFRSC planning unit, helping to build long term awareness of climate change impacts and effective adaptation. Additionally, the LDCF-financed project will implement a long-term strategy for monitoring and evaluating climate-smart ecosystem restoration and management interventions for the MFRSC and relevant departments (Output 3.2). Lessons learned and best practices from the project regarding environmental sustainability and climate resilience will be shared and up-scaled across the country to increase the project's impact.

2.8. Replicability

186. The interventions implemented by the project are designed as pilot demonstration measures that can be replicated in other councils and districts in Lesotho. The design of the project's activities include several measures that will support replicability of successful activities beyond the project implementation period. For example:
187. Pilot projects will inform future related initiatives. The benefits of the interventions piloted in the Moleleke district will be assessed through experimental design and impact evaluations (Outcome 3) to determine which are most successful and context-appropriate. Lessons learned from this process will be collated and disseminated to support replication of climate-smart land use planning and management in other LRP sites around Lesotho. In particular, pilot projects will generate evidence on the cost-effectiveness of climate-smart ecosystem rehabilitation interventions. Best practices and lessons from the project will be disseminated nationally via the Lesotho Sustainable Land use Management Platform.
188. The project's interventions will increase the availability of information and planning tools to support future climate change adaptation initiatives in Lesotho. For example, the geo-based climatic, agro-ecological and hydrological information system developed under Output 1.1 will generate climate change data that is housed in the BOS. This system will generate climate change data not only for pilot sites, but at a national scale. Additionally, methodologies, results and lessons learned will be compiled and disseminated to other Community Councils and districts through: i) a range of communication media; ii) exchange visits; and iii) adopting a "learning-by-doing" approach via the Farmers Field School concept, which has been adapted to Lesotho's extension systems. Up-to-date information tailored to the local context will support the GoL to create similar climate-smart rehabilitation projects elsewhere in Lesotho.
189. The LDCF-financed project will adopt a "learning by doing" approach to build technical capacity for climate change adaptation. This will address ecosystem priorities at the sub-national and local level while also informing national development plans and policies. Generating evidence on the cost-effectiveness of climate change adaptation interventions will facilitate policy and budgetary adjustments. The direct involvement of government institutions will demonstrate the potential for integration of approaches and strategies proposed under this project into on-going planning processes. Furthermore, the project will initiate formulation and review of policy and legal frameworks for enhanced adaptation interventions. As a result, the capacity built and information generated by the LDCF-financed project will be sustained to provide a foundation to support ongoing and future climate change related initiatives in Lesotho.
190. The LDCF-financed project is working closely with the MFRSC to incorporate climate-smart rehabilitation and management into the LRP. Consequently, there is potential for replicating these approaches into subsequent MFRSC programmes and projects. Furthermore, knowledge and awareness raising activities will be undertaken at a national level to increase awareness of cost-effective adaptation interventions amongst government stakeholders.

2.9. Stakeholder involvement plan

191. Stakeholders at both national and local levels will be engaged during implementation of the LDCF-financed project. This process commenced during the PPG phase with the inception workshop (detailed in Annex 2) and continued throughout the project's design. During the validation mission, the plan for stakeholder engagement during project implementation was discussed and agreed upon during bilateral consultations, one-on-one meetings with relevant stakeholders as well as during the validation workshop (detailed in Annex 2).

Outcome	Output	Stakeholders	Key Responsibilities
Outcome 1. <i>Increased technical capacity of the MFRSC and relevant departments to apply up-to-date climate science for the management of evolving risks and uncertainty linked to climate change.</i>	Output 1.1. A geo-based climatic, agro-ecological and hydrological information system to support better planning for climate change adaptation under the LRP.	MFRSC GIS Unit, MAFS GIS Unit, DWA GIS Unit, BOS EESU and new project funded GIS unit at LMS.	<ul style="list-style-type: none"> Participate in training sessions on GIS and climate change. (MFRSC GIS Unit, MAFS GIS Unit, DWA GIS Unit, LMS GIS Unit). Collect and analyse data. (MFRSC GIS Unit, MAFS GIS Unit, DWA GIS Unit, LMS GIS Unit). Host and coordinate national geo-based climatic, agro-ecological and hydrological database (BOS EESU).
	Output 1.2. A socio-economics unit in the MFRSC.	MFRSC Planning Unit.	<ul style="list-style-type: none"> Host socio-economic unit. Participate in training sessions on social capital and livelihoods. Undertake cost-benefit analysis of climate change adaptation and mitigation interventions.
	Output 1.3. Assessments of climate-driven vulnerabilities in the Lithipeng, Khoelenya and Thaba-Mokhele Community Councils and cost-benefit analysis of specific adaptation interventions.	MFRSC, MAFS GIS Unit, DWA GIS Unit, LMS GIS unit, BOS EESU, Community Councils.	<ul style="list-style-type: none"> Undertake strategic environmental assessments – using GIS data generated in Output 1.1 and socio-economic data collected in Output 1.2. Undertake integrated map-based assessments of climate-related hazards, vulnerabilities and climate sensitive natural resources. Propose context-appropriate ecosystem rehabilitation and management interventions.
	Output 1.4. Technical guidelines for climate change adaptation interventions identified in Output 1.3.	MFRSC.	<ul style="list-style-type: none"> Implement technical guidelines for climate change adaptation interventions. Disseminate technical guidelines to relevant stakeholders.
Outcome 2. <i>Communities empowered with skills, knowledge, partnerships and institutions for managing natural resources to reduce vulnerability to climate change and increase resilience of natural and social capital (over 7,000 households with potential for upscaling to cover over 20,000).</i>	Output 2.1. Training of technical staff of the District Technical Teams, Community Council staff and land managers on restoring and managing ecosystems and agro-ecological landscapes using a climate-smart approach.	MFRSC, Mohale’s Hoek District Council, Community Councils, Chiefs, local land managers.	<ul style="list-style-type: none"> Conduct a comprehensive needs assessment for climate change adaptation training (MFRSC). Update and extend portfolio of training modules based on needs assessment (MFRSC). Develop and disseminate user-friendly training material on climate change adaptation and monitoring to relevant stakeholders (MFRSC). Participate in training sessions on climate change adaptation, including restoring and managing ecosystems and agro-ecological landscapes.

	<p>Output 2.2. Training of engineering, planning and monitoring sections of the MFRSC on climate science.</p>	<p>MFRSC Engineering Unit, MFRSC Planning Unit, MFRSC Monitoring Unit.</p>	<ul style="list-style-type: none"> • Assess current awareness on climate science in MFRSC and update training material accordingly. • Participate in training sessions on integrating climate science into their activities.
	<p>Output 2.3. Local community members (farmers, pastoralists and rural households) from Lithipeng, Khoelenya and Thaba-Mokhele Community Councils trained in construction and maintenance of climate-smart ecosystem rehabilitation and management interventions.</p>	<p>MFRSC, NGOs (e.g. CARE, World Vision, Rural Self-Help Development Association RSDA), CBOs, Community Councils, local communities.</p>	<ul style="list-style-type: none"> • Develop and implement training for local communities on climate change adaptation as well as ecosystem rehabilitation and management (MFRSC, NGOs). • Participate in training sessions on climate change adaptation as well as ecosystem rehabilitation and management (local communities). • Develop and participate in training NGOs and/or CBOs on appropriate climate change adaptation interventions as well as monitoring and evaluation (MFRSC, NGOs). • Host local community discussion forums to share lessons learned on climate change adaptation experiences (Community Councils, local communities).
	<p>Output 2.4. Inter-council land rehabilitation committees operational in Lithipeng, Khoelenya and Thaba-Mokhele Community Councils.</p>	<p>MoLGCAMoLGCA, Mohale’s Hoek District Council, inter-council land rehabilitation committees, Community Councils.</p>	<ul style="list-style-type: none"> • Establish inter-council land rehabilitation committees. • Support operation of inter-council land rehabilitation committees. • Propose recommendations for Community bylaws for the management of natural resources (inter-council land rehabilitation committees). • Approve and implement bylaws proposed by inter-council land rehabilitation committees (MoLGCAMoLGCA and MFRSC).
	<p>Output 2.5. A strategy for maintaining technical capacity in the MFRSC and relevant departments.</p>	<p>MFRSC.</p>	<ul style="list-style-type: none"> • Develop and implement a strategy for maintaining the technical capacity of relevant MFRSC departments. • Develop and disseminate user-friendly literature on climate change adaptation and monitoring to relevant stakeholders.
<p>Outcome 3. <i>Over 50,000 ha of land across the Foothills, Lowlands and the Lower Senqu River Basin</i></p>	<p>Output 3.1. Climate-smart ecosystem rehabilitation and management interventions in Lithipeng, Khoelenya and Thaba-Mokhele Community</p>	<p>MFRSC, Community Councils, NGOs (e.g. CARE, World Vision, RSDA), local communities.</p>	<ul style="list-style-type: none"> • Implement interventions – developed under Output 1.4 – in sites selected under Outputs 1.1 and 1.3. • Develop and disseminate information on climate-smart ecosystem rehabilitation and

<p><i>rehabilitated through operationalization of the climate-smart Land Rehabilitation Programme.</i></p>	<p>Councils, including: i) protection of critical fens and bogs; ii) adoption of conservation agriculture and agro-forestry practices; and iii) strategic interventions in sensitive areas, including construction of check dams and rehabilitation of old gulleys and rills.</p>		<p>management approaches (MFRSC).</p> <ul style="list-style-type: none"> • Develop and implement strategies for community ownership of interventions beyond project termination to relevant stakeholders.
	<p>Output 3.2. A long-term strategy for monitoring and evaluating climate-smart ecosystem rehabilitation and management interventions for the MFRSC and relevant departments, including an experimental design to evaluate the impact of interventions using grass cover as a proxy for rangeland productivity.</p>	<p>MFRSC, Community Councils, local communities.</p>	<ul style="list-style-type: none"> • Undertake baseline assessments of soil erosion, grass cover and existing interventions to control soil erosion. • Identify treatment and control sites, and implement experimental design treatments. • Establish monitoring points at intervention and control sites as well as establish systems to collect data on the long-term impacts of climate-smart ecosystem rehabilitation and management interventions. • Collect long-term data on the impacts of climate-smart ecosystem rehabilitation and management interventions. • Analyse data from pilot interventions and experimental design; collate the results; and disseminate to schools, media, public institutions and relevant stakeholders (MFRSC).
<p>Outcome 4.</p> <p><i>National strategies for rangelands and wetlands management strengthened by the integration of climate change/variability and ecosystem management.</i></p>	<p>Output 4.1. Policy guidelines for incorporating climate science in the review/formulation processes of national sectoral strategies by the Departments of Rangelands Management and Water Affairs.</p>	<p>MFRSC (DRM), MEMWA (DWA).</p>	<ul style="list-style-type: none"> • Review existing rangeland and wetland management strategies and identify opportunities for strengthening policy support for climate change adaptation. • Integrate climate change adaptation into the ongoing revision of the national wetland and rangeland management strategies. • Conduct capacity assessments of DRM and DWA as well as other relevant stakeholders to identify capacity gaps for the implementation of policies. • Develop and disseminate policy briefs and recommendations for integrating climate change adaptation into relevant sector policies, plans and strategies.

<p>Outcome 5.</p> <p><i>NSDP mainstreamed into local development strategies to support the constituency-wide adoption of the climate-smart Land Rehabilitation Programme.</i></p>	<p>Output 5.1. Strategy for improved coordination between regional and district development teams to reduce vulnerability to extreme climatic events in the Foothills, Lowlands and Lower Senqu River Basin.</p>	<p>MFRSC, MAFS, MoLGCAMoLGCA, Ministry of Public Works and Transport (MoPWT), MoDP, MoE, Ministry of Social Development (MoSD), MTAC.</p>	<ul style="list-style-type: none"> • Review management arrangements and recommendations to improve coordination of decision-making and project management • Expand MFRSC and MAFS inter-disciplinary teams to include specialists from other relevant departments (MFRSC, MAFS, MoPWT, MoDP, MoE, MoSD, MTAC).
	<p>Output 5.2. Revised local policies across productive sectors – particularly agriculture, infrastructure development, and rural development – include identified best practices for climate-smart interventions.</p>	<p>MFRSC, MAFS, MoLGCAMoLGCA, MoPWT, MoE, MTAC.</p>	<ul style="list-style-type: none"> • Review local policies for productive sectors. • Develop guidelines to support the integration of climate-risk analysis and ecosystem management into the design and approval process of local development programmes, plans and activities. • Prepare recommendations for the integration of climate-smart interventions into local policies.
	<p>Output 5.3. Policy recommendations for the integration of climate risk considerations into the Lithipeng, Khoelenya and Thaba-Mokhele Community Councils’ development plans, as well as the Mohale’s Hoek District development plan.</p>	<p>MFRSC, MAFS, MoLGCAMoLGCA, Mohale’s Hoek District Council, Community Councils, NGOs (e.g. CARE, World Vision, RSDA).</p>	<ul style="list-style-type: none"> • Establish a discussion forum to facilitate dialogue on climate change adaptation between district and community council stakeholders (MFRSC, MAFS, Mohale’s Hoek District Council, Community Councils, NGOs). • Review District and Community Council development plans (MoLGCAMoLGCA, Mohale’s Hoek District Council, Community Councils). • Prepare recommendations to include climate risk considerations into District and Community Council development plans (MFRSC, MoLGCAMoLGCA, Mohale’s Hoek District Council, Community Councils).
	<p>Output 5.4. Training on climate-resilient construction, climate-smart land use and water resource planning, and climate risk management for the relevant officials. Trained staff will include: structural engineers; urban and rural infrastructure planners; local authorities; district planning units;</p>	<p>MFRSC, MAFS, MoPWT, MoDP, Ministry of Education and Training (MoET), MoSBDCM, technical colleges and vocational training institutes.</p>	<ul style="list-style-type: none"> • Develop and implement training programmes for staff from a wide range of stakeholders. • Integrate the abovementioned training into regular technical and vocational college curricula (MoET. technical colleges and vocational training institutes).

	officers of the Ministry of Development Planning (MoDP); and teaching staff from technical colleges and vocational training institutes.		
	Output 5.5. Best practices and documentation on climate-smart land management in the Lithipeng, Khoelenya and Thaba-Mokhele Community Councils disseminated through existing national and international platforms.	MFRSC, MAFS, local communities, NGOs (e.g. CARE, World Vision, RSDA), SLM, UNDP.	<ul style="list-style-type: none"> • Establish farmers Field Schools (MAFS, MFRSC, NGOs, local communities). • Coordinate exchange visits to project sites. (MFRSC, MAFS, NGOs, local communities). • Best practices and project documents disseminated nationally through the Lesotho Sustainable Land Management platform (SLM). • Best practices and project documents disseminated globally through Adaptation Learning Mechanism (ALM), wikiADAPT, Global Adaptation Network (GAN) and African Adaptation Knowledge Network (AAKN) (UNDP).

Matrix of stakeholder participation

Stakeholder	Capabilities/current role for promoting climate change adaptation	Role in project
Natural resource users e.g. youth groups and farmers, particularly women and the elderly	<ul style="list-style-type: none"> • Extensive indigenous technical knowledge. • Familiarity with concepts of group action and committee operations. • Commitment to climate change adaptation because of livelihood interests in a sustainable environment. 	<ul style="list-style-type: none"> • Leading agents of LRP through user groups or associations. • Primary beneficiaries of “cash for work” programme and implementers of the climate-smart initiatives.
District Councils	Coordinate the functions and activities of Community Councils	Local level governance. Coordination of technical teams.
Community Councils	<ul style="list-style-type: none"> • Legal authority for natural resources management. • Little capacity to exert this authority at field level. • Committed to fulfilling their natural resource management responsibilities, but currently uncertain how to go about this. 	<ul style="list-style-type: none"> • Locus of legal authority for LRP. • Supervise government field staff – who are administratively answerable to the Community Councils. • Supervise and guide resource user groups acting on their behalf. • Provide modest levels of resourcing to these groups for their daily operations. • Key participants in coordinated management to ensure rehabilitation measures are implemented and impacts are monitored.

Chiefs	<ul style="list-style-type: none"> • Traditional natural resource management authorities. • Some have extensive technical knowledge. • Two chiefs are elected by their peers as members of each Community Council and can play a formal role in Council's natural resource management decision making. 	<ul style="list-style-type: none"> • Some chiefs can contribute as Community Council members. • All chiefs can contribute as leading and knowledgeable members of their communities.
MFRSC	<ul style="list-style-type: none"> • Through its Forestry, Soil and Water Conservation, and Range Management Divisions, the MFRSC can provide technical knowledge and practical/programmatic experience. • Domestic budget will be used for co-financing with GEF contribution. 	<ul style="list-style-type: none"> • Leading technical agency. • Chair of Steering Committee. • Source of co-finance. • Provide guidance and technical support to communities and stakeholders. • Should actively participate in knowledge management and networking activities.
MAFS	<ul style="list-style-type: none"> • Increasingly active in promoting on-farm soil and water conservation through soil fertility and soil structure management and conservation agriculture techniques. • Responsible for agricultural extension services for both croplands and livestock services • Responsible for promotion and advocacy of irrigation systems 	<ul style="list-style-type: none"> • Should be an active member of project Steering Committee. • Provide guidance and technical support to communities and stakeholders. • Should actively participate in knowledge management and networking activities.
MoLGCAMoLGCA	<ul style="list-style-type: none"> • Responsible for guiding the decentralisation process and the establishment of the new local government system in Lesotho. • Consequently, responsible for assisting Community Councils' with their natural resource management role. 	<ul style="list-style-type: none"> • Should be an active member of project Steering Committee. Should actively participate in knowledge management and networking activities. • Should advise and facilitate Community Council's development of natural resource management bylaws, which must be approved by the Minister of Local Government. • Provide guidance and technical support to Community Councils.
Department of Environment and National Environment Secretariat	<ul style="list-style-type: none"> • Policy coordination role, with particular reference to Lesotho's global obligations and commitments. 	<ul style="list-style-type: none"> • GEF Focal Point: key liaison role. • Member of Project Steering Committee.
UNDP	<ul style="list-style-type: none"> • Extensive experience of sustainable rural development strategies and challenges in Lesotho. • Experience of GEF project delivery. 	<ul style="list-style-type: none"> • Key agency for channelling and supervision of GEF resources and providing advice on GEF procedures. • Key member of project Steering Committee.
Food and Agriculture Organisation (FAO)	<ul style="list-style-type: none"> • Technical expertise in agriculture and natural resources including vast technical and sociological experience conservation agriculture and other climate change adaptation initiatives. 	<ul style="list-style-type: none"> • Coordinator of conservation agriculture network. • Potential collaborator in networking and knowledge management, with particular reference to on-farm conservation agriculture.

<p>NGOs and CSOs e.g. CARE; World Vision; RSDA; Serumula Development Association</p>	<ul style="list-style-type: none"> • Strong technical and institutional expertise in LRP and related fields. • Detailed understanding of local development needs, opportunities and constraints. • Currently engaged in various natural resource management related activities 	<ul style="list-style-type: none"> • Members of Project Steering Committee. • Potential collaborators in LRP model development, training and knowledge management/ networking activities. • Should actively participate in policy reviews.
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2.10 Compliance with UNDP safeguards

192. The UNDP environmental and social safeguard requirements have been followed in the development of this LDCF-financed project. As outlined below, the project is not expected to have any negative environmental or social impacts.
193. The LDCF-financed project does include activities that support upstream planning processes. However, the envisaged revisions that will be proposed to national policies and strategies are not likely to have any negative environmental or social impacts. To the contrary, the project will have positive environmental and social impacts through influencing policies and strategies for climate-smart ecosystem rehabilitation and management measures.
194. The implementation of community and landscape-based approaches to climate change adaptation – proposed under Outcome 3 – will protect ecosystems, assets and livelihoods from the effects of climate-induced disasters. These proposed interventions will not affect natural resources negatively. For example, landscape-based approaches will stabilise soil, improve water infiltration, increase the diversity of crops and restore natural vegetation. In addition, the increase in biomass as the result of revegetation of slopes and improved agricultural and land use practices will increase carbon sequestration.
195. Although the project will benefit local communities, it is not expected that this will lead to localised population increases. Rather, it is expected that the approaches used will be spread to surrounding communities. The use of a community and household approach that is cost effective and does not require advanced infrastructure makes it easily replicable. It is therefore possible for the benefits in the project sites to be realised in adjacent Community Councils. The benefits of the project interventions will also reduce the vulnerability of communities to natural disasters. Communities will have a greater access to natural resources. Communities are also expected to have improved income through improved livelihoods. Consequently, the project is expected to have positive socio-economic effects.
196. Gender equality, youth empowerment and the use of a community and household-based approach are focus areas of the LDCF-financed project. Consequently, project interventions will promote social equity and equality. All social consequences of the project are expected to be positive. In addition, the farming approaches that will be introduced are not expected to negatively affect local traditions. Approval of the local community on the interventions will first be sought – prior to implementation. As the LDCF-financed project is expected to have either no effects or positive effects on the environment and community, it is not necessary for a full environmental and social review.

3. Project Results Framework

<p>This project will contribute to achieving the following Country Programme Outcome as defined in CPAP or CPD:</p> <p><i>Outcome 2:</i> By 2017 Lesotho adopts environmental management practices that promote a low-carbon, climate-resilient economy and society, sustainably manages natural resources and reduces vulnerability to disasters.</p>					
<p>Country Programme Outcome indicators:</p> <p>Number of national/sectoral policies and strategies that promote low-carbon, climate resilient economy and society; number of national/sectoral policies that promote conservation of natural resources; and number of local communities that implement disaster risk reduction measures.</p>					
<p>Primary applicable Key Environment and Sustainable Development Key Result Area (same as that on the cover page, circle one):</p> <p>Promote climate change adaptation</p>					
<p>Applicable GEF Strategic Objective and Programme:</p> <p><i>CCA-1: Reducing Vulnerability:</i> Reduce vulnerability to the adverse impacts of climate change, including variability, at local, national, regional and global level.</p> <p><i>CCA-2: Increasing Adaptive Capacity:</i> Increase adaptive capacity to respond to the impacts of climate change, including variability, at local, national, regional and global level.</p>					
<p>Applicable LDCF Expected Outcomes:</p> <p><i>Outcome 1.1:</i> Mainstreamed adaptation in broader development frameworks at country level and in targeted vulnerable areas.</p> <p><i>Outcome 1.2:</i> Reduced vulnerability in development sectors.</p> <p><i>Outcome 2.1:</i> Increased knowledge and understanding of climate variability and change-induced risks at country level and in targeted vulnerable areas.</p> <p><i>Outcome 2.3:</i> Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level.</p>					
<p>Applicable GEF Outcome Indicators:</p> <p><i>Indicator 1.1.1:</i> Adaptation actions implemented in national/sub-regional development frameworks.</p> <p><i>Indicator 1.2.15:</i> Number of people benefitting from climate-smart ecosystem rehabilitation and management practices through implementation of hard and soft measures to reduce vulnerability.</p> <p><i>Indicator 2.1.1:</i> Relevant risk information disseminated to stakeholders.</p> <p><i>Indicator 2.3.1:</i> % of targeted population awareness of predicted adverse impacts of climate change and appropriate responses.</p>					
Outcome	Indicator	Baseline	Target	Source of verification	Risks and assumptions
<p>Project Objective:</p> <p>To mainstream climate risk considerations in</p>	<p>The use of climate-driven vulnerabilities and cost-effective planning to inform the implementation</p>	<p>Climate change risks are not integrated into the Land Rehabilitation Programme. Target sites are chosen on an</p>	<p>Climate-driven vulnerabilities and cost-effective planning are used to inform site prioritisation</p>	<p>Climate driven vulnerability assessments and cost-benefit analysis</p>	

<p>the Land Rehabilitation Programme of Lesotho for improved ecosystem resilience and reduced vulnerability of livelihoods to climate shocks.</p>	<p>of the Land Rehabilitation Programme.</p>	<p><i>ad hoc</i> basis. Rehabilitation and management measures are not tailored to specific ecosystems.</p>	<p>of target sites and the implementation of appropriate climate-smart ecosystem rehabilitation and management measures.</p>	<p>Project implementation report Review of Land Rehabilitation Programme practices</p>	
<p>Outcome 1: Increased technical capacity of the Ministry of Forestry and Land Reclamation and relevant departments to apply up-to-date climate science for the management of evolving risks and uncertainty linked to climate change.</p>	<p>Capacities of the Ministry of Forestry and Land Reclamation and relevant departments to identify, prioritise, implement, monitor and evaluate adaptation measures.</p>	<p>Baseline estimated at a score of 3. Baseline to be verified during year 1 of project implementation.</p>	<p>Capacity increased to a score of 7. Target to be verified during year 1 of project implementation.</p>	<p>To capture evidence of the capacity of institutions to identify, prioritise, implement, monitor and evaluate adaptation measures, a scoring methodology that considers the following five criteria, expressed as questions:</p> <ul style="list-style-type: none"> (a) Does the institution have access to and does it make use of climate information in decision- making? (b) Are climate change risks as well as appropriate adaptation strategies and measures integrated into relevant institutional policies, processes and procedures? (c) Does the institution have adequate resources to implement such policies, processes and procedures? (d) Are there clear roles and responsibilities within the institution, and effective partnerships outside the institution to address adaptation? (e) Is the institution equipped to monitor, evaluate and learn from its adaptation actions? <p>Each question is answered with an assessment and score for the</p>	<p>Assumptions</p> <p>The geo-based, climatic, agro-ecological and hydrological information system established during the project will support climate-smart ecosystem rehabilitation and management measures.</p> <p>Trainees leave training with improved capacity.</p> <p>Risks</p> <p>The geo-based agro-ecological, climatic and hydrological information system is not sustained beyond the lifetime of the project.</p> <p>Poor uptake of training on climate-smart ecosystem rehabilitation and management measures</p>

				extent to which the associated criterion has not been met: not at all (=0), partially (=1) or to a large extent/completely (=2). An overall score is calculated, with a maximum score of 10 given five criteria.	
Output 1.1	A geo-based climatic, agro-ecological and hydrological information system formulated, tested in pilot area and ready for upscaling to the rest of the districts in Lesotho.	Lack of a coordinated information system that compiles GIS information on climatic, agro-ecological and hydrological variables.	By the end of the first year, a geo-based climatic, agro-ecological and hydrological information system developed.	Maps and vulnerability assessments generated utilising the geo-based climatic, agro-ecological and hydrological information system.	
Output 1.2	A socio-economics unit is established within the Ministry of Forestry and Land Reclamation.	No dedicated unit considering social capital issues in the selection of intervention methods.	By the end of the first year, a socio-economics unit is established.	Socio-economics unit Project implementation report Assessments Cost benefit-analysis	
Output 1.3	Number of climate-driven vulnerability assessments and cost-benefit analyses of specific adaptation interventions undertaken for each of the selected Community Councils. (Adapted from AMAT 2.1.1.2)	No rigorous assessments of climate-driven vulnerability or cost benefit analyses of climate change adaptation interventions undertaken at the level of Community Councils.	By the end of the first year, at least 1 climate-driven vulnerability assessment and 1 cost-benefit analysis of specific adaptation interventions undertaken for each of the Community Councils identified.	Project implementation report	
Output 1.4	Number of technical guidelines on climate change adaptation interventions identified for the selected Community Councils.	No guidelines on climate change adaptation interventions have been developed for the selected Community Councils.	By the end of the first year, at least 1 technical guideline on climate change adaptation interventions produced for the selected Community Councils.	Technical guidelines Project implementation report	
Outcome 2: Communities empowered with skills, knowledge, partnerships and	% of targeted population awareness of predicted adverse impacts of climate change and appropriate	Baseline level of awareness in target population to be verified during year one of project implementation.	Increase level of awareness in target population from 1 (No awareness level) to 2 (Moderate awareness level)	Methodologies for both climate change awareness and vulnerability indices will be developed during year one of project implementation.	Assumptions Communities see climate-smart ecosystem rehabilitation and management measures as desirable given development

institutions for managing natural resources to reduce vulnerability to climate change and increase resilience of natural and social capital (over 7,000 households with potential for upscaling to cover over 20,000).	responses (score) – disaggregated by gender. 1= No awareness level (<50% correct) 2= Moderate awareness level (50-75% correct) 3= High awareness level (>75% correct)				imperatives as well as lifestyle preferences, and support project interventions. Chiefs support project interventions and facilitate roll out within their constituencies.
Output 2.1	Number of technical staff trained in climate change adaptation, including restoring and managing ecosystems and agro-ecological landscapes (disaggregated by gender).	Technical staff of the District Technical Teams, Regional Council staff and land managers have received limited training on climate change adaptation.	Within the first year of the project, at least 50 technical staff of the District Technical Teams, District and Community Council staff and land managers trained in climate change adaptation, including restoring and managing ecosystems and agro-ecological landscapes. Trainees must include representatives from the Mohale’s Hoek District and the Lithipeng, Khoelenya and Thaba-Mokhele Community Councils.	Field visits Surveys Project implementation report	Risks Communities are unwilling to adopt new climate-smart ecosystem rehabilitation and management measures. Chiefs in target areas unwilling to support project interventions. High staff turnover and poor institutional memory result in disruptions or delays in project implementation and coordination.
Output 2.2	Number of training sessions conducted and participants within the engineering, planning and monitoring sections of the MFRSC trained in climate science (disaggregated by gender).	Engineering, planning and monitoring sections of the Ministry of Forestry and Land Reclamation have received limited training on climate science.	By project end-point 10 staff (50% men and 50% women) within the engineering, planning and monitoring sections of the Ministry of Forestry and Land Reclamation have attended workshops on climate science.	Training course reports, attendance lists and completed evaluation forms Project implementation reports	
Output 2.3	Number of households participating in training programmes on implementation of climate-smart ecosystem rehabilitation and	Local communities and households have limited capacity to plan, implement and maintain climate-smart ecosystem rehabilitation and management measures.	By project end-point at least 7,000 households trained in the implementation and maintenance of climate-smart ecosystem	Training course reports, attendance lists and completed evaluation forms	

	management measures (disaggregated by gender).		rehabilitation and management measures.		
Output 2.4	An inter-council land rehabilitation committee established and operational.	No inter-council land rehabilitation committees are in operation.	By project mid-point at least 1 inter-council land rehabilitation committees established. By project end-point, a minimum of 8 inter-council land rehabilitation committee meetings held.	Council records Project implementation report	
Output 2.5	Finalised strategy for maintaining technical capacity of relevant departments and agencies.	There is no strategy for maintaining the technical capacity of relevant departments and agencies.	By project mid-point, a strategy for maintaining technical capacity is developed. By project end-point, the strategy for maintaining technical capacity is implemented.	Finalised Strategy	
Outcome 3: Over 50,000 ha of land across the Foothills, Lowlands and the Lower Senqu River Basin rehabilitated through operationalization of the climate-smart Land Rehabilitation Programme.	1. The number of ha of land successfully protected, better managed and rehabilitated under the climate-smart Land Rehabilitation Programme.	Baseline and target to be established during implementation.	By project end-point, at least 50,000 ha of land in the Foothills, Lowlands and the Lower Senqu River Basin under climate-smart LRP.	Field visits and physical assessments Data collection at project sites Project implementation reports	Assumptions Cost-effective climate-smart ecosystem rehabilitation and management measures will be identified. Risks Climate-smart ecosystem rehabilitation and management measures are not cost-effective.
Output 3.1	Number of households across three Community Councils adopting climate-smart livelihood strategies (disaggregated by gender). (Adapted from AMAT 2.3.1.2)	The number of households adopting climate-smart livelihood strategies will be determined during implementation.	At least 7,000 households engaging in climate change adaptation activities, including climate-smart farming or agro-forestry practices.	M&E Strategy Field visits and physical assessments Data collection at project sites Project implementation report	

	Appropriate climate-smart ecosystem rehabilitation and management interventions identified, including inter alia conservation, agro-forestry and water harvesting for the Lithipeng, Khoelenya and Thaba Mokehle Community Councils.	Climate-smart ecosystem rehabilitation and management interventions are not currently implemented in the Lithipeng, Khoelenya and Thaba-Mokhele Community Councils.	By project end-point at least 50% of conventional management systems are replaced by climate-smart ecosystem rehabilitation and management interventions implemented in the Lithipeng, Khoelenya and Thaba-Mokhele Community Councils.	Field visits and physical assessments Data collection at project sites	
Output 3.2	Number of functioning long-term monitoring field sites established at intervention sites for measuring the effects of climate-smart ecosystem rehabilitation and management interventions on relevant ecosystem services.	Monitoring is limited to recording of outputs from quarterly and annual reports – because the LRP has no Monitoring and Evaluation Unit.	By project end-point, at least 3 long-term monitoring sites – including a control, experiment and benchmark – established within each of the agro-ecological zones – the Foothills, Lowlands and the Lower Senqu River Basin.	M&E Strategy Field visits and physical assessments Data collection at project sites Project implementation report	
Outcome 4: National strategies for rangelands and wetlands management strengthened by the integration of climate change/variability and ecosystems management.	Number of briefs on suggested policy revisions to the rangeland and wetland management strategies developed by the LDCF-financed project to address climate change and ecosystem management.	National strategies do not adequately include climate risk considerations.	By project end-point, at least two policy briefs developed that include recommendations for the incorporation of climate risk considerations into each of the national rangeland and wetland management strategies.	Review of recommendations for national strategies Revised/updated national strategies with specific sections on climate change adaptation policy Project implementation report	Assumptions Recommendations for policies, strategies and plans will be accepted and mainstreamed. Risks Policies, strategies and plans are not accepted by decision-makers or local communities and cannot be enforced
Outcome 5: NSDP mainstreamed into local development strategies to support the constituency-wide adoption of the climate-smart Land Rehabilitation Programme	Climate change adaptation (as provided for in the NSDP) integrated into local development strategies. (adapted from AMAT 1.1.1)	Development strategies do not adequately include climate change (as provided for in the NSDP).	By project end-point, climate change adaptation is integrated into local policy processes and development strategies. (A score of 2= integrated to a large extent/completely)	The extent to which climate change adaptation (as provided for in the NSDP) is integrated into local development strategies will be scored as follows: not at all (=0), partially (=1) or to a large extent/completely (=2).	Assumptions Recommendations for sectoral policies, strategies and plans will be accepted and mainstreamed. Risks

Output 5.1	Appropriate coordination strategy – tailored for inter-ministerial and departmental coordination at all levels – is clearly defined.	No strategy in place to ensure coordination between national and district development teams	By project mid-point, a coordination strategy is clearly defined. By project end-point, the coordination strategy is implemented.	Coordination strategy Project implementation report	Sectoral ministries are unwilling to adopt recommendations on policies.
Output 5.2	Local policies across productive sectors – agriculture, infrastructure and rural development – revised to include best practices and budgets for climate-smart interventions. (adapted from AMAT 1.1.1.2)	Policies do not adequately refer to climate risk considerations.	By project end-point, at least one policy brief developed for each productive sector – agriculture, infrastructure and rural development – to include identified best practices and budgets for climate-smart interventions	Policy briefs Budgets Project implementation report	
Output 5.3	Number of policy briefs for design, appraisal and approval processes for council, district and communal development plans for Mohale’s Hoek District and in each of the Community Councils.	There is no programmatic approach to mainstreaming climate risk considerations into development plans.	By project mid-point, at least one policy brief to be developed for the integration of climate risk considerations into the Mohale’s Hoek District Plan. By project end-point, at least one policy brief developed for each productive sector – agriculture, infrastructure and rural development – to include identified best practices and budgets for climate-smart interventions. By project mid-point, at least one policy brief to be developed for the integration of climate risk considerations into the Mohale’s Hoek District Plan.	Policy briefs Project implementation report	

Output 5.4	Number of people trained by the LDCF-financed project on climate-resilient construction; land use and water resources planning; climate risk problems; and risk reduction and management measures (disaggregated by gender).	Limited training has been conducted on climate-resilient construction; land use and water resources planning; climate risk problems; and risk reduction and management measures.	By project end-point, at least 1000 people (50% women and 50% men) trained. Trainees must include representatives from local authorities; district planning units; structural engineers; urban and rural infrastructure planners; officers of the Ministry of Development Planning, Ministry of Finance; and teaching staff from technical colleges and vocational training institutes.	Climate change adaptation modules for training courses	
Output 5.5	Best practices identified and guidelines developed for climate-smart land management in the Khoelenya, Lithipeng and Thaba-Mokhele Community Councils.	No guidelines for best practices and climate-smart land management.	By project end-point, guidelines developed for best practices and climate-smart land management in the Khoelenya, Lithipeng and Thaba-Mokhele Community Councils.	Developed guidelines	

4. Total Budget and Workplan

Award ID:	00084520	Project ID(s):	00092485
Award Title:	Reducing vulnerability from climate change in the Foothills, Lowlands and the Lower Senqu River Basin		
Business Unit:	LSO01		
Project Title:	Reducing vulnerability from climate change in the Foothills, Lowlands and the Lower Senqu River Basin		
PIMS no	4630		
Implementing Partner (Executing Agency)	MFRSC (002932)		

LDCF Outcome/ Atlas Activity	Implementing Agent	Fund ID	Donor Name	Atlas Budgetary Account Code	ATLAS Budget Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Amount Year 5 (USD)	Amount Year 6 (USD)	Total (USD)	Budget Note
OUTCOME 1: Increased technical capacity of the Ministry of Forestry and Land Reclamation and relevant departments to apply up to date climate science for the management of evolving risks and uncertainty linked to climate change	MoFLR	62160	LDCF	71200	International Consultants	39,000	30,000	-	-	-	15,000	84,000	1a
				71300	Local Consultants	42,000	42,000	-	-	-	14,000	98,000	1b
				71400	Contractual services - Individuals	15,045	15,045	15,045	15,044	15,045	15,044	90,268	1c
				72100	Contractual services - Companies	22,250	50,250	15,250	15,250	15,250	79,000	197,250	1d
				71600	Travel	36,000	39,000	-	-	-	6,000	81,000	1e
				72500	Supplies	2,000	2,000	2,000	2,000	2,000	2,000	12,000	1f
				73100	Rental & Maintenance Premises	10,000	10,000	10,000	10,000	10,000	10,000	60,000	1g

				72200	Equipment and furniture	30,000	35,000	23,000	23,000	23,000	23,000	157,000	1h
				74200	AV & Print Production	3,000	3,000	3,000	3,000	3,000	3,000	18,000	1i
				75700	Training Workshop & Conference	120,000	46,986	-	-	-	-	166,986	1j
				74500	Miscellaneous	5,916	5,916	5,916	5,916	5,916	5,916	35,496	1k
				Total Outcome 1		325,211	279,197	74,211	74,210	74,211	172,960	1,000,000	
OUTCOME 2: Communities empowered with skills, knowledge, partnerships and institutions for managing natural resources to reduce vulnerability and increase resilience of natural and social capital	MoFLR	62160	LDCF	71200	International Consultants	12,000	-	12,000	-	12,000	-	36,000	2a
				71300	Local Consultants	21,000	7,000	21,000	7,000	21,000	7,000	84,000	2b
				72100	Contractual services - Companies	52,000	45,000	57,000	10,000	10,000	10,000	184,000	2c
				71600	Travel	18,000	14,000	18,000	14,000	18,000	14,000	96,000	2d
				73400	Rental & Maintenance of Equipment	6,500	6,500	6,500	6,500	6,500	6,500	39,000	2e
				74200	AV & Print production	10,500	10,500	10,500	10,500	10,500	10,500	63,000	2f
				75700	Training Workshop & Conference	70,000	-	70,000	-	-	-	140,000	2g
				Total Outcome 2		190,000	83,000	195,000	48,000	78,000	48,000	642,000	
OUTCOME 3: A climate-smart Land Rehabilitation				71200	International Consultants	36,000	38,000	16,000	5,000	5,000	17,000	117,000	3a
				71300	Local Consultants	29,000	21,000	21,000	15,358	22,000	14,000	122,358	3b

Programme operationalised across 50,000 ha of the Foothills, Lowlands and the Lower Senqu River Basin.	MoFLR	62160	LDCF	72100	Contractual services Companies	301,000	270,000	270,000	270,000	270,000	270,000	1,651,000	3c	
				71600	Travel	35,000	35,000	35,000	35,000	35,000	35,000	35,000	210,000	3d
				72600	Grants	237,000	237,000	237,000	237,000	237,000	237,000	237,000	1,422,000	3e
				72300	Materials & goods	300,000	300,000	300,000	300,000	300,000	300,000	300,000	1,800,000	3f
				72200	Equipment & furniture	40,000	-	-	-	-	-	-	40,000	3g
				73400	Rental & Maintenance of other equipment	9,000	9,000	9,000	9,000	9,000	9,000	9,000	54,000	3h
				74200	AV & Print Production Costs	50,000	50,000	50,000	50,000	50,000	50,000	50,000	300,000	3i
				Total Outcome 3		1,037,000	960,000	938,000	921,358	928,000	932,000	5,716,358		
OUTCOME 4: National Strategies for rangelands and wetlands management strengthened by the integration of climate change/variability and ecosystems management	MoFLR	62160	LDCF	71200	International Consultants	18,000	-	18,000	-	-	18,000	54,000	4a	
				71300	Local Consultants	25,000	25,000	25,000	20,000	25,000	25,590	145,590	4b	
				75700	Training workshop & conference	6,772	-	6,773	-	6,773	-	20,318	4c	
				Total Outcome 4		49,772	25,000	49,773	20,000	31,773	43,590	219,908		
OUTCOME 5: NSDP mainstreamed into local development strategies to support the constituency-wide adoption of the climate-smart Land Rehabilitation Programme	MoFLR			71200	International Consultants	12,000	-	12,000	-	-	6,000	30,000	5a	
				71300	Local Consultants	28,000	28,000	28,000	28,000	28,000	28,000	168,000	5b	
				72100	Contractual service Companies	10,000	10,000	10,000	10,000	10,000	10,000	60,000	5c	
				71600	Travel	10,500	4,500	10,500	4,500	4,500	7,500	42,000	5d	

		62160	LDCF	74200	AV & Print Production Costs	3,599	3,599	3,599	3,599	3,599	3,599	21,594	5e	
				75700	Training Workshop & Conference	19,600	10,000	19,600	10,000	19,600	19,600	98,400	5f	
				Total Outcome 5		83,699	56,099	83,699	56,099	65,699	74,699	419,994		
Project management unit	MoFLR	62160	LDCF	71400	Contractual services - individual	28,235	28,235	28,235	28,235	28,235	28,235	169,410	PM1	
				71400	Contractual services - individual	24,000	24,000	24,000	24,000	24,000	24,000	24,000	144,000	PM2
				74100	Professional services	3,000	3,000	3,000	3,000	3,000	3,000	3,000	18,000	PM3
				75700	Training Workshops & Conference	12,500	-	-	10,001	-	10,001	32,502	PM4	
				71200	International Consultants	12,000	-	-	12,000	-	12,000	36,000	PM5	
				Total Management		79,735	55,235	55,235	77,236	55,235	77,236	399,912		
				PROJECT TOTAL (USD)		1,765,417	1,458,531	1,395,918	1,196,903	1,232,918	1,348,485	8,398,172		

Summary of Funds:

Amount Year 1	Amount Year 2	Amount Year 3	Amount Year 4	Amount Year 5	Amount Year 6	Total
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GEF	\$1,765,417	\$1,458,531	\$1,395,918	\$1,196,903	\$1,232,918	\$1,348,485	\$8,398,172
Government of Lesotho: MFRSC	\$4,400,000	\$4,300,000	\$4,300,000	\$4,300,000	\$4,300,000	\$4,400,000	\$26,000,000
Government of Lesotho: MoLGCA	\$250,000	\$250,000	\$200,000	\$150,000	\$100,000	\$50,000	\$1,000,000
UNDP	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$600,000
TOTAL	\$6,515,417	\$6,108,531	\$5,995,918	\$5,746,903	\$5,782,918	\$5,848,485	\$35,998,172

Budget Note	Description of cost item
1a.	<ul style="list-style-type: none"> • Remote sensing/GIS specialist –specialist will integrate existing GIS data with remote sensing imagery to develop a geo-based climatic, agro-ecological and hydrological information system. This specialist will oversee the baseline assessments and the integrated mapping of climate-related hazards, vulnerabilities and climate-sensitive natural resources. This specialist will facilitate the needs assessment for GIS training and tailor the portfolio of training modules. This specialist will also devise a training schedule to provide appropriate trainings at different levels (e.g. national, district, sub-district and community). The specialist will also assist in designing training modules based on up-to-date scientific knowledge and best practices concerning climate change adaptation. • Institutional Capacity Development Specialists –per day. This specialist will conduct the capacity assessment of MFRSC and design an organisational strategy for developing MFRSC’s capacity. In addition, this specialist will conduct a gap analysis of the current knowledge management systems under the existing GIS units. The specialist will facilitate the establishment of an inter-ministerial advisory committee for the GIS unit. • Education and training expert –. This specialist will design training modules based on up-to-date scientific knowledge and best practices concerning climate change adaptation. This specialist will also provide training for the GIS units, relevant line ministries and departments as well as institutions on climate science. • Socio-economic development expert – This specialist will provide advice regarding the establishment of the socio-economics unit and training of relevant personnel. This specialist will prepare technical protocols to facilitate the integration of social capital and livelihoods needs into ecosystem rehabilitation and management interventions.
1b.	<ul style="list-style-type: none"> • Climate change adaptation expert – Fees: 60 days @ \$350 per day. • Education and training expert – Fees: 40 days @ \$350 per day. This specialist will assist with the design of training modules based on up-to-date scientific knowledge and best practices concerning climate change adaptation. This specialist will also provide training for the GIS units, relevant line ministries and departments as well as institutions on climate science. • Capacity development expert – Fees: \$40 days @ \$350 per day. This specialist will assist in the undertaking of capacity assessment of MFRSC as well as the design and implementation of an organisational strategy for developing MFRSC’s capacity. In addition, this specialist will conduct a gap analysis of the current knowledge management systems under the existing GIS units and implement organisational strategies for the efficient functioning and coordination of the GIS unit. • Geospatial expert – Fees: 80 days @ \$350 per day. This specialist will assist in the development of a geo-based climatic, agro-ecological and hydrological information system. This specialist will also facilitate the undertaking of a baseline assessment and the integrated mapping of climate-related hazards, vulnerabilities and climate-sensitive natural resources. • Socio-economic development expert – Fees: 60 days @ \$350 per day.
1c.	<ul style="list-style-type: none"> • This budget will be used to contract an individual to coordinate technical input from the line the technical staff of line ministries, civil society, academic institutions and the private sector – and channel the assistance to the communities. Due to the long-term nature of the initiative, a service contract will be more appropriate than a consultant contract –6 years @ \$1,205 per month.
1d.	<ul style="list-style-type: none"> • Service provider for technical support to the GIS units at MFRSC, BOS, LMS, MAFS and MEMWA. GIS consultants will be contracted on a short-term basis @ 15 days per year @ \$350 per day. Additional time is provided for in Year 1 and Year 6 during which the baseline assessments and mapping are being undertaken. • Newly capacitated GIS units with the input of international and national consultants will undertake baseline assessments and generate integrated vulnerability and hazard maps.

1e.	<ul style="list-style-type: none"> • 14 x travel cost for International Consultants @ \$3000 per mission. • Local travel to Community Councils for needs assessments, training etc. At least 10 days of site visits in Year 1 and Year 2 to each of the three pilot sites.
1f.	<ul style="list-style-type: none"> • Office supplies including stationery, printing, publications (e.g. workshop reports) and other printed/electronic media.
1g.	<ul style="list-style-type: none"> • Rent of office space for PMU and support staff and payment of associated utilities.
1g.	<ul style="list-style-type: none"> • Office equipment for PMU and support staff including furniture, desks, computers, printers (including Mapmaking printer), software licensing and other equipment.
1i.	<ul style="list-style-type: none"> • Printing of training materials, knowledge/awareness products and policy briefs.
1j.	<ul style="list-style-type: none"> • Training sessions on GIS for MFRSC, BOS, LMS, MAFS and MEMWA technical staff @ \$9500 per individual (14 individuals to receive training over two years). The MoLGCAMoLGCA subscribes to a training institution in Nairobi, Kenya. This institution give specialised courses in GIS and Remote Sensing for up to six months. • Climate change awareness training, including a national workshop for line ministries, district workshop and community council workshops including follow up training manuals.
2a.	<ul style="list-style-type: none"> • Climate change adaptation training specialist – Fees: 60 days @ \$600 per day. This specialist will review the current awareness of the MFRSC and tailor the training modules to the local context, particularly with regard to the youth and other socially vulnerable group. Additional time required during Year 1 to undertake capacity assessments and gap analysis. In addition, this specialist will conduct a gap analysis of the current knowledge management systems under the Ministry.
2b.	<ul style="list-style-type: none"> • National climate change adaptation expert – Fees: 60 days @ \$350 per day. This specialist will provide input into the formulation of training programmes and training on the interventions and methods of implantation. They will be responsible for collating the lessons learned from on-the-ground interventions and providing feedback for the updating of training materials. • National education and training expert – Fees: 20 days per year @ \$350 per day. This specialist is to conduct a comprehensive needs assessment for climate change adaptation training, including two workshops. This will be initiated and coordinated by MFRSC following its standard procedures. The needs assessment will include a stock-taking exercise to identify existing training materials on climate change adaptation in Lesotho as well as an assessment of the types of training require to build district and sub-district capacities. In addition, the specialist will update and extend the portfolio of training modules to include aspects that are not covered within the current portfolio. • National governance and policy expert – Fees: 40 days @ \$350 per day. This specialist is to assist with the establishment of inter-council land rehabilitation committees and the formulation and review of community council bylaws. This will include facilitating discussion forums. Discussions are to include members of Parliament who are responsible for environmental issues.
2c.	<ul style="list-style-type: none"> • Service provider for awareness raising and publicity campaign. This will include the establishment of local community discussion forums in workshops or other appropriate format. Also includes use of local media – including radio – to target specific audiences with appropriate ecosystem management information. Finally, this contract will include the creation of a discussion forum to facilitate dialogue. • Service provider to formulate and implement 3 training programmes based on identified capacity and training needs assessments. Training programmes will be tailored to identified needs of the 3 target groups, namely i) local communities; ii) technical staff and land managers; and iii) representatives of engineering, planning and monitoring sections of MFRSC. It is envisaged that an appropriate NGO/CSO based in the project area will be preferred service provider. This will include developing and disseminating training materials. • Service provider - train NGOs and/or CBOs to monitor and advise farmers, pastoralists and rural households on appropriate climate change adaptation interventions.

2d.	<ul style="list-style-type: none"> • Travel for international consultants per mission at \$3000 per mission (missions to take place in Year 1, Year 3 and Year 5). • Local travel for international consultants to Community Councils for needs assessments, training, monitoring field activities. Assume two field trips of 5 days, for at least two field staff at three sites.
2e.	<ul style="list-style-type: none"> • Maintenance of project vehicles, including annual service and other associated costs.
2f.	<ul style="list-style-type: none"> • Printing of training materials to promote climate-resilient ecosystem rehabilitation to be targeted at i) technical staff and land managers; and ii) representatives of engineering, planning and monitoring sections of MFRSC. Graphic design @ \$250 and printing of 1000 copies @ \$5000 for training materials.
2g.	<ul style="list-style-type: none"> • Undertake training for various sections of the MFRSC focused upon climate science and the benefits of integrating climate risk considerations into the design of hard infrastructure, land use planning and decision-making, including the socio-economic benefits thereof. This will include a national workshop for line ministries, a district workshop and 3 community council workshops, as well as follow up training and the printing of training materials.
3a.	<ul style="list-style-type: none"> • Climate change adaptation expert – Fees: 60 days at CCAE @ \$600 per day. This specialist will oversee the design of the climate-smart LRP interventions, including conservation agriculture and agro-forestry as well as biophysical interventions. This specialist will also facilitate the identification of appropriate sites for intervention measures. This specialist will oversee the implantation of the experimental design and long-term research. • Capacity development expert – Fees: 40 days @ \$600 per day. The specialist is to facilitate the development of a withdrawal strategy for participant NGOs/CBOs. • Education and training expert – Fees: 20 day per year @ \$600 per day. This specialist will provides strategic advice regarding the implementation of training programmes in the community councils. This specialist will assist with updating the training programmes on an annual basis taking into account the lessons learned. • Remote sensing/GIS specialist – Fees: 15 days @ 600 per day. This specialist will assist with identifying appropriate sites for intervention measures based upon the integrated maps of hazards and vulnerabilities. They will also assist with identifying the location for the experimental design plots • Project M&E system design specialist – Fees: 70 days at \$600 per day. This specialist will design an M&E system for the project to monitor, evaluate and report on the success of interventions in order to guide adaptive management of project activities. They will provide advice regarding the long-term research and experimental design.
3b.	<ul style="list-style-type: none"> • Climate change adaptation expert – Fees: 20 days per year @ \$350 per day. This specialist will facilitate the implementation of appropriate climate-smart interventions and the identification of suitable sites. • Education and training expert – Fees: 20 days per year @ \$350 per day. This specialist will assist with the implementation of training programmes, particularly of the local communities. Training should be updated on an annual basis taking into account the lessons learned. • Capacity development expert – Fees: 60 days @ \$350 per day. This specialist will assist in the development and implementation of strategies for the withdrawal of CBOs/NGOs and government agencies at the termination of the project. This specialist will facilitate the handing over of responsibilities to community groups and households. • Geospatial expert – Fees: 40 days @ \$350 per day. This specialist will assist with identifying appropriate sites for intervention measures based upon the integrated maps of hazards and vulnerabilities. They will also assist with identifying the location for the experimental design plots.
3c.	<ul style="list-style-type: none"> • Travels costs for International Consultants x 2 missions per year. (9 missions will take place in Year 1, Year 2, Year 3, Year 5 and Year 6). • Local travel for consultants to community councils for needs assessments, training, monitoring field activities.
3d.	<ul style="list-style-type: none"> • Chief Technical Advisor – Fees: Annually renewable contract @ \$600 per day for 60 days per year

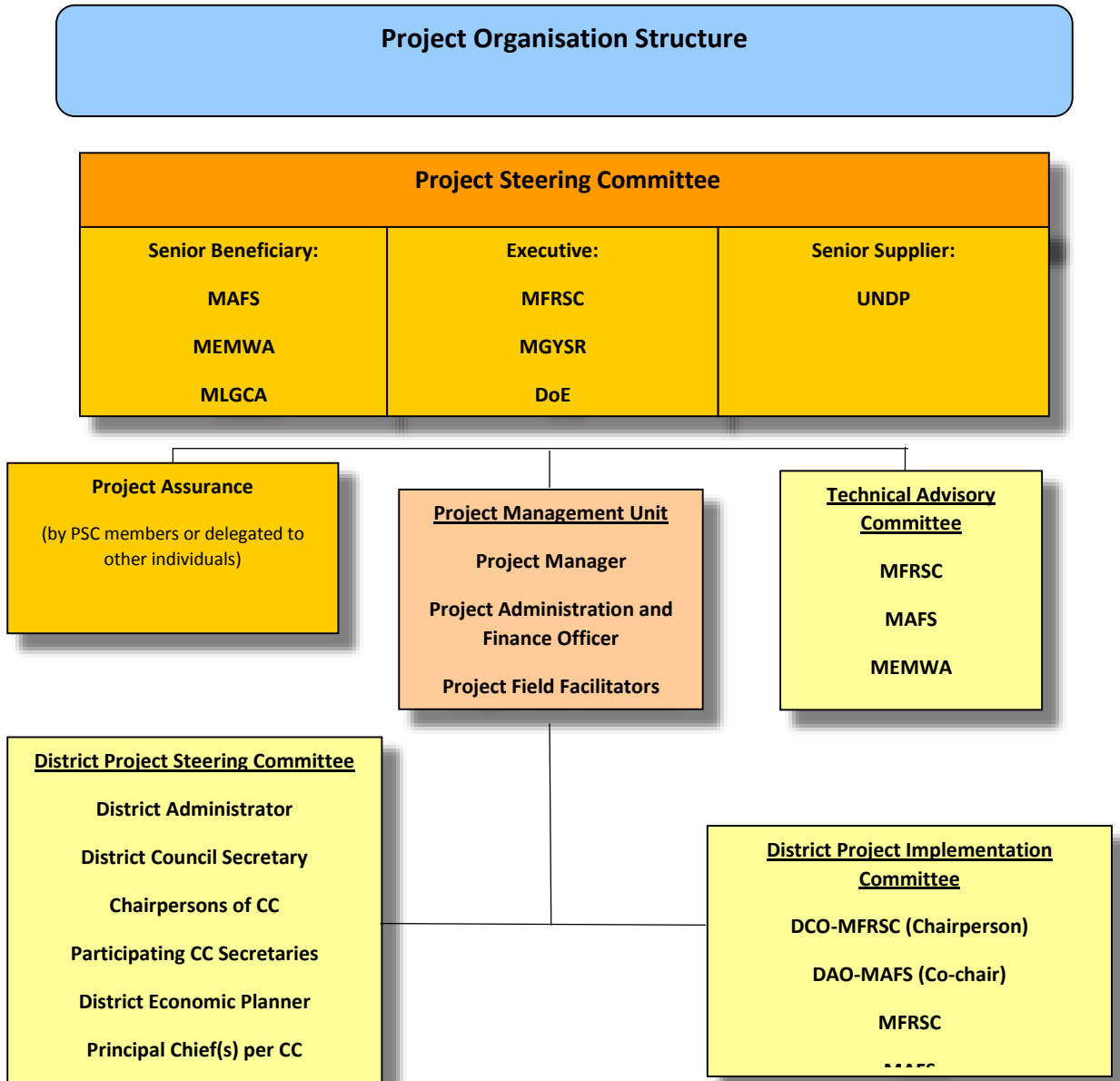
	<ul style="list-style-type: none"> • Field facilitators – there will be one facilitator based in each of the Community Councils. They will assist with coordination of project activities between the national and district/sub-district levels, e.g. facilitating local travel to community councils for implementation of climate-smart LRP – oversee project implementation at project sites. • Service provider to undertake baseline assessment of soil erosion, soil type, soil chemistry, as well as existing techniques to control soil erosion. • Service provider –this service provider will identify and assist in the implementation of appropriate adaptation interventions in the pilot Community Councils. This contract will preferably be awarded to a competent NGO or CSO with expertise and presence in the pilot area. • Service provider - this service provider will develop and implement an awareness-raising and publicity campaign to promote public awareness on climate-smart ecosystem rehabilitation within the community councils, including information products and materials. • Service provider - this service provider will assist with the design of treatments, choosing sites and implementing experimental designs. They will also assist with data collection, analysis and interpretation for information generated by research programme. This includes stipends for researchers/academics to develop reports and scientific papers based on field sites.
3e.	<ul style="list-style-type: none"> • Grants for the implementation of climate-smart LRP activities through the “cash for work” modality. (M947.80 for 20 days)
3f.	<ul style="list-style-type: none"> • Materials and goods grants for inputs for climate-resilient bio-physical interventions of households. <ul style="list-style-type: none"> ○ Agricultural equipment for climate-smart agriculture ○ Seeds etc. for climate-smart agriculture ○ Cement, gabion baskets for bio-physical interventions ○ Seedlings/saplings for nurseries ○ Shade netting, poles and other materials for establishment of nurseries • Implement ecosystem rehabilitation and management measures, based on indicative costs of: <ul style="list-style-type: none"> ○ Drip irrigation ○ Fruit tree seedlings ○ Eragrostis grass seed ○ 5000 litre water tank
3g.	<ul style="list-style-type: none"> • Two off-road, raised chassis vehicles for supporting extension services and visits to field sites.
3h.	<ul style="list-style-type: none"> • Printing of training materials to promote climate-resilient ecosystem rehabilitation to be targeted at participating households.
4a.	<ul style="list-style-type: none"> • Capacity development expert - Fees 30 days @ \$600 per day. The specialist will be required to conduct capacity assessments to identify institutional and organizational capacity gaps for the implementation and enforcement of national and sectoral policies for improved environmental management.
4b.	<ul style="list-style-type: none"> • Climate change adaptation expert. This specialist will provide strategic advice for the integration of climate risk considerations into national strategies. In particular, they will identify sustainable land use management practices. • Capacity development expert: Fees - 20 days per year @ \$350 per day. This specialist will be required to assist in undertaking capacity assessments to identify institutional and organisational capacity gaps for the implementation and enforcement of national and sectoral policies for improved environmental management. The specialist will also be responsible for making recommendations regarding institutional arrangements. • Governance and Policy Expert. This specialist will develop policy briefs for the integration of climate change adaptation into the national wetland and rangeland management strategies. The briefs are to address the implications of climate change adaptation for vulnerable groups, including youth and women. In addition, they are required to make recommendations for relevant sector policies, plans and strategies describing institutional and implementation modalities, functional and technical capacities, assessment methods and M&E systems for climate change adaptation.

4c.	<ul style="list-style-type: none"> • Training and Capacity Building Workshop for relevant line ministries and community councils to discuss the review of policies and plans.
5a.	<ul style="list-style-type: none"> • Capacity development expert. This specialist will be required to investigate and implement appropriate institutional mechanisms for improved inter-ministerial coordination. This specialist will review the institutional arrangements and prepare recommendations to improve coordination between DCOs, extension officers and other technical staff.
5b.	<ul style="list-style-type: none"> • Climate change adaptation expert – Fees: 20 days per year @ \$350 per day. This specialist will provide strategic advice for integrating climate risks into local development policies. This specialist will provide input into the training materials and course curricula. This specialist will also synthesise the lessons learned through the project and facilitate the dissemination of appropriate materials. • Capacity development expert – Fees: 20 days per year @ \$350 per day. This specialist will assist in the development of innovative institutional mechanisms to increase collaboration between DCOs, extension officers and technical staff, as well as inter-ministerial coordination. • Governance and policy expert – Fees: 20 days per year @ \$350 per day. This specialist will be required to review local policies and develop guidelines to support the integration of climate risk and ecosystem management into the design and approval processes of local development programmes, plans and activities. This specialist will also provide progress reports to the relevant ministries. • Education and training expert – Fees: 20 days per year @ \$350 per day. This specialist will be required to collaborate with institutions of higher learning to support the integration of climate risk considerations into the regular training curricula. This specialist will facilitate the adoption of a “learning by doing” approach through introducing participatory experiential learning methods, including the establishment of Farmer Field Schools and coordinating field trips/study tours.
5c.	<ul style="list-style-type: none"> • Travel for international consultants. (5 missions to take place in Year 1, Year 3 and Year 6). • Local travel for consultants.
5d.	<ul style="list-style-type: none"> • Service provider – companies. Public awareness campaign will include the establishment of local community discussion forums in workshops or other appropriate format. Also includes use of local media – including radio – to target specific audiences with appropriate ecosystem management information.
5e.	<ul style="list-style-type: none"> • Printing of quarterly policy briefs updating the relevant line ministries, and guidelines to support the integration of climate risks and ecosystem management into the design and approval processes of local development programmes, plans and activities.
5f.	<ul style="list-style-type: none"> • Workshop with relevant line ministries regarding the integration of climate-smart interventions into inter alia agricultural, rural development and infrastructural policies at the local level. • Discussion forums to be held with community councils and district technical staff, as well as MOLGCAMOLGCA regarding the integration of climate risks and ecosystem management into the design and approval processes of local development programmes, plans and activities. • Undertake field visits and study tours to publicize project activities and lessons learnt from implementation experience. These field visits will include school and youth groups who will be encouraged to participate in various activities and competitions.
PM1.	<ul style="list-style-type: none"> • Project management: Project Manager – Fees: 6 years @ \$28,235 per year
PM2.	<ul style="list-style-type: none"> • Administration and Financial Officer – Fees: 6 years @ \$24,000 per year
PM3.	<ul style="list-style-type: none"> • Inception workshop • 2 x Lessons learned workshops
PM4.	<ul style="list-style-type: none"> • Annual audit – Fees: 6 years @ \$3000 per year.

PM5.	<ul style="list-style-type: none">• International Consultant – Inception Process• International Consultant – Mid-term review• International Consultant – Terminal Evaluation
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5. Management Arrangements

5.1 Project structure



5.2 Implementation Modality

197. The project will be implemented through the National Implementation Modality (NIM) by the MFRSC.

5.3 Implementing Partner

198. The MFRSC will be the lead government agency in implementing the LDCF-financed project. In this capacity it will work closely with the MAFS (Department of Crops, Department of Livestock Services, Department of Field Services and Department of Agricultural Research), the MEMWA (Department of Rural Water Supply, Department of Water Affairs and LMS), MOLGCA (Department of Landuse Planning), MGYSR (Department of Youth), BOS and the Disaster Management Authority.

5.4 Project Steering Committee

199. The **Project Steering Committee** (PSC) is responsible for overall management and decision-making for the LDCF-financed project, and will provide administrative support and guidance to the Project Manager (PM). The PSC plays a critical role in project monitoring and evaluations by quality assuring these processes and products, and using evaluations for performance improvement, accountability and learning. It ensures that required resources are committed and arbitrates on any conflicts within the project or negotiates a solution to any problems with external bodies. In addition, it approves the appointment and responsibilities of the PM and any delegation of its Project Assurance responsibilities. Based on the approved Annual Work Plan, the PSC can also consider and approve the quarterly plans (if applicable) and also approve any essential deviations from the original plans.

200. In order to ensure UNDP's ultimate accountability for the project results, PSC decisions will be made in accordance with standards that shall ensure management for development results, best value money, fairness, integrity, transparency and effective international competition. In case consensus cannot be reached within the PSC, the final decision shall rest with the Chief Technical Advisor (CTA) or PM, with the CTA having final authority.

201. Potential members of the PSC are reviewed and recommended for approval during the PSC meeting. Representatives of other stakeholders can be included in the committee as appropriate. The members of the PSC will fulfil four distinct roles, including:

- **PSC Executive:** A senior representative of the MFRSC will fulfil this role to represent the project and co-chair the PSC.
- **Senior Supplier:** An individual or group from the UNDP CO representing the interested parties providing co-financing for specific cost-sharing projects and/or technical expertise to the project. The Senior Supplier's primary function within the PSC is to provide guidance regarding the technical feasibility of the project.
- **Senior Beneficiary:** An individual or group representing the interests of the local communities who will ultimately benefit from the project. The Senior Beneficiary's primary function within the PSC is to ensure the realisation of project results from the perspective of project beneficiaries. A Senior Beneficiary is still to be selected for the project, but potential candidates include representatives of the MAFS, MEMWA, MOLGCA, MGYSR and MTAC.
- **Project Assurance:** An individual that supports the PSC Executive by carrying out objective and independent project oversight. The PM and Project Assurance roles cannot be held by the same individual. The UNDP CO will select a representative from within its organisation to fulfil this role.

202. The PSC will be constituted with representatives from the following line ministries and departments:

- MFRSC: Forestry, Soil and Water Conservation, Rangelands, Chief Economic Planner, Mohale's Hoek DCO;
- MAFS: Crops, Livestock, Research, Planning;
- MEMWA: Water Affairs, LMS, Energy;
- MOLGCA: Land Use Planning;
- MTAC: Director of Environment;
- BOS: Head EESU;
- Project Manager;

- Lesotho National Farmers' Union;
- LCN; and
- UNDP.

203. The collaborating ministries and departments will be represented in the PSC by directors or higher ranking officers to expedite consultation and authoritative decision-making. The PSC will be co-chaired by the Principal Secretaries of MFRSC, MAFS, MEMWA, MOLGCA and MGYSR. Meetings will be held bi-annually to review progress and reports received from the national level technical team and district level project implementation committee.

5.5 Project Management Unit

204. The **Project Management Unit (PMU)** will act as an advisory body to the LDCF-financed project providing high-level technical guidance, policy input and support. The PMU will have a role in facilitating communication, technical cooperation and coordination among stakeholder agencies and other project partners. This body will review technical documents and provide advice and information to consultants working to complete project activities. The PMU will have responsibility for project implementation and management of resources on a day-to-day basis, as well as for the preparation of work plans, budgets, project proposals, and progress reports. The PMU will consist of an international CTA, PM, a national Administration and Finance Officer, three Project Field Facilitators and a driver.

205. **Project Manager:** The PM has the authority to run the project on a day-to-day basis on behalf of the Implementing Partner within the constraints laid down by the PSC. The PM is responsible for delivering the results and outcomes specified in the project document, to the required standard of quality and within the specified constraints of time and cost. The PM will report on a weekly basis to the CTA on the progress and challenges encountered on the ground during the execution of activities. In particular, the PM will: i) provide on-the-ground information for UNDP progress reports; ii) engage with stakeholders; iii) organise the PSC meetings; iv) provide technical support to the project, including measures to address challenges to project implementation; and v) participate in training activities, report writing and facilitation of consultant activities that are relevant to his/her area of expertise.

206. **Project Support:** The Project Support role provides project administration, management and technical support to the PM. This role will be undertaken by the Administration and Financial Officer, who will be employed for the duration of the project.

207. **Project Field Facilitators:** The Project Field Facilitators will be responsible for field operations in each of the participating Community Councils.

5.6 Technical Advisory Committee

208. A technical team will be established at the national level to provide overall technical guidance for project implementation and adaptation practices for demonstration at the watershed level. The Technical Advisory Committee (TAC) will constitute representatives from the following line ministries and agencies:

- MFRSC: Forestry, Soil and Water Conservation, Rangelands, Head GIS Unit, Mohale's Hoek DCO;
- MAFS: Crops, Livestock, Irrigation, Horticulture, DAR, Head GIS Unit;
- MEMWA: Wetlands, Rural Water Supply, Agro-climatology, Renewable/Biomass Energy, Heads of GIS Units;
- MOLGCA: Land Use Planning GIS Unit;
- BOS: Head EESU, BOS GIS Unit; and
- Project Manager.

209. Members of the TAC will participate in the national level training for capacity building and awareness programmes.

5.6 District Project Steering Committee

210. A District Project Steering Committee (DPSC) will be established for reviewing overall progress of the LDCF-financed project and endorsing overall decision-making at the district and inter-council level. The following local authorities and agencies will be represented on the DPSC:

- District Administrator (Chairperson);
- District Council Secretary;
- Chairpersons of participating Community Councils;
- Participating Community Council Secretaries;
- District Economic Planner;
- Principal Chief(s) of participating Community Councils;
- MFRSC: District Coordinator
- MAFS: District Agricultural Officer;
- Project Manager; and
- NGOs.

211. The DPSC will meet bi-annually to review progress and reports received from the respective Community Councils and recommendations from the PSC and the project implementation committee at the district level.

5.7 District Project Implementation Committee

212. A District Project Implementation Committee (DPIC) will be established for providing overall guidance on the implementation of the project activities in the selected pilot sites. The following line ministries and agencies will be represented on the DPIC:

- MFRSC: Forest Officer, Soil and Water Conservation and Range Management;
- MAFS: Crops, Livestock, Veterinarian, Extension Officer and GIS Unit;
- Community Council Physical Planners;
- NGOs;
- Project Field Facilitators; and
- Project Manager.

213. The DPIC will meet quarterly to review the project progress and provide directions to the PMU. It will also ensure that the LDCF-financed project's activities are integrated into the district strategy.

6. Monitoring Framework and Evaluation

214. The project will be monitored through the following M&E activities. The M&E budget is provided in the table below.

Project start:

215. A Project Inception Workshop will be held within the first 2 months of project start with those with assigned roles in the project organization structure, UNDP country office and where appropriate/feasible regional technical policy and programme advisors as well as other stakeholders. The Inception Workshop is crucial to building ownership for the project results and to plan the first year annual work plan.

216. The Inception Workshop should address a number of key issues including:
- Assist all partners to fully understand and take ownership of the project. Detail the roles, support services and complementary responsibilities of UNDP CO and RCU staff vis à vis the project team. Discuss the roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms. The Terms of Reference for project staff will be discussed again as needed.
 - Based on the project results framework and the relevant SOF (e.g. GEF) Tracking Tool if appropriate, finalize the first annual work plan. Review and agree on the indicators, targets and their means of verification, and recheck assumptions and risks.
 - Provide a detailed overview of reporting, monitoring and evaluation (M&E) requirements. The Monitoring and Evaluation work plan and budget should be agreed and scheduled.
 - Discuss financial reporting procedures and obligations, and arrangements for annual audit.
 - Plan and schedule PSC meetings. Roles and responsibilities of all project organisation structures should be clarified and meetings planned. The first PSC meeting should be held within the first 12 months following the inception workshop.
217. An Inception Report will be prepared, capturing the findings of the inception phase, which include any changes in project design and activities required as well as a further detailing of implementation. The Inception Report is a key reference document and must be prepared and shared with participants to formalize various agreements and plans decided during the meeting.
218. Quarterly:
- Progress made shall be monitored in the UNDP Enhanced Results-Based Management Platform.
 - Based on the initial risk analysis submitted, the risk log shall be regularly updated in ATLAS. Risks become critical when the impact and probability are high. Note that for UNDP GEF projects, all financial risks associated with financial instruments such as revolving funds, microfinance schemes, or capitalization of ESCOs are automatically classified as critical on the basis of their innovative nature (high impact and uncertainty due to no previous experience justifies classification as critical).
 - Based on the information recorded in Atlas, a Project Progress Reports (PPR) can be generated in the Executive Snapshot.
 - Other ATLAS logs can be used to monitor issues, lessons learned etc. The use of these functions is a key indicator in the UNDP Executive Balanced Scorecard.
219. Annually
- Annual Project Review/Project Implementation Reports (APR/PIR): This key report is prepared to monitor progress made since project start and in particular for the previous reporting period (30 June to 1 July). The APR/PIR combines both UNDP and SOF (e.g. GEF) reporting requirements. The APR/PIR includes, but is not limited to, reporting on the following:
 - Progress made toward project objective and project outcomes - each with indicators, baseline data and end-of-project targets (cumulative)
 - Project outputs delivered per project outcome (annual).
 - Lesson learned/best practice.
 - AWP and other expenditure reports
 - Risk and adaptive management
 - ATLAS QPR
 - Portfolio level indicators (i.e. GEF focal area tracking tools) are used by most focal areas on an annual basis as well.

Periodic Monitoring through site visits

220. UNDP CO and the UNDP RCU will conduct visits to project sites based on the agreed schedule in the project's Inception Report/Annual Work Plan to assess first hand project progress. Other members of the PSC may also join these visits. A Field Visit Report/BTOR will be prepared by the CO and UNDP RCU and will be circulated no less than one month after the visit to the project team and PSC members.

Mid-term of project cycle

221. The project will undergo an independent Mid-Term Evaluation at the mid-point of project implementation (insert date). The Mid-Term Evaluation will determine progress being made toward the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The organization, terms of reference and timing of the mid-term evaluation will be decided after consultation between the parties to the project document. The Terms of Reference for this Mid-term evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-EEG. The management response and the evaluation will be uploaded to UNDP corporate systems, in particular the [UNDP Evaluation Office Evaluation Resource Center \(ERC\)](#).
222. The relevant SOF (GEF) Focal Area Tracking Tools will also be completed during the mid-term evaluation cycle.

End of Project

223. An independent Final Terminal Evaluation will take place three months prior to the final PSC meeting and will be undertaken in accordance with UNDP and SOF (e.g. GEF) guidance. The final evaluation will focus on the delivery of the project's results as initially planned (and as corrected after the mid-term evaluation, if any such correction took place). The final evaluation will look at the impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental benefits/goals. The Terms of Reference for this evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-EEG.
224. The Final Terminal Evaluation should also provide recommendations for follow-up activities and requires a management response which should be uploaded to PIMS and to the [UNDP Evaluation Office Evaluation Resource Center \(ERC\)](#).
225. The relevant SOF (e.g GEF) Focal Area Tracking Tools will also be completed during the final evaluation.
226. During the last three months, the project team will prepare the Project Terminal Report. This comprehensive report will summarize the results achieved (objectives, outcomes, outputs), lessons learned, problems met and areas where results may not have been achieved. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the project's results.

Learning and knowledge sharing

227. Results from the project will be disseminated within and beyond the project intervention zone through existing information sharing networks and forums. The project will identify and participate, as relevant and appropriate, in science, policy-based and/or any other networks, which may be of benefit to project implementation through lessons learned. The project will identify, analyse, and share lessons learned that might

be beneficial in the design and implementation of similar future projects. Finally, there will be a two-way flow of information between this project and other projects with a similar focus.

Communications and visibility requirements

228. Full compliance is required with UNDP’s Branding Guidelines. These can be accessed at <http://intra.undp.org/coa/branding.shtml>, and specific guidelines on UNDP logo use can be accessed at: <http://intra.undp.org/branding/useOfLogo.html>. Amongst other things, these guidelines describe when and how the UNDP logo needs to be used, as well as how the logos of donors to UNDP projects needs to be used. For the avoidance of any doubt, when logo use is required, the UNDP logo needs to be used alongside the GEF logo. The GEF logo can be accessed at: http://www.thegef.org/gef/GEF_logo. The UNDP logo can be accessed at <http://intra.undp.org/coa/branding.shtml>.

229. Full compliance is also required with the GEF’s Communication and Visibility Guidelines (the “GEF Guidelines”). The GEF Guidelines can be accessed at: [http://www.thegef.org/gef/sites/thegef.org/files/documents/C.40.08_Branding the GEF%20final 0.pdf](http://www.thegef.org/gef/sites/thegef.org/files/documents/C.40.08_Branding_the_GEF%20final_0.pdf). Amongst other things, the GEF Guidelines describe when and how the GEF logo needs to be used in project publications, vehicles, supplies and other project equipment. The GEF Guidelines also describe other GEF promotional requirements regarding press releases, press conferences, press visits, visits by Government officials, productions and other promotional items. Where other agencies and project partners have provided support through co-financing, their branding policies and requirements should be similarly applied.

M& E workplan and budget

Type of M&E activity	Responsible Parties	Budget US\$ <i>Excluding project team staff time</i>	Time frame
Inception Workshop and Report	<ul style="list-style-type: none"> ▪ Project Manager ▪ UNDP CO, UNDP CCA 	Indicative cost: 30,000	Within first two months of project start up
Measurement of Means of Verification of project results.	<ul style="list-style-type: none"> ▪ UNDP CCA RTA/Project Manager will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members. 	To be finalized in Inception Phase and Workshop.	Start, mid and end of project (during evaluation cycle) and annually when required.
Measurement of Means of Verification for Project Progress on <i>output and implementation</i>	<ul style="list-style-type: none"> ▪ Oversight by Project Manager ▪ Project team 	To be determined as part of the Annual Work Plan's preparation.	Annually, prior to ARR/PIR and to the definition of annual work plans
ARR/PIR	<ul style="list-style-type: none"> ▪ Project manager and team ▪ UNDP CO ▪ UNDP RTA ▪ UNDP EEG 	None	Annually
Periodic status/ progress reports	<ul style="list-style-type: none"> ▪ Project manager and team 	None	Quarterly
Mid-term Evaluation	<ul style="list-style-type: none"> ▪ Project manager and team ▪ UNDP CO ▪ UNDP RCU 	Indicative cost: 30,000	At the mid-point of project implementation.

Type of M&E activity	Responsible Parties	Budget US\$ <i>Excluding project team staff time</i>	Time frame
	<ul style="list-style-type: none"> ▪ External Consultants (i.e. evaluation team) 		
Final Evaluation	<ul style="list-style-type: none"> ▪ Project manager and team, ▪ UNDP CO ▪ UNDP RCU ▪ External Consultants (i.e. evaluation team) 	Indicative cost: 30,000	At least three months before the end of project implementation
Project Terminal Report	<ul style="list-style-type: none"> ▪ Project manager and team ▪ UNDP CO ▪ Local consultant 	0	At least three months before the end of the project
Audit	<ul style="list-style-type: none"> ▪ UNDP CO ▪ Project manager and team 	Indicative cost per year: 3,000	Yearly
Visits to field sites	<ul style="list-style-type: none"> ▪ UNDP CO ▪ UNDP RCU (as appropriate) ▪ Government representatives 	For GEF supported projects, paid from IA fees and operational budget	Yearly
TOTAL indicative COST		US\$ 93,000	
Excluding project team staff time and UNDP staff and travel expenses		(+/- 5% of total budget)	

7. Legal Context

230. This document together with the CPAP signed by the Government and UNDP which is incorporated by reference constitute together a Project Document as referred to in the SBAA [or other appropriate governing agreement] and all CPAP provisions apply to this document.

231. Consistent with the Article III of the Standard Basic Assistance Agreement, the responsibility for the safety and security of the implementing partner and its personnel and property, and of UNDP's property in the implementing partner's custody, rests with the implementing partner.

232. The implementing partner shall:

- put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried;
- assume all risks and liabilities related to the implementing partner's security, and the full implementation of the security plan.

233. UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of this agreement.

234. The implementing partner agrees to undertake all reasonable efforts to ensure that none of the UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via <http://www.un.org/Docs/sc/committees/1267/1267ListEng.htm>. This provision must be included in all sub-contracts or sub-agreements entered into under this Project Document.

8. Annexes (attached separately)

LIST OF ANNEXES

Annex 1: Risk analysis

Annex 2: Key assessment reports

Annex 3: Stakeholder involvement plan

Annex 4: Terms of reference for project personnel

Annex 5: Letters of co-financing

Annex 6: UNDP Strategic Plan

Annex 7: Detailed project activities

Annex 8: Site Selection

Annex 9: Maps

Annex 10: References

1 ANNEXES

Annex 1: Risk analysis

Table 1. Risks, rating and proposed mitigation measures.

	Risk	Impact and probability	Mitigation Measure	Assumption
1	Poor uptake of training on climate- smart land use planning and management results in ineffective implementation of project interventions.	I: 5 P: 1	<ul style="list-style-type: none"> • Training and knowledge transfer will be undertaken throughout the implementation period of the project. • Knowledge transfer will be undertaken through formal training sessions as well as “learning by doing”. • Pre-and post-training assessments of capacity will be undertaken. • Training sessions and materials will be tailored to the level of technical ability of participants. • Community Council leadership and village chiefs fully participate in training needs assessment and implementation. 	Trainees leave training with improved capacity.
2	Sectoral ministries are unwilling to adopt recommendations on policies	I: 5 P: 1	<ul style="list-style-type: none"> • Recommendations for policy will be supported by training and awareness raising activities. • The Project Steering Committee (PSC) will monitor the progress of the policy revision process – responding to challenges as they arise. • Interventions aligned with sectoral ministry’s priorities within mandates. • Sectoral ministries fully engaged during PPG. 	Recommendations for sector policies, strategies and plans will be accepted and mainstreamed.
3	Communities are unwilling to adopt new climate-smart land use methods.	I: 5 P: 3	<ul style="list-style-type: none"> • A stakeholder engagement plan will be developed during the PPG phase to support the participation of local communities. • Capacity building and training of local communities will be undertaken to communicate the benefits of adaptation interventions and involve them in the implementation and M&E. 	Communities see climate-smart land use as desirable given development imperatives and lifestyle preferences and support project interventions.

			<ul style="list-style-type: none"> Awareness-raising campaigns will be undertaken to promote adaptation interventions. These campaigns will highlight the importance of LDCF project interventions. 	
4	Chiefs in target areas unwilling to support project interventions	I: 5 P: 1	<ul style="list-style-type: none"> Chiefs are engaged to raise their awareness of the benefits of project interventions. Consultation with chiefs will ensure that their concerns are taken into consideration when planning interventions. Chiefs are also involved in capacity building, training and skills development. 	Chiefs support project interventions and facilitate the roll out within their constituencies.
5	High staff turnover and poor institutional memory result in disruptions or delays in project implementation and coordination.	I: 5 P: 3	<ul style="list-style-type: none"> Deputies and alternative representatives within participating institutions will be recommended at inception to support the continuity of staff participation. The PSC will make use of established government structures to capitalise on functioning systems. Community Councils and Chiefs empowered to lobby and advocate for project interventions. 	A strong demand for project interventions from the community councils will counteract the risk, especially in the light of decentralisation policy.
6	The geo-based climatic, agro-ecological and hydrological information system is not sustained beyond the lifetime of the project.	I: 3 P: 1	<ul style="list-style-type: none"> Strong data management systems established during the lifetime of the project, under the guidance of the PMU. Responsibility for maintaining the system is appropriately allocated within government. Project activities build on strong commitments and baseline investments on GIS in the participating departments Project activities coordinated by the EESU of BOS 	Information established during the project will support climate-smart land use planning and management into the future. The EESU remains committed to its national mandate.
7	Ecosystem rehabilitation and management interventions are not cost effective.	I: 5 P: 1	<ul style="list-style-type: none"> Analysis of project interventions undertaken before implementation to assess cost-effectiveness. Interventions based on climate risk assessment & mapping. 	Cost-effective interventions will be identified.

Annex 2: Key assessment reports

Inception Workshop Report

Held in Maseru, Lesotho on 12 June 2014

Introduction/project description

1. The Inception Mission was undertaken between 11 June 2014 and 20 June 2014 to support the Lesotho's Ministry of Forestry, Range and Soil Conservation (MFRSC), Ministry of Gender, Youth and Sports (MoGYS) and the Department of Environment (DoE), and UNDP to engage with line ministries and other key stakeholders in the design of the LDCF project entitled "Reducing vulnerability from climate change in the Foothills, the Lowlands and the Lower Senqu River Basin". The objectives of the mission were to:
 - detail and refine proposed project activities (ensuring that they are not replicating activities implemented by other projects but rather complementing them);
 - meet with a variety of stakeholders in government, NGOs, academic and other institutions to check relevancy of proposed project activities, and ensure that they are beneficial;
 - align proposed activities with the ongoing goals of government as well as other projects and programmes;
 - ensure that local government structures support and endorse the proposed activities;
 - identify potential risks and barriers to the proposed project and ways to overcome them;
 - identify stakeholders to partake in project activities;
 - design a budget/cost plan for the proposed project;
 - identify areas for project interventions; and
 - collect relevant on-the-ground information for the design of the project.
2. These objectives were addressed through: i) conducting meetings with key stakeholders in government, NGOs and other institutions; ii) holding an Inception Workshop with key stakeholders; and iii) collecting information by visiting the Maseru's Hoek District and meeting with key community members.

Initial activities, workshop and consultations

On 12 June 2014, an Inception Workshop was held in the Victoria Hotel in Maseru. The Inception Workshop agenda is attached as Annexure 1. The purpose of the Inception Workshop was to:

- provide an understanding of the project, including the project components;
- generate consensus among workshop participants on the site selection criteria;
- verify that the interventions and project components reflect the priority needs for the Lowlands, Foothills and Senqu River valley;
- generate discussion to identify risks to successful project implementation; and
- build consensus and ownership of the project.

The stakeholders provided information on the proposed: i) baseline projects; ii) intervention sites; and iii) activities. In addition, potential risks to project implementation were identified and relevant information was gathered.

The workshop was attended by 52 people, including representatives of various government ministries and local stakeholders. The list of participants is attached as Annexure 2. This report contains minutes of the Inception Workshop.

Initial consultations

To collect information from stakeholders at a central and local level, consultations with the UNDP Country Office and key representatives of bilateral/multilateral organisations represented in Lesotho were held in Maseru. A list of all people consulted during the mission is provided in Annexure 3.

Site visits

A field trip was organised to familiarise the international consultants with the proposed project area within the Maseru's Hoek District. The consultants visited affected areas to identify vulnerabilities to climate change and potential adaptation interventions. In addition, consultations were held with various stakeholders active in the Maseru and Maseru Councils.

A more extensive site investigation will be undertaken by the national consultants for the purpose of selecting specific intervention sites. During such investigation the national consultants will meet with both the Maseru and Maseru Community Councils.

Governmental Organizations

1) Disaster Management Authority (DMA)

Date of visit: 17 June 2014

Key contact: Ms Matšelisiso Mojaki – Acting Chief Executive

Met with the Acting Chief Executive and officials from different departments of the DMA listed in annexure 3. Discussed their current engagements and capacity challenges, especially in backstopping resilience of livelihoods after disasters. They confirmed leadership of the LVAC process and the latest LVAC report was launched on Thursday June 19.

NGOs Consulted during Inception Mission

2) Lesotho Council of NGOs (LCN)

Date of visit: 17 June 2014

Key contact: Mr Thato Konstabile – Secretary for Agriculture, Environment and Natural Resources

The mission was hosted by Mr Thato Konstabile. He gave us a detailed brief on their mandate as LCN across the different sectors of the operations. In particular, he pointed us to member NGOs working with issues of climate smart agriculture and environmental issues across Lesotho but specifically in the Mphahle's Hoek district.

3) Rural Self-Help Development Association (RSDA)

Date of visit: 17 June 2014

Key contact: Mrs 'Mampho Thulo – Managing Director

The Director briefed the mission on various activities of relevance to the project, especially in the Lithipeng Community Council in Mphahle's Hoek. These include: i) climate smart agriculture activities with farmers' groups and associations working on indigenous seed varieties – especially climate resilient open pollinated varieties; ii) promoting the use of oxen mechanized conservation agriculture technologies; and iii) fodder production.

4) World Vision Lesotho – National Office

Date of visit: 17 June 2014

Key contact: Mr Eddie Palula – Director

The mission met with Mr Eddie Palula. He gave us a detailed brief about World Vision activities in Lesotho. They are currently operating in 7 out of 10 districts in Lesotho, including Mphahle's Hoek. However, they are limited to a few councils per district. Their main activities include: i) food security; ii) agriculture; iii) conservation agriculture; and iv) soil and water conservation activities. They are involved in climate change adaptation activities on crops, trees, energy savings, disaster risk reductions and resilience mapping. In addition, they have conducted a baseline study on indigenous tree regeneration.

5) Send-A-Cow

Date of visit: 17 June 2014

Key contact: Mr Tlelima Phakoe – Program Manager

Send a Cow's activities are focused on food security and poverty alleviation. They are currently working in 5 areas in Lesotho including Khoelenya Community Council in Mohale's Hoek. Some of their field activities include: i) the promotion of key hole gardens; ii) the promotion of small livestock, including chickens and rabbits; iii) environmental works related to gully reclamation; and iv) income generation projects – for example, apiculture and the processing of associated products, handicrafts and financial management.

6) Technology for Economic Development (TED)

Date of visit: 17 June 2014

Key contact: Mantopi Martina de Porres Lebofa

TED focuses on implementing locally appropriate technology and activities that protect the environment. They have donated 750 wood saving stoves to households in the Mafeteng, Quthing and Qacha's Neck Districts. The demand for these stoves exceeds the supply. TED is trying to produce more stoves locally. In conjunction with their energy saving technologies, TED focuses on raising awareness of land degradation, fuel wood saving and afforestation. Communities are encouraged to plant indigenous trees, fruit trees and establish nurseries for seedlings. Other income generating activities are also promoted, including apiculture.

7) UNDP (Youth Program Coordinator)

Date of visit: 17 June 2014

Key contact: Setšabi Setšabi

The Program Coordinator provided details on the UNDP's Empowering Youth for Development Project, which was primarily aimed at political empowerment. This program has since expanded to address the socio-economic development challenges faced by youths. It was pointed out that the majority of youth reside in rural areas and encouraged a rural based approach to projects aimed at the youth, particularly in agriculture.

8) Beekeepers at Thaba-bosiu

Date of visit: 13 June 2014

Key contact: Mr Maccaea Makoro

The mission met with Messrs Maccaea Makoro and Motseko Mosiuoa. He gave us a detailed account of his beekeeping activities, including training services and business operations. In addition to processing the honey, he is also manufacturing equipment – extractors. Approximately 500 people have been trained by him in beekeeping. His operations are proof that beekeeping can be a sustainable income generating activity. However, start-up funding is considered a major obstacle preventing interested persons from purchasing beehives and the necessary equipment.

Inception Workshop Minutes

Welcome remarks by Mr Seetla Mabaso (Deputy Principal Secretary of MFRSC)

In his opening remarks, Mr. Mabaso informed the stakeholders of the importance of the project in the context of Lesotho. He drew attention to the fact that the project will target groups who are the most vulnerable and affected by climate change – in particular unemployed youth and women. In closing, he requested that stakeholders take the opportunity to offer their opinions on all aspects of the project discussed in the Inception Workshop.

Background on Project Concept by Mr Limomane Peshoane (UNDP)

By way of background, Mr Peshoane explained that this project originated in 2002 and will address NAPA Option 2 within the Lowlands, Foothills and the Lower Senqu River Basin. The project will address the issue of land degradation, as well as youth unemployment. Mr Peshoane emphasised that in order to access funding from GEF, it will be necessary to prove that Lesotho is already undertaking various development activities, but that climate change is hindering progress. He finished his presentation by reiterating that funding is only available for climate change adaptation.

Introduction to the GEF-LDCF project by Dr Anthony Mills (International Consultant, C4 EcoSolutions)

In his introduction to the project, Dr Mills introduced: i) the guiding principles for LDCF projects; ii) the concept of baseline projects and co-financing; iii) Ecosystem-based Adaptation (EbA); and iv) the project objective, outcomes and outputs. LDCF funds will be used to climate proof the baseline projects and assist existing projects/programmes to adapt to climate change.

Component 1: Knowledge, skills and institutional capacity support the MFRSC's Land Rehabilitation Programme (LRP) to factor in additional risks from CC, increase resilience, reduce vulnerability.

- Outcome 1: After the project ends, it is important to leave a legacy. Therefore, rigorous data collection (socio-economic and biophysical) for long-term research is required. This research should involve local communities, in order to develop their skills.
Activity: Incorporate data collection and analysis into institutions involved and marketing of a particular kind of farming system.
- Outcome 2: Rehabilitation should include marginal arable land. Fodder production and conservation agriculture are often overlooked, but should be emphasised. Fodder production can be an income-generating activity. There is a need to diversify livelihoods within the area as well as address a number of beneficiaries simultaneously.
Activity: An in-depth review of activities that have been undertaken in government-led restoration of ecosystems, in order to identify and replicate those successes.
- Outcome 3: Investing in the empowerment of communities is an important outcome.

Component 2: CCA mainstreamed into local development planning and finance.

- Outcome 4: With the support of development planning, budgeting for appropriate investments in ecosystems can yield sensible returns for Lesotho. It will be necessary to assess the costs, impacts and contributions from different parties for better outcomes.
Activity: Empower communities to access funding opportunities.

Project site selection (All stakeholders)

Based on the outcomes of the NAPA Vulnerability Assessment and the LVAC report, the following regions have been identified as being vulnerable to the effects of climate change: the Lower Senqu River Basin, the Lowlands and the Foothills. These assessments provide an overarching framework for the site selection process. During the Inception Workshop, the stakeholders agreed upon the following criteria for site selection:

- poverty level (using the NAPA compound index approach);
- water supply (focus on domestic use):
 - reliability;
 - sanitation (including waterborne diseases); and
 - accessibility.
- reliance on rainfed agriculture (including crop production and livestock production);
- frequency and intensity of intense rain events (predicted/existing);
- frequency and intensity of droughts (predicted/existing);
- land degradation (including loss of vegetation cover and/or alien plant invasions):
 - rangelands;
 - wetlands; and
 - cropland.
- local governance structures/capacity, especially grazing associations;

- willingness/awareness/readiness of local community;
- incidence of HIV;
- reliance on biomass for energy; and
- avoidance of duplication (i.e. from other projects/programmes).

It was suggested that an *ad hoc* working group be established to work with the national consultants in finalising the site selection process. Representatives from government, NGOs and other institutions would be represented within the following themes: i) water; ii) poverty/livelihoods; iii) rangelands; iv) crops; and v) gender/youth. The *ad hoc* working group would be tasked with finalising the appropriate site selection criteria and the weighting thereof, which would inform the selection of sites. Proper site selection will only take place once the consultants have undertaken a field trip to the Lowlands, Foothills and Senqu River Basin and met with various stakeholders in the area.

A summary of the stakeholders' remarks from the discussion regarding the project is presented below.

- The issue of poverty emanates from the LVAC analysis, which classifies livelihoods in terms of vulnerability to poverty indices. These are technical assessments based on the best predictions that were available at the time.
- Drinking water: It does not only concern drinking water, but water for domestic use in general. Access to water is considered a problem, whilst, the issue of waterborne diseases is related to sanitation.
- Agriculture: Cropland and livestock are to be included in the selection criteria.
- Flooding: It is necessary to look at future predictions. It is not the flooding that is the problem, rather it is the intense rainfall and soil erosion that arises therefrom that is an issue.
- The willingness and readiness of communities to participate is an important consideration. If they are not interested in participating, resources will be wasted.
- The reliance of communities on biomass for energy is an important consideration.
- Land degradation: Cropland is to be added to the criteria. It is important to bear in mind the role of alien plant infestations in land degradation.
- Local government: The presence/absence of local governance structures and the readiness of such structures should be taken into consideration.
- The following adaptation projects and aligned activities were raised:
 - IFAD: Smallholder Agriculture Development Project.
 - SLM: project can build on work with grazing associations to empower them and plant activities.
 - Small Grants Programme on conservation: Office of service – booklet detailing the projects and initiatives that were going on in a particular area and the contact details of the relevant persons. There used to be a database of innovative/lead farmers. It is suggested that such information assists in avoiding project duplication
 - MFRSC: Land Reclamation Program implemented from 2009 and currently operating in all 80 constituencies with three catchments per constituency in the current financial year.
- It is imperative that the project does not duplicate the efforts of other projects already being implemented in the project area.
 - The project should provide a legacy by raising communities' awareness of and resilience to climate change, thereby improving their livelihoods.

Stakeholder consultation programme during the Inception Mission

Date and time	Stakeholder	Institution / project
Wednesday 11 June 2014 at 08h00	Limomane Peshoane MV Marake Simon Takalimane	National consultants

	Mohaeka Raselimo	
Wednesday 11 June 2014 at 11h30	Morena Thesele J. Maseribane (Minister) Nthabiseng Mofube Refiloe Makhakhe L Lesenyelo	Ministry of Gender, Youth and Sport
Wednesday 11 June 2014 at 15h30	Seetla Mabaso (DPS)	Ministry of Forestry, Range and Soil Conservation
Thursday 12 June 2014 at 08h00	Cf. Workshop attendance list	Inception Workshop
Thursday 12 June 2014 at 14h30	Limomane Peshoane MV Marake Simon Takalimane Mohaeka Raselimo	National consultants
Thursday 12 June 2014 at 16h00	Mokitinyane Nthimo – Deputy Resident Rep	Food and Agricultural Organisation
Friday 13 June 2014 at 09h00	Limomane Peshoane MV Marake Simon Takalimane	National consultants
Friday 13 June 2014 at 12h00	Limomane Peshoane MV Marake Simon Takalimane Puseletso Likoetla	Field trip to bee farm (Thaba Bosiu) – Mr Maccaea makoro & Mr motseko Mosiuoa. contact: +266 58706905
Monday 16 June 2014 at 08h00	Hassan Sh. Abdi Nkopo Matsephe	World Food Programme
Monday 16 June 2014 at 10h00	Nthabiseng Majara	GEF Small Grants Programme
Monday 16 June 2014 at 14h30	Felicia Lim Danny Lurie	Kick for Life
Monday 16 June 2014 at 16h00	Mookho Monnapula	Lesotho Meteorological Services Improvement of Early Warning System to Reduce Impacts of

		Climate Change Project (UNEP)
Tuesday 17 June 2014 at 09h00	Matšeliso Mojaki (CEO) Nonkosi Tshabalala 'Mabatlokoa Maloi R Rawfjeleng N Lillane J Nthunya	Disaster Management Authority
Tuesday 17 June 2014 at 11h00	Thato Konstabile	Lesotho Council of Non-Governmental Organisations
Tuesday 17 June 2014 at 12h30	Mampho Thulo	Rural Self-Help Development Association
Tuesday 17 June 2014 at 14h30	Eddie M. Palula	World Vision
Tuesday 17 June 2014 at 16:00	Tlelima Phakisi	Send a Cow
Wednesday, 18 June 2014 at 09h00	Stanley Damane	Department of Environment & GEF National Focal Point
Wednesday, 18 June 2014 at 11h00	'Mantopi Martina de Porres Lebofa	Technologies for Economic Development (TED)
Wednesday, 18 June 2014 at 12h00	Setšabi Setšabi	Empowering Youth for Development Project (UNDP)
Wednesday, 18 June 2014 at 14h00	Limomane Peshoane MV Marake	National consultants
Thursday, 19 June 2014	MV Marake	Field Trip to Mafeteng District; Mohale's Hoek District, including the Khoelenya and Lithipeng Community Councils
Thursday, 19 June 2014 at 09h30	Neo Mothokho	District Forestry Coordinator: Mohale's Hoek (MFRSC)
Thursday, 19 June 2014 at 11h00	'Mampeche Nthulanyane	Community Council Secretary: Khoelenya Community Council
Thursday, 19 June 2014 at 15h30	Ngakantsi Moshoeshoe	World Vision Programme Manager: Mohale's Hoek

Friday, 20 June 2014 at 09h00	Limomane Peshoane	National consultant
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Validation Workshop Report

Held in Maseru on Wednesday, 10 September 2014

Introduction/project description

Introduction

The Validation Mission was undertaken on 10th September 2014 to support Lesotho's Ministry of Forestry, Range and Soil Conservation, (MFRSC), Ministry of Gender, Youth and Sports (MoGYS), Department of Environment (DoE), and UNDP to engage with line ministries and other key stakeholders in the design of the LDCF-financed project entitled "Reducing vulnerability from climate change in the Foothills, Lowlands and the Lower Senqu River Basin". The objectives of the mission were to:

- Conduct a Validation Workshop of the draft project document and consolidated activities since the Inception Workshop in June 2014.
- Provide feedback to various stakeholders on consolidated activities of the PPG process since the Inception Workshop in June
- To secure comments and final inputs on the draft project document from a variety of stakeholders in government, NGOs, academic and other institutions to check relevancy of proposed project activities, and ensure that they are beneficial;

These objectives were addressed through a validation workshop with key stakeholders in government, NGOs and other institutions.

Opening

The Acting Principal Secretary of the MFRSC stated that the purpose of the workshop was to validate the draft project document and solicit further inputs into it. He highlighted challenges that the project is intended to address. These include high youth unemployment, which will be addressed through capacity building for adaptation to climate change. He appealed to all relevant stakeholders to join hands to ensure the successful implementation of the proposed adaptation projects.

Background information

The project coordinator from the UNDP – Mr Limomane Peshoane – provided a brief background to the project. He highlighted challenges posed by climate change that the project is intended to address and outlined the opportunities for addressing these challenges. For example, through the sustainable use of natural resources, the use of renewable energies and land rehabilitation. Mr. Peshoane mentioned that the project was initiated by the Ministry of Gender, Youth and Sports with the overall goal to curb the high rate of youth unemployment. He emphasized that the fund would not cover development activities that could be funded through the government's capital budget. Instead, he outlined activities that could be covered under the project – such as the development and implementation of NAPA, stating that the project would cover option 2. Finally, he explained the processes of co-financing, stating that GEF requires that it be made very clear to reflect that the receiving country is committed to the project.

Development of project document: GEF Processes

The presentation outlined the processes of project document development, including:

- PIF development and approval;
- Project Proposal Grant Phase;
- Production and submission of final draft project proposal to UNDP: September 22nd 2014;
- Submission of Project Document to GEF: Early October 2014;
- Review and Approval of Project by GEF: December 2014;
- Expected Release of Funds: First Quarter 2015; and
- Project Implementation: First Half of 2015.

A brief overview of the project activities:

- Establish a GIS unit for monitoring of climate change impacts. This will generate useful information to guide all intervention activities.
- Capacity building for implementation of climate-smart interventions.
- Monitoring and evaluation of project interventions.
- Share research-based findings and lessons learned. This requires a component on long term research.
- Formulation and revision of policies.

Interventions: Methods and approach

The process of site selection was described. The consultant explained that there were practical challenges to applying the criteria as was initially developed. He stated that an appropriate site was located within the area where the three ecological zones (Lowlands, Foothills and the Lower Senqu River Basin) converge in a contiguous landscape. This area encompasses three Community Councils (Khoelenya, Lithipeng and Thaba-Mokhele). The Community Councils were divided into catchment areas to come up with a total target area within the prescribed ecological zones.

Reflections and comments

Concerns were raised regarding the possibility of duplication and overlap with parallel LDCF –funded projects. It was noted that there has been consultation between the UNDP and FAO LDCF initiatives and the siting of the project made sure that there is no overlap. FAO is operating in Quthing, Mafeteng (Tšakholo) and Linakeng in the Thaba-Tseka District. A further question was raised regarding the intended management of the LDCF-funded project regarding payment of cash-for-work incentives. It was noted that the project will follow current guidelines and rates as set by the LRP.

Intervention options

- Rangelands and wetlands conservation & management;
- forestry/fruit trees and associated value chains;
- water harvesting for domestic, livestock and irrigation;
- land reclamation for rehabilitation of eroded lands and gullies;
- greening the villages (to operate at household level); and
- capacity building & training of technical structures on climate change adaptation, environmental protection and legal interventions.

GIS unit within the project

There are several existing GIS units in Lesotho. These are housed within the MFRSC, MAFS, MoE, and MLGCA. It is acknowledged that these units are currently understaffed and there is a high need for training in Lesotho. The LDCF project would facilitate GIS training of the technical staff within the various GIS units, including the LMS and DMA. Furthermore, it was noted that while the project would provide training and capacity building, human resources would have to be recruited and paid for by the GoL where such needs are identified. A central geo-based, climatic, agro-ecological and hydrological information system would be established at the BOS in the ESSU with a view to provide a national central coordinating facility.

Reflections and comments

A concern was raised whether BOS has sufficient capacity to coordinate and manage the national GIS database. It was pointed out in response that the project would provide the much need capacity building by training and some limited hardware and software as proposed in the intervention options.

Policies, plans and strategies

It was mentioned that the project will support the existing initiatives to integrate issues of climate change into sectoral plans and policies – such as the draft rangeland policy. The project will also support the revision of strategies and sectoral policies to guide environmental management.

Project management and coordination arrangements

Some management and coordination structures were proposed.

- National Project Steering Committee
- National Technical Advisory Committee
- District Project Steering Committee

- District Implementation Committee
- Inter-Council structure
- Project implementation office

Comments/Suggestions

It was suggested that the Ministry of Local Government, Ministry of Finance, and Director of Environment, Planning Unit of MFRSC, as well as the GIS unit be part of the management structure. Furthermore, an advisory committee is to be established, which will include the Department of Land Use Planning. The decentralization of activities to the district level was raised and adopted. This would work in close collaboration with the central Project Steering Committee (PSC).

A district focal point/person could be invited to attend PSC meetings at the central government level. There is a need to establish a close link between all ministries concerned.

The project management structure is to include financial and administration officers. However, this was seen as creating unnecessary costs for the project. Instead, a well-rounded person could be employed to oversee most of the project activities. The TORs are yet to be set out for each of the relevant officers in the project management structure.

It was also suggested that there is a need to include civil society – including farmers – in the PSC. Planning units within each relevant ministry are to act as a focal point. However, such a person should be free from other ministerial activities.

A proposal was made to establish another structure above the PSC, which will act as an executive board of the project. Such a board would consist of Principal Secretaries and UNDP. It was unanimously agreed to have such a structure. A suggestion was made to create mechanisms to ensure that such committee or board functions effectively. It was observed that there is a need to ensure that there is commitment at the upper levels of government ministries. This would lead to collective responsibility and co-chairing.

The principles of cooperative governance are to be adopted to ensure that there is effective monitoring and accountability. It was suggested that the project document includes a section on complementarity and synergies between related projects and relevant ministerial activities. Without such an explanation, it might seem that there is potential competition or duplication.

Monitoring and evaluation

Final recommendation

Ministries were urged to form a review committee to go through the project document and put together the comments for improving the project document. Comments to be submitted by Friday 19th September. This suggestion was embraced by the participants.

Annex 3: Stakeholder involvement plan

The stakeholder involvement plan is included in section 2.10 of the project document.

Annex 4: Terms of reference for project personnel

General Terms of Reference for the Project Steering Committee (PSC)

1. The PSC will be responsible for undertaking management-related and technical decisions for the project in accordance with these ToRs and providing guidance and direction for the project on a regular basis.
2. The PSC will be responsible for reviewing overall progress of the LDCF-financed project and provide the administrative decision-making. The PSC will be responsible for reviewing overall progress of the project and provide the administrative support to overcome constraints during implementation. The PSC will meet at least twice a year to review progress and reports received from the national level technical team and district level project implementation committee. Lastly, the PSC will approve the responsibilities of the Project Manager.
3. The PSC will comprise the following members:
 - directors from key ministries including MFRSC; MAFS; MOE; MLGCA; MTEC and MoGYS; and
 - the following representatives including the Head EESU:BOS; Project Coordinator; Lesotho National Farmer's Union; LCN and UNDP.
4. In addition, the PSC will include, as support staff, the PM and the CTA. The PSC will be co-chaired by the Principal Secretaries of MFRSC, MAFS, MOE, MLGCA and MoGYS. The PSC will meet at least every six months or as required by the chair of the PSC.
5. Specific tasks and responsibilities:
 - Ensure that project objectives are fulfilled in an effective and efficient manner.
 - Approve work plans and budgets, and other reports that may be required.
 - Ensure effective quality assurance and financial reporting requirements.
 - Ensure institutional coordination and facilitate an effective communication and decision-making process between government, implementation partners, civil society and other key actors.
 - Monitor and evaluate project implementation to ensure consistency with the approved work plans and results framework of the project.
 - Review, revise and approve ToRs for staff, consultants and contractors required to assist in project implementation, as proposed by the PM.
 - Propose policy revisions that would facilitate the mainstreaming of the project activities.
 - Facilitate interactions between the PM/project team and the relevant ministries or government agencies, in order to optimise project interactions.

General Terms of Reference for the Project Manager (PM)

1. The PM will lead the project team and provide overall operational management for the successful execution and implementation of the project. This includes the daily responsibility to manage, coordinate, and supervise the implementation of the project and the delivery of results in accordance with the project document and agreed work plans. Furthermore, the PM will be responsible for financial management and disbursements, with accountability to the government and UNEP. The PM will report to the CTA and the PSC.

2. Specific Tasks and Responsibilities:

- Oversee and manage project implementation, monitor work progress, and ensure timely delivery of outputs.
- Report to the CTA and the PSC regarding project progress.
- Develop and facilitate implementation of a comprehensive monitoring and reporting system.
- Ensure timely preparation of detailed AWP and budgets for approval by PSC.
- Write ToRs with the Chief Technical Advisor.
- Assist in the identification, selection and recruitment of staff, consultants and other experts as required.
- Supervise, coordinate and facilitate the work of the project officer, field officers, M&E specialist, national focal point and technical unit (including national and international consultants).
- Control expenditures and assure adequate management of resources.
- Provide a quarterly update of the expenses of the previous three months and the expenses expected for the next three months.
- Establish linkages and networks with the on-going activities of other government and non-government agencies.
- Provide input to management and technical reports and other documents as described in the M&E plan for the overall project. Reports should contain detailed assessments of progress in implementing activities, including reasons for delays, if any, and recommendations on necessary improvements.
- Inform the PSC, without delay, of any issue or risk which might jeopardise the success of the project.
- Liaise and coordinate with the UNDP Task Manager (TM) on a regular basis.

3. Qualifications and Experience:

- Master's degree in environment, natural resources management, agriculture or a closely related field.
- A minimum of 10 years relevant work experience including at least 6 years' experience as a lead project manager in relevant sectors.
- Demonstrated solid knowledge of adaptation to climate change, ecological restoration and sustainable exploitation of natural resources.
- Experience in the public participation development process associated with the environment and sustainable development is an asset.
- Experience in working and collaborating within governments is an asset as well as experience in GEF projects.
- Fluent in English, including writing and communication skills.

4. During the project implementation phase, the PM will report to the PSC. The PM will work closely with the PSC, CTA and TM to ensure the availability of information on progress and performance regarding the implementation of the project.

General Terms of Reference for the Chief Technical Adviser (CTA)

1. The CTA will provide technical guidance on the implementation of the project to the PM.
2. Specific Tasks and Responsibilities:
 - Provide quality assurance and technical review of project outputs.
 - Undertake technical review of project outputs (e.g. studies and assessments).
 - Write ToRs for technical consultancies with the PM (including policy revisions when necessary).
 - Supervise the work of national and international consultants.
 - Assist in monitoring the technical quality of project M&E systems (including AWP, indicators and targets).
 - Conduct the financial, administrative reporting and the PIR.
 - Provide advice on best suitable approaches and methodologies for achieving project targets and objectives.
 - Provide a technical supervisory function to the work carried out by national and international consultants hired by the project.
 - Assist in knowledge management, communications and awareness-raising.
 - Facilitate the development of strategic regional and international partnerships for the exchange of skills and information related to climate change adaptation.
3. Qualifications and Experience:
 - At least an advanced post-graduate at or above MSc. level in climate change adaptation or a related discipline such as disaster risk reduction, environmental management, natural resources management, agriculture and water resources management.
 - A minimum of 5 years' experience in a senior technical lead position with planning and management of environmental and/or natural resources management programmes in developing countries.
 - A minimum of 5 years in a senior technical position involved in institutional strengthening and capacity building.
 - Previous similar experiences in provision of technical support to complex projects.
 - Experience from southern Africa would be an advantage.
 - Good communication and computer skills.
 - Fluent in English, including writing and communication skills.
4. The CTA will report to the chair of the PSC. The CTA will cooperate with the PM to ensure the availability of information on progress and performance in the implementation of the project. In the performance of his/her duties, the CTA will work in close collaboration with TM, and update him/her on the project's progress. Additionally, in consultation with the TM, the CTA will take responsibility for decision-making and implementation of the project.

General Terms of Reference for the Administration and Finance Officer

1. An Administration and Finance Officer will be hired as part of the Project Management Unit (PMU).

2. Specific Tasks and Responsibilities:
 - Manage the day-to-day administrative activities in the office, for example: set up and maintain project files; manage and purchase stationary; manage a daily attendance list; manage leave forms and sick register; maintain contact details of all staff.
 - Collect project-related data.
 - Keep minutes of meetings and report these back to the CT/PM.
 - Develop and implement systems that improve the day-to-day operations of the office and field activities. Examples of this include, but are not limited to developing a monitoring system for the use of field and office equipment and conducting inventories of office and field equipment.
 - Standardise the finance and accounting systems of the project while maintaining compatibility with the government and UNDP financial accounting procedures.
 - Prepare revisions of the budgets.
 - Comply and verify budget and accounting data by researching files, calculating costs and estimating anticipated expenditures from readily available information sources.
 - Process all types of payment requests for settlement purposes, including quarterly advances to the partners upon joint review.
 - Prepare status reports, progress reports and other financial reports.
 - Prepare periodic accounting records by recording receipts; managing disbursements (ledgers, cashbooks, vouchers, etc.); reconciling data for recurring or financial special reports and assisting in the preparation of annual procurement plans.
 - Undertake project financial closure formalities including submission of terminal reports, transfer and disposal of equipment, processing of semi-final revisions and support professional staff in preparing the terminal assessment reports.
 - Assist in the timely issuance of contracts and the assurance of other eligible entitlements of the project personnel, experts, and consultants by preparing annual recruitment plans.
 - Coordinate all internal and external communications coming through the office.
 - Conduct other tasks as requested by the CTA/PM. Standardise the finance and accounting systems of the project while maintaining compatibility with the government and UNDP financial accounting procedures.
 - Prepare revisions of the budget and assist in the preparation of the AWP.
 - Comply and verify budget and accounting data by researching files, calculating costs and estimating anticipated expenditures from readily available information sources.
 - Prepare financial reports.
 - Process all types of payment requests for settlement purposes, including quarterly advances to the partners upon joint review.
 - Prepare periodic accounting records by recording receipts, disbursements (ledgers, cash books, vouchers, etc.) and reconciling data for recurring or financial reports and assist in preparation of annual procurement plans.
 - Undertake project financial closure formalities including requirements for submission of terminal reports, transfer and disposal of equipment, processing of semi-final revisions, and support professional staff in preparing the terminal assessment reports.

3. Qualifications and Experience:

- University degree in Business Administration, Economics, Finance or another related field.
- Knowledge of Microsoft Office: Word, Excel, PowerPoint and Access.
- Excellent speaking and writing skills in both English and Basotho.
- At least 3 years of work experience in administrative and financial office management.
- Strong interpersonal and communication skills.
- Attention to detail.
- Experience working for international organisations is an asset.

General Terms of Reference for the M&E Specialist

1. The M&E specialist will report to the PM. Key responsibilities include: i) establishing and managing a performance monitoring framework; ii) train the PMU on effective M&E processes; iii) plan and supervise the activities of field officers; and iv) regular monitoring of the project indicators to detect delays, technical problems or discrepancies (e.g. with gender equity indicators) early on. The inclusion of an M&E specialist forms part of the project management framework for projects executed by REMA.

General Terms of Reference for the Field Facilitators

1. Under the supervision of the M&E specialist, field facilitators will be hired to coordinate and monitor implementation of activities at district level. The field facilitators will be responsible for the coordination of activities within the project intervention sites. The field facilitators will work closely with the M&E Specialist to manage the project effectively at local level. Field facilitators will be hired to coordinate the activities in each of the Community Councils – Thaba-Mokhele, Lithipeng and Khoelenya Community Councils.
2. Specific Tasks and Responsibilities:
 - Act as a liaison with district authorities, Community Councils and institutions.
 - Oversee and manage project implementation, monitor work progress, and ensure timely delivery of outputs in each of the Community Councils.
 - Report to the M&E Specialist regarding project progress. Reports should contain assessments of the progress of implementing activities, including reasons for delays, if any, and recommendations on necessary improvements.
 - Support the M&E Specialist in developing and facilitating implementation of a comprehensive monitoring and reporting system.
 - Support in the preparation of detailed annual work plans and budgets for approval by M&E specialists and PM.
 - Supervise, coordinate and facilitate the work of the technical staff in the Community Councils.
 - Provide input to management and technical reports, and other documents as described in the M&E plan for the overall project.

- Participate in the District Project Implementation Committee meetings and the Inter-Community Council Committee meetings, as well as coordinate project site visits.
3. Qualifications and experience:
- Bachelor degree in environment, natural resources management, agriculture or a closely related field.
 - A minimum of 5 years relevant work experience.
 - Demonstrated solid knowledge of the environment and ecological restoration.
 - Experience in the public participation development process associated with environment and sustainable development an asset.
 - Experience in working and collaborating with local authorities an asset.
 - Fluent in English and Basotho including writing and communication skills.

General Terms of Reference for International Consultants

1. These international consultants will collaborate with national consultants specialised in the same field. In this way, national capacity will be increased. These consultants will be hired to perform the following tasks:
 - Collect data.
 - Provide advice relevant to their field.
 - Monitor interventions.
 - Collaborate with the national consultants.

2. Additionally, the international consultants must be experts in their field, with experience in climate change, capacity building, and research and information development. The international consultants should have good knowledge and understanding of Lesotho's climate change risks. They should have an appropriate M.Sc. degree and a minimum of 5 years' experience or an appropriate bachelor's degree and 10 years experience in their field of expertise. Fluency in English is required.

General Terms of Reference for National Consultants

1. Local expertise will be sourced where possible in place of international expertise in order to strengthen in-country capacity. National consultants will be hired by the project to:
 - Collect data.
 - Provide advice relevant to their field.
 - Monitor interventions.
 - Collaborate with international consultants.

2. Additionally, the national consultants must be experts in their field, ideally with experience in climate change, capacity building, and research and information development. Additionally, they should have good knowledge and understanding of Lesotho's climate change risks and an appropriate M.Sc. degree and a minimum of 5 years experience or an appropriate bachelor's degree and 10 years

experience in their field of expertise. National consultants need to be fluent in spoken and written English.

3. The hiring procedures to be followed for both international and national consultants must include a transparent and competitive process based on normal UNDP procedures.

General Terms of Reference for national focal points/ teams

1. The ToRs of the national focal points and teams in the different ministries will be drafted upon initiation of the project and endorsed by the PSC.

Annex 5: Letters of co-financing



LESOTHO
Ministry of Forestry and Land Reclamation
P.O. Box 92
MASERU – 100

06th October 2014

Ms Karla Hershey
UNDP Resident Representative
United Nations Development Programme
Maseru – 100

Dear Ms Hershey,


RE: Co-financing commitment for the project entitled "Reducing Vulnerability from climate change in the Foothills, Lowlands and the lower Sengu River Basin"

With reference to the request for letter of co-finance, I am pleased to confirm co-financing worth about US\$ 26,000,000 towards the implementation of the above-mentioned project throughout its life time from 2015 to 2021. The co-financing is committed through the implementation of the Integrated Watershed Management Programme (IWMP) with total funding of about US\$26,000,000 from the Government of Lesotho. The newly developed project as captioned above is well aligned with the National Strategic Development Plan and the LRP.

Therefore, this letter serves to confirm the commitment of the Ministry of Forestry and Land Reclamation on co-financing, which includes coordination, collaboration and information sharing to respond more cohesively to climate change impacts on ecosystems in the country.

We look forward to your continuous cooperation.

Yours sincerely


D. Chaoana (Ms)
PRINCIPAL SECRETARY

2014 UNDP-MASERU	
Rec'd. CR/10	Ref. 264/130/12/14
RR:	DRR:
ACTION	INFO
LRE	RR NAR
<input type="checkbox"/> AT	<input type="checkbox"/> NAR
	SEEN <input type="checkbox"/>

Tel: (266) – 22313067/22323600 Fax: (266) – 22131515 Email: dcmapesja@yahoo.co.uk



Mohale's Hoek District Council

P.O. Box 32
Mohale's Hoek 800
Lesotho

02nd October 2014

Ref: No- DCF / ADMIN / 16
Tel : 22780338 / 538
Fax: 22780338

Ms. Karla Hershey
UNDP Resident Representative
United Nations Development Programme
Maseru, Lesotho

Dear Ms. Hershey

UNDP-MASERU	
Rec'd. 02/10/14	Ref. 025/130/2/22
RR:	DRR:
ACTION Environment	INFO RR BRK JAV
<input type="checkbox"/> AT	<input type="checkbox"/> NAR
SEEN <input type="checkbox"/>	

Subject: Co-financing commitment for the project entitled "Reducing vulnerability from climate change in the Foothills, Lowlands and the lower Senqu River Basin"

With reference to the request for letter of co-finance, I am pleased to confirm co-finance worth about USS 1,000,000 towards the implementation of the above-mentioned project throughout its life time from 2015 to 2021. The co-financing is committed through the implementation of land rehabilitation programmes funded under Development Fund with total funding of about USS 1,000,000 from Government of Lesotho. These programmes are implemented by community councils through Ministry of Local Government. The newly development project as captioned above is well aligned with the National Strategic Development Plan and the National Land Rehabilitation Programme.

Therefore, this letter serves to confirm the commitment of the Ministry of Local Government on co-financing which includes coordination, collaboration and information sharing to respond more cohesively to climate change impacts on ecosystems in the country.

We look forward to your continuous cooperation.

Yours sincerely,

T. Monyane
Tumelo Monyane (Ms)
District Council Secretary – Mohale's Hoek



United Nations Development Programme



*Empowered lives.
Resilient nations.*

22nd October 2014

Ms. Adriana Dinu,
Executive Director
UNDP-GEF
304 East 45th Street, 9th Floor
New York, NY 10017 USA

Dear Ms. A. Dinu,

Subject: Confirmation of co-financing for the project entitled "Reducing vulnerability from climate change in the Foothills, Lowlands and the lower Senqu River Basin"

This letter serves as confirmation that UNDP Lesotho country office (CO) is in full support of the proposed project "Reducing vulnerability from climate change in the Foothills, Lowlands and the lower Senqu River Basin". This project is in line with the UNDP Lesotho Country Programme Document and outcomes of Lesotho United Nations Development Assistance Plan (LUNDAP).

Therefore, this letter serves to confirm that UNDP Lesotho CO will co-finance this project over 6-year period to an amount of \$600,000 during its implementation period.

We look forward to your continuous support.

Warmest regards

Yours sincerely,

A handwritten signature in black ink is written over a horizontal dashed line. The signature appears to be 'Agi Veres'.

Ms. Agi Veres
UNDP Resident Representative a.i.

Annex 6: UNDP Strategic Plan

6.1 Signature page

Country:

UNDAF Outcome (s)/Indicator (s): *Link to UNDAF Outcome. If no UNDAF leave blank.*

CPAP Outcome (s)/Indicator (s):

CPAP Output (s)/Indicator (s):

Executing Entity/Implementing Partner

Implementing entity/Responsible Partner

<p>Programme Period: _____</p> <p>Atlas Award ID: _____</p> <p>Project ID: _____</p>
--

Agreed by (Government):

NAME

SIGNATURE

Date/Month/Year

Agreed by (Executing Entity/Implementing Partner):

NAME

SIGNATURE

Date/Month/Year

Agreed by (UNDP):

NAME

SIGNATURE

Date/Month/Year

6.2 UNDP Strategic Plan: Key Focal Areas + Key result areas + Provisional Corporate Outcomes³⁸

Key focal areas

2. UNDP areas of work focus on:
 1. How to adopt sustainable development pathways;
 2. How to build and/or strengthen inclusive and effective democratic governance;
 3. How to build resilience.
3. The proposed vision, outcomes and areas of work are relevant for all programme countries — least developed, SIDS, low income and middle income — in different combinations, in different situations, and with varying degrees of emphasis. They present a global offer from UNDP that will be tailored to each national setting in agreement with the programme country itself. The proposed vision, outcomes and areas of work are also equally relevant for the work of UNDP at the global and regional levels, helping UNDP to serve as a ‘bridge’ between actions at all levels, especially as development challenges increasingly demand effective management of resources and risks across frontiers. In addition, they enable UNDP to adopt an issues- rather than practice-based approach to development needs and priorities, allowing us to achieve more than is possible within existing organisational arrangements.

Key result areas

4. The UNDP proposed approach is captured through a number of elements that, together, will be reflected in an organisation that visibly and measurably supports countries to achieve their development goals, with improved effectiveness demonstrated in:
 - An organisational structure and financing arrangements which are sustainable within projected income and provide incentives to increase both the quality and quantity of programme delivery at the country level.
 - More strategic UNDAFs (in conjunction with the rest of the UNDS) and country strategies that clearly identify the UNDP’s substantive contribution to country-led development efforts. All country programmes designed under this Strategic Plan will be more tightly focused on no more than four time-bound outcomes; be underpinned by explicit theories of change; and will incorporate a robust, aligned, rigorously defined, sex-disaggregated and measurable results framework drawing on a standardized bank of SMART indicators.
 - Innovation, replication opportunities and lessons learned will be explicitly considered in programme development, management and review so that results achieved with assistance from

³⁸ UNDP Strategic Plan 2014 – 2017, Available at: http://www.undp.org/content/dam/undp/library/corporate/UNDP_strategic-plan_14-17_v9_web.pdf

UNDP can be sustained over the long term. Scaling-up strategies will be an essential aspect, to ensure better coverage and impact of development innovations. Together with the emphasis on sustainable results, this will not just mean designing successful projects to operate on a larger scale but also strengthening, in parallel, national, regional and subregional policies, skills base, financing strategies and institutional capacities. In this connection, where requested, UNDP will also help countries generate, access and manage their own financing needs for sustainable human development.

- Country offices will systematically feed information on emerging areas of country demand for UNDP services into the annual business planning process. This will enable us to identify actions and allocate resources to deliver on identified priorities, and to pursue a shared set of results in line with the Strategic Plan.
- Country offices will become both more diverse and more efficient, pursuing options — where it makes business sense — for clustering back office functions in service hubs in order to free up additional resources for programming. With their Regional Bureau, each country office will have a shared view of the critical functions and capacities it needs to implement programmes effectively and a sustainable and cost-effective plan in place for doing so.
- All UNDP-supported programmes and projects will be designed through the lens of sustainable human development. This means, in practice, assessing whether they address the opportunities and capabilities of the poor and excluded as well as promote sustainability, thus, combining the lens of SD with HD. Programmes and projects will adhere to uniform quality standards and processes for which managers will be accountable while investment in monitoring and evaluation will help identify improvements required to achieve sustainable results. The use of data and evidence for results reporting, against established baselines, will continue to show demonstrable improvement. Portfolio management approaches will be utilized to strengthen the issues-based design and delivery of UNDP support and to better underpin value for money.
- In designing and implementing programmes and projects, country offices will be able to draw on a ‘development solutions approach’ harnessing UNDP’s combined technical expertise to address specific development policy and programme challenges in an integrated way. Knowledge and lessons learned will be readily accessible to country offices to support high quality project design and inform policy advice.
- Country office leaders will be trained and equipped with the tools to manage the diverse pool of talent in their teams, setting the tone for inclusive, engaged and high performing work units.

Provisional corporate outcomes

1. Growth and development are inclusive and sustainable, incorporating productive capacities that create employment and livelihoods for the poor and excluded.
2. Citizen expectations for voice, development, the rule of law and accountability are met by stronger systems of democratic governance.
3. Countries have strengthened institutions to progressively deliver universal access to basic services.
4. Faster progress is achieved in reducing gender inequality and promoting women’s empowerment.
5. Countries are able to reduce the likelihood of conflict, and lower the risk of natural disasters, including from climate change.
6. Early recovery and rapid return to sustainable development pathways are achieved in post-conflict and post-disaster settings.

7. Development debates and actions at all levels prioritize poverty, inequality and exclusion, consistent with our engagement principles.

6.3 GEF LDCF/SCCF Result-Based Management Framework Adaptation to Climate Change

Result-Based Management Framework Adaptation to Climate Change

Goal: Support developing countries to become climate resilient by promoting both immediate and longer-term adaptation measures in development policies, plans, programs, projects and actions

Impact: Reduced absolute economic losses at country level due to climate change, including variability

Indicator: Economic loss trend over a project period and beyond due to climate change, including variability

Objective	Expected Outcomes and Indicators	Core Outputs (and Indicators)
Objective 1: Reduce vulnerability to the adverse impacts of climate change, including variability, at local, national, regional and global level	<p>Outcome 1.1: Increased knowledge and understanding of climate variability and change-induced threats at country level and in targeted vulnerable areas</p> <p>Indicator 1.1.1 Relevant threat information disseminated to stakeholders on a timely basis</p> <p>Indicator 1.1.2 Vulnerability and risk perception index, broken down by sector</p>	<p>Output 1.1.1: Risk and vulnerability assessments conducted and updated</p> <p>Indicator 1.1.1.1 No. and type of projects that conduct and update risk and vulnerability assessments</p> <p>Indicator 1.1.1.2 No. and type of monitoring systems in place</p>
	<p>Outcome 1.2: Strengthened adaptive capacity to reduce risks to climate-induced economic losses</p> <p>Indicator 1.2.1 Targeted institutions with increased adaptive capacity to reduce risks of and response to climate variability</p> <p>Indicator 1.2.2 Capacity perception index</p> <p>Indicator 1.2.3 Reduced losses per extreme weather events</p>	<p>Output 1.2.1: Adaptive capacity of national and regional centers and networks strengthened to rapidly respond to extreme weather events</p> <p>Indicator 1.2.1.1 No. of staff trained on technical adaptation themes</p> <p>Output 1.2.1: Targeted population groups covered by adequate risk reduction systems</p> <p>Indicator 1.2.1.2 % of population covered by adequate risk reduction systems</p> <p>Indicator 1.2.1.3 Reduction in number of people affected by climate variability</p>

Objective	Expected Outcomes and Indicators	Core Outputs (and Indicators)
	<p>Outcome 1.3: Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level</p>	<p>Output 1.3.1: Targeted population groups participating in adaptation and risk reduction awareness activities</p>
	<p>Indicator 1.3.1 % of targeted population aware of predicted adverse impacts of climate change and appropriate responses</p> <p>Indicator 1.3.2 % of population affirming ownership of adaptation processes</p>	<p>Indicator 1.3.1.1 No. and type of adaptation actions or strategies introduced at local level</p> <p>Indicator 1.3.1.2 No. and type of risk reduction actions or strategies introduced at local level</p>
<p>Objective 2: Increase adaptive capacity to respond to the impacts of climate change, including variability, at local, national, regional and global level</p>	<p>Outcome 2.1: Mainstreamed adaptation in broader development frameworks at country level and in targeted vulnerable areas</p> <p>Indicator 2.1.1 Adaptation actions implemented according to NAPAs (in case of LDCs) and other development frameworks as planned</p> <p>Indicator 2.1.2 % of development frameworks and sectoral strategies that reach adaptation targets, including budget allocation targets</p>	<p>Output 2.1.1: Adaptation measures and necessary budget allocations included in relevant frameworks</p> <p>Indicator 2.1.1.1 No. and type of development frameworks that include adaptation measures (UNDAF, PRSP, etc.)</p> <p>Indicator 2.1.1.2 No. and type of development frameworks and sectoral strategies that include specific budgets for adaptation actions</p> <p>Indicator 2.1.1.3 No. and type of policy and regulatory reforms that take account of economic losses due to climate change, including variability</p>
	<p>Outcome 2.2: Increased adaptive capacity within relevant development sectors and natural resources</p> <p>Indicator 2.2.1 Development sectors' services (health and social services) responsive to needs from changing and variable climate</p> <p>Indicator 2.2.2 Physical infrastructure maintained under climate change and variability-induced stress</p> <p>Indicator 2.2.3 Ecosystem services and natural assets maintained under climate change and variability-induced stress</p>	<p>Output 2.2.1: Vulnerable physical, natural and social assets strengthened in response to climate change impacts, including variability</p> <p>Indicator 2.2.1.1 No. and type of health or social infrastructure developed or modified to respond to new conditions resulting from climate variability and change</p> <p>Indicator 2.2.1.2 No. and type of physical assets strengthened or constructed to withstand conditions resulting from climate variability and change</p> <p>Indicator 2.2.1.3 No. and type of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change</p>

Objective	Expected Outcomes and Indicators	Core Outputs (and Indicators)
	<p>Outcome 2.3: Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas</p> <p>Indicator 2.3.1 Households and communities have more secure access to livelihood assets</p> <p>Indicator 2.3.2 % of targeted population with sustained climate-resilient livelihoods</p>	<p>Output 2.3.1: Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability</p> <p>Indicator 2.3.1.1 No. and type of adaptation assets (physical as well as in terms of knowledge) created in support of individual or community livelihood strategies</p> <p>Indicator 2.3.1.2 No. of households with more secure access to livelihood assets</p> <p>Indicator 2.3.1.3 No. and type of climate-resilient income sources for communities and individuals</p>
<p>Objective 3: Promote transfer and adoption of adaptation technology</p>	<p>Outcome 3.1: Enhanced enabling environment to support adaptation-related technology transfer</p> <p>Indicator 3.1.1 Policy environment and regulatory framework for adaptation-related technology transfer established or strengthened</p> <p>Indicator 3.1.2 Strengthened capacity to transfer appropriate adaptation technologies</p>	<p>Output 3.1.1: Skills increased for relevant individuals in transfer of adaptation technologies</p> <p>Indicator 3.1.1.1 No. and type of relevant policies and frameworks developed or strengthened</p> <p>Indicator 3.1.1.2 No. and type of institutions/individuals trained in adaptation-related technologies</p>
	<p>Outcome 3.2: Successful demonstration, deployment, and transfer of relevant adaptation technology in targeted areas</p> <p>Indicator 3.2.1 Uptake rates on adaptation-related technology adoption</p> <p>Indicator 3.2.2 % of population adopting transferred adaptation technologies by technology type</p> <p>Indicator 3.2.3 Adopted adaptation technologies strengthen coping mechanisms</p>	<p>Output 3.2.1: Relevant adaptation technology transferred to targeted groups</p> <p>Indicator 3.2.1.1 No. of adaptation technologies by technology type transferred to targeted groups</p> <p>Indicator 3.2.1.2 No. of adaptation technologies by technology type transferred from targeted areas</p>

6.4 Portfolio level goals for different thematic areas (TA), related MDG goals/ targets, and corresponding objectives of Climate change adaptation projects

TA1. Food Security/Agriculture	
GOAL	Food insecurity resulting from climate change minimized or reversed.
cf. MDG Goal 1	Eradicate extreme poverty and hunger
Objective	Reduced vulnerability of communities and food-production systems to changes in mean climatic conditions and climatic variability; <i>and/or</i> enhanced ability of individuals, communities and institutions to plan for and respond to the impacts of climate change
TA2. Water Resources & Quality	
GOAL	Water managed to reduce stress and scarcity of clean water and minimize the negative effects of extreme hydrological events resulting from climate change.
cf. MDG Goal 7, Target 10	Halve, by 2015, the proportion of people without sustainable access to safe drinking water
Objective	Reduced vulnerability to water stress and/or scarcity of clean water; and/or strengthened capacity of water sector institutions and communities to respond to climate variability and change.
TA3. Public Health	
GOAL	Mortality and morbidity from climate-sensitive diseases and health risks minimized.
cf. MDG Goal 4	Reduce by two thirds, between 1990 and 2015, the under-five mortality ratio
MDG Goal 5	Reduce, by three quarters, between 1990 and 2015, the maternal mortality ratio
MDG Goal 6, Target 7	Have halted by 2015, and begun to reverse, the incidence of malaria and other diseases

Objective	Reduced vulnerability to negative climate-sensitive health outcomes; and/or improved capacity for surveillance of and prevention/response to climate-sensitive diseases.
TA4. Disaster Risk Management	
GOAL	Mortality, morbidity and economic losses resulting from climate-related extreme events reduced in the face of increasingly frequent and/or severe climate extremes
cf. MDG Goal 7, Target 10	Halve proportion of people without access to safe drinking water
MDG Goal 7, Target 11	By 2020, to have achieved a significant improvement in the lives of at least 100 million slum dwellers
MDG Goal 8, Target 14	Address the special needs of landlocked countries and small island developing States
MDG Goal 8, Target 18	In cooperation with the private sector, make available the benefits of new technologies, especially information and communication
Objective	Enhanced resilience of populations, settlements, infrastructure and ecosystems in areas exposed to climate extremes and/or strengthened capacity to mitigate, prevent and respond to disasters associated with climatic extremes.
TA5. Coastal Zone Development	
GOAL	Mortality, morbidity, economic losses and threats to ecosystems arising from climate-related coastal hazards reduced.
cf. MDG Goal 7, Target 9	Integrate the principles of sustainable development into country policies and programmes; reverse loss of environmental resources
MDG Goal 7, Target 11	By 2020, to have achieved a significant improvement in the lives of at least 100 million slum dwellers
MDG Goal 8, Target 14	Address the special needs of landlocked countries and small island developing States
Objective	Reduced vulnerability of coastal populations, settlements, infrastructure and ecosystems in areas exposed to coastal hazards; and/or strengthened capacity to prevent, mitigate and recover from the impacts of coastal hazards.
TA6. Natural Resources Management	

GOAL	Damage to natural resources related to climate change risks and associated damage to livelihoods, ecosystems and economy reduced.
cf. MDG Goal 7, Target 9	Integrate the principles of sustainable development into country policies and programmes; reverse loss of environmental resources
Objective	Reduced vulnerability of natural resources and natural resource-dependent livelihoods threatened by climate change; and/or enhanced capacity to manage natural resources sustainably in the face of climate change.

6.5 Project Level Monitoring Examples for Climate Change Adaptation projects

Example Project Level Outcomes and Indicators for TA1

TA 1. Agriculture/Food Security

Project Objective: Vulnerability of farmers and pastoralists to increased drought and rainfall variability reduced

Outcomes	Indicators
1. Information from mid-term climate projections integrated into agriculture-related policies and climate forecasts integrated into agriculture-related planning on appropriate time scales	1.1 Number of agriculture-related policies, programmes and plans incorporating climate projections into their design (I.i from standard indicators table)
	1.2 Percent change in policymakers' use of climate information in agriculture and fisheries policies and plans, assessed via survey (II.i)
	1.3 Narrative stakeholder description of the role of integrating climate projections into agriculture policies and plans in reducing vulnerability to drought and rainfall variability, assessed via qualitative survey (II.v)
2. Local level capacity enhanced through strengthened agriculture extension services for managing drought and rainfall variability³⁹, including the introduction or expansion of agricultural and pastoralism practices suited to anticipated climatic conditions	2.1 Number of farmers and pastoralists engaged in capacity development activities for drought and rainfall variability management (I.ii)
	2.2 Percent change in stakeholders' capacities to make agriculture/pastoralism decisions based on climate information, assessed via survey (II.ii)
	2.3 Percent change in farmer and pastoralist use of climate-resilient processes, practices or methods for managing climate change risks, assessed via survey (II.i)
3. Climate risks integrated into design and decisionmaking for agriculture-related investments⁴⁰	3.1 Number of agriculture-related investment design and decisionmaking processes incorporating climate change risks (I.iv)
	3.2 Percent change in stakeholders' use of climate risk assessment methods for design and/or decisionmaking on agriculture-related investments, assessed via survey (II.ii)
	3.3 Availability of skills and tools necessary to continue climate change risk assessments after conclusion of project, assessed via survey (III.ii)
All outcomes: 1 - 3	4.1 Percent change in vulnerability of food security to rainfall variability and/or drought, via perception-based stakeholder survey such as VRA ⁴¹ (II.iv)

³⁹ Agriculture extension is suggested, but other forms of outreach and technical assistance to farmers/pastoralists may be more appropriate depending on the local context.

⁴⁰ This should be specified based on the project context, e.g., water supply, storage, distribution and irrigation investments or seed or grain storage facilities, farm technologies, etc.

⁴¹ Vulnerability Reduction Assessment (VRA) is a type of qualitative survey in which vulnerability factors

TA 1. Agriculture/Food Security

Project Objective: Vulnerability of farmers and pastoralists to increased drought and rainfall variability reduced

Outcomes	Indicators
	4.2 Availability of skills and resources necessary for farmers and/or pastoralists to sustain climate risk management practices beyond the end of the project's lifetime ⁴² (III.ii)
	4.3 Number of 'lessons learned' captured about reducing vulnerability of food security to drought and rainfall variability (IV.i)
	4.4 Number of 'lessons learned' disseminated through the Adaptation Learning Mechanism (ALM) platform and regional knowledge sharing efforts (IV.ii)
	4.5 Food security deficits during periods characterised by climate extremes (e.g. drought or false start to wet season/extreme rainfall conditions), compared with deficits in previous years characterised by similar extremes (II.vi)
	OR
	4.6 Food production or food security among project stakeholders (depending on data availability: predictability, ability to purchase food, or yields) ⁴³ (II.vi)

are determined through stakeholder consultations, and stakeholders rate their vulnerability on a scale of 1-10 at the beginning, periodically throughout the project or programme, and at the end. Food security in relation to drought may vary from household to household, but the VRA approach allows the comparison of perceived changes despite this variability in terms of unit or % change in vulnerability scores.

⁴² Indicator can be tailored to the project emphasis, for example on technical know-how, new institutional arrangements, availability of supporting resources, etc.

⁴³ Two options are listed, depending on whether or not climate variability during the monitoring timeframe allows indicator 4.5 to be measured. If climate extremes are not encountered, annual data should be tracked and compared to historic averages.

Example Project Level Outcomes and Indicators for TA2

TA 2. Water Resources and Quality

Project Objective: Enhanced capacity to plan for and respond to future reductions in renewable water supplies in a region where water stress is increasing (an area-based adaptation project/programme)

Outcomes	Indicators
1. Water demand and supply management improved through climate-resilient policies and plans	1.1 Number of policies, plans, and programmes introduced or adjusted to improve water supply and demand management based on the incorporation of projected climate change risks and climate information (I.i)
	1.2 Percent change in policymakers' and planners' use of processes or methods to develop supply and demand management policies and plans that integrate climate change projections of water resources impacts (II.i)
	1.3 Stakeholder perceptions of sustainability of climate-resilient policy and planning processes, assessed via survey (III.iii)
	1.4 Percent change in use of information management systems for monitoring climatic variables for climate-resilient water resources planning (II.iii)
2. Institutional capacity strengthened to integrate climate change information into water resources management, including strengthened channels for cross-sectoral/ministerial communication and management, e.g. with public health and disaster management bodies	2.1 Number of stakeholders (e.g. national bodies, state and local institutions, and community organisations) engaged in capacity development activities for adaptation and water resources management (I.i)
	2.2 Percent change in stakeholders' capacities to capture, communicate, analyse, interpret, disseminate and apply climate change information in water sector management (II.ii)
3. Local level capacity enhanced to cope with climate change impacts on water resources (e.g. adopting better-adapted water management practices)	3.1 Number of stakeholders (e.g. communities, households, community-based organisations) engaged in capacity development activities for climate change risk management in water resources
	3.2 Percent change in stakeholders' use of adaptation practices for managing local water resources, assessed by survey
	3.3 Number of project beneficiaries involved in capacity development for implementation of specific adaptation measures or decision-support tools
All outcomes: 1 – 3	4.1 Percent change in capacity to adapt to climate-related water stress, via perception-based stakeholder survey such as VRA (II.iv)
	4.2 Narrative stakeholder description of the role of integrating climate change risk assessment and adaptation into water resources management in reducing vulnerability to water stress, assessed via qualitative survey (II.v)
	4.3 Availability of skills and resources necessary for institutions and local stakeholders to sustain climate-resilient water resources management beyond the project or programme's lifetime (III.ii)

TA 2. Water Resources and Quality

Project Objective: Enhanced capacity to plan for and respond to future reductions in renewable water supplies in a region where water stress is increasing (an area-based adaptation project/programme)

Outcomes	Indicators
	4.4 Number of 'lessons learned' codified about managing water resources to cope with increasing climate-related stress and scarcity (IV.i)
	4.5 Number of 'lessons learned' disseminated through the Adaptation Learning Mechanism (ALM) platform and regional knowledge sharing efforts (IV.ii)
	4.6 Change in renewable water resources per capita ⁴⁴ (II.vi)

⁴⁴Other quantitative development outcome indicators should be considered.

Example Project Level Outcomes and Indicators for TA3

TA 3. Public Health

Project Objective: Enhanced capacity of health sector to anticipate and respond to changes in distribution of endemic and epidemic climate-sensitive diseases in areas at risk from expansion of climate-related diseases.

Outcomes	Indicators
1. Disease eradication and prevention measures implemented in emerging and epidemic risk areas at appropriate scales (institutional or household, national or local)	1.1 Number of stakeholder groups involved in implementing disease eradication and prevention measures (I.ii)
	1.2 Population covered by disease eradication and prevention measures (I.v)
	1.3 Percent change among public health institutions and/or community groups' behaviours utilizing processes, practices, or methods for managing climate change risks through the design and implementation of public health measures, assessed via survey or other evidence (II.i)
	1.4 Number of stakeholders involved in capacity development activities in the application of specific adaptation decision-support tools/methods for disease prevention/eradication measures (III.i)
2. Climate information integrated into public health monitoring systems in areas prone to geographical expansion of disease ranges or changes in disease incidence (including the integration of information across sectors)	2.1 Number of stakeholders (health agencies, related bodies) engaged in the design and implementation of integrated climate and public health monitoring systems (I.ii)
	2.2 Number of stakeholders served (or area covered) by expanded, integrated public health information management systems (I.iii)
	2.3 Percent change in stakeholders' capacities to communicate climate change risks and disseminate public health information to public health bodies based on climate information, assessed by vulnerability qualitative survey (II.ii)
3. Capacity enhanced to address climate-related health risks in development policies and programmes (e.g. sanitation, land-use, etc.) through integrated scenario planning and policy assessment	3.1 Number of development policies, programmes or investment decisions that incorporate climate change risks and public health vulnerability to climate-sensitive diseases (I.i)
	3.2 Percent change in stakeholders' capacities to analyse policy decisions using climate change scenarios, assessed via qualitative survey (II.ii)
	3.3 Percent change in use of climate change scenarios for planning and policy assessment, assessed via qualitative survey or other evidence (II.ii)

TA 3. Public Health

Project Objective: Enhanced capacity of health sector to anticipate and respond to changes in distribution of endemic and epidemic climate-sensitive diseases in areas at risk from expansion of climate-related diseases.

Outcomes	Indicators
All Outcomes: 1 - 3	4.1 Narrative description of the role of project interventions in improving capacity to adapt to a recurrence of primary climate change-related threats to public health, assessed via qualitative survey (II.v)
	4.2 Percent change in stakeholder perceptions of capacity to adapt to a recurrence of health-related climate change risks (II.iv)
	4.3 Number of lessons learned relevant to adaptation and public health codified (IV.i)
	4.4 Number of 'lessons learned' disseminated through the Adaptation Learning Mechanism (ALM) platform or with other regional stakeholder groups beyond the project (IV.ii)
	4.5 Infection rates as related to climate-sensitive diseases, as percentage of population infected per year (III.vi)
	4.6 Extent of diseases in epidemic areas during periods when climatic conditions favour epidemics, compared with previous such episodes (III.vi)

Example Project Level Outcomes and Indicators for TA4

TA 4. Disaster Risk Management

Project Objective: Enhanced resilience of settlements and landscapes to increases in the frequency of climatic extremes (focusing on increasingly frequent extreme rainfall events and their impacts through climate-resilient planning and land management).

Outcomes	Indicators
1. Disaster prevention and response improved through updated and expanded DRM policies and plans that incorporate climate change risks and incentivize lower-risk development	1.1 Number of DRM plans, policies, and programmes incorporating climate change risks and vulnerability (I.i)
	1.2 Percent change in stakeholders' capacities to interpret climate change information for DRM planning purposes, assessed by QBS
	1.3 Percent change in the use of climate change scenarios and/or relevant projections (e.g. streamflow, extreme precipitation events, etc.) in DRM processes
2. Information management including early warning systems for floods and landslides strengthened to incorporate climate information and communicate risks effectively for disaster prevention	2.1 Number of stakeholders served by new or expanded climate information management systems (e.g. early warning systems)
	2.3 Percent change in stakeholders' capacities to communicate climate change risks, disseminate information, or make DRM decisions based on timely information, as assessed by QBS
	2.2 Percent change in use of/performance of information management systems
3. Capacity developed at the local level to implement climate-related disaster prevention measures, such as improved settlement construction, livelihoods protection, and/or land and water management practices	3.1 Number of stakeholders involved in implementing climate-related disaster risk reduction measures.
	3.2 Number of risk-reducing practices/measures implemented to support adaptation of settlements, livelihoods and/or resource management
	3.3 Percent change in stakeholders' use of adjusted practices or methods for managing climate change risks (such as construction, livelihoods protection, or land/water management practices), assessed via QBS or other evidence
	3.4 Perceived change in disaster response capacity, assessed by disaster planners (QBS)
4. All Outcomes: 1 - 3	4.1 Percent change in stakeholder perceptions of capacity to adapt to a recurrence of disaster-related climate change risks

TA 4. Disaster Risk Management

Project Objective: Enhanced resilience of settlements and landscapes to increases in the frequency of climatic extremes (focusing on increasingly frequent extreme rainfall events and their impacts through climate-resilient planning and land management).

Outcomes	Indicators
	4.2 Narrative description of the role of project interventions in improving capacity to adapt to a recurrence of primate climate change-related disasters.
	4.3 Perceived ability to sustain interventions implemented by the project beyond the end of the project's lifetime, based on knowledge acquired and availability of skills and resources. (III.iii)
	4.4 Number of 'lessons learned' codified about reducing climate change risks through DRM
	4.5 Number of 'lessons learned' disseminated through the Adaptation Learning Mechanism (ALM) platform and regional networks.
	4.6 Incidence of complex disasters (e.g. flooding, landslides) associated with climatic extremes (e.g. heavy rainfall) compared with recent historical experience of baseline projections.
	4.7 Losses resulting from disasters (e.g. mortality, injury, property or infrastructure lost or damaged) compared with recent historical experience or projected baseline.

Example Project Level Outcomes and Indicators for TA5

TA 5. Coastal Zone Development

Project Objective: Reduced vulnerability of coastal systems through policy integration, capacity development of communities, and integrating climate change risk management practices into investment decisions.

Outcomes	Indicators
1. Climate-related risks (e.g. SLR, coastal erosion, storm surge) systematically integrated into coastal development zoning policies and procedures	1.1 Number of policies and plans relating to coastal development adjusted to incorporate climate change issues (I.i)
	1.2 Narrative description of the role of integrating climate change information into zoning policies in reducing vulnerability to storm surge, assessed via survey (ii.v)
	1.3 Number of professionals involved in capacity development for the use of climate change information in policy processes (III.i)
2. Capacity enhanced among coastal communities to reduce losses from storm surge through the deployment of an EWS	2.1 Number of communities served by the EWS (I.iii)
	2.2 Number of stakeholders engaged in capacity development activities to reduce vulnerability to coastal risks (I.v)
	2.3 Percent change in stakeholders' capacities to respond to EWS (II.iii)
3. Climate-related risks incorporated into decisionmaking for insurance and investments	3.1 Number of insurance and investment decisions incorporating climate change risks (I.iv)
	3.2 Percent change in behavior of insurance and investment bodies to utilize climate risk criteria in due diligence procedures (II.i)
	3.3 Percent change in stakeholder perceptions of vulnerability of investment or insurance portfolios to climate change, assessed via survey (II.iv)
All Outcomes: 1 – 3	4.1 Perceived ability to sustain interventions implemented by the project beyond the end of the project's lifetime, based on knowledge acquired and availability of essential resources (III.iii)
	4.2 Number of 'lessons learned' codified about managing climate change risks through coastal management as a result of the project (IV.i)

TA 5. Coastal Zone Development

Project Objective: Reduced vulnerability of coastal systems through policy integration, capacity development of communities, and integrating climate change risk management practices into investment decisions.

Outcomes	Indicators
	4.3 Number of 'lessons learned' disseminated through the Adaptation Learning Mechanism (ALM) platform and other regional networks (IV.ii) 4.4 Losses resulting from coastal disasters (human welfare (mortality, injury), economic (losses or infrastructure damage), or environmental (shoreline erosion)) compared with recent historical experience or projected baseline (II.vi)

Example Project Level Outcomes and Indicators for TA6

TA 6. Natural Resources Management

Project Objective: Natural resource management and livelihood development programmes incorporate climate change information to increase the capacity of resource-dependent communities to adapt to climate change.

Outcomes	Indicators
1. Environmental management programme revised on the basis of scenario planning to reduce pressure on natural resources at risk from climate change, and to promote resilience of productive ecosystems to climate change	1.1 Number of planners and policymakers involved in capacity development activities related to interpreting climate change information in natural resource management (I.ii)
	1.2 Policy options developed to reduce anthropogenic pressures on natural resources and ecosystems (I.i)
	1.3 Percent change in stakeholders' capacities to make resource management decisions based on climate information (II.ii)
2. Improved access to alternative income generating activities among resource dependent communities	2.1 Number of households engaged in alternative income generating activities (I.ii)
	2.2 Stakeholder perceptions of the sustainability of alternative climate-resilient income generating activities (III.iii)
	2.3 Percent change in natural resource dependent population with access to alternative or supplementary livelihood options, assessed via survey (II.ii)
3. Capacity enhanced to implement sustainable natural resources management	3.1 Percent of population in relevant areas engaged in sustainable community management activities (I.v)
	3.2 Number of measures deployed as part of sustainable resource management activities (I.v)
	3.3 Percent change in stakeholders behaviours to manage local resources sustainably (II.i)
All Outcomes: 1 – 3	4.1 Perceived ability to sustain interventions implemented by the project beyond the end of the project's lifetime, based on knowledge acquired and availability of essential resources (III.ii)
	4.2 Number of 'lessons learned' about natural resource management in the context of climate change as a result of the project (IV.i)

TA 6. Natural Resources Management

Project Objective: Natural resource management and livelihood development programmes incorporate climate change information to increase the capacity of resource-dependent communities to adapt to climate change.

Outcomes	Indicators
	4.3 Number of 'lessons learned' disseminated through the Adaptation Learning Mechanism (ALM) project (IV.ii)
	4.4 Decline in natural resources (area, density, quality) relative to projected baseline (II.vi)

6.6 Considerations for adapting standard indicators to a project context

COVERAGE	Considerations
i. Number of policies, plans or programmes introduced or adjusted to incorporate climate change risks.	Identify relevant policies and planning processes.
ii. Number of stakeholders (e.g. communities, households, agencies, decision makers) engaged in capacity development activities for vulnerability reduction or improved adaptive capacity.	Identify relevant stakeholders engaged in project activities.
iii. Number of stakeholders served by new or expanded climate information management systems (e.g. early warning systems, forecasting, etc.)	Determine the scope of new or expanded climate information management systems (e.g. early warning systems, forecasting, etc.) and populations served.
iv. Number of investment decisions revised or made to incorporate climate change risks).	Identify investment decisions of relevance to the project's objective.
v. Number of risk-reducing practices/measures implemented to support adaptation of livelihoods and/or resource management.	Identify appropriate practices/measures and relevant stakeholder groups.
IMPACT	Considerations
i. Percent change in stakeholders' behaviours utilizing adjusted processes, practices or methods for managing climate change risks, assessed via QBS or other evidence (relevant across processes i-v).	Identify stakeholder behaviour(s) (practices, methods, etc.) for managing climate risks and possible sources for verification.

ii. Percent change in stakeholders' capacities to manage climate change (e.g. communicate climate change risks, disseminate information, or make decisions based on high quality information), as relevant, assessed via QBS.	Identify types of stakeholder capacity for managing climate change risks.
iii. Percent change in use of/performance of information management systems, for example, early warning response times.	Identify information management systems, users, and extents, as well as possible sources for verification of their use.
iv. Percent change in stakeholder perceptions of vulnerability to (or capacity to adapt to) a recurrence of primary climate change-related threat(s), assessed via QBS.	Identify key factors contributing to vulnerability (or adaptive capacity) and structure a survey question linking climate change risk(s) and vulnerability/adaptive capacity factor(s), ensuring that the project is relevant to these factors and risks.
v. Narrative description of the role of project interventions in reducing vulnerability (or improving capacity to adapt to climate change-related threat(s)), assessed via QBS.	Design a survey question that links project interventions to vulnerability or adaptive capacity factors addressed by the project.
vi. Improvement in the relevant quantitative development outcome (food security, water resources, health outcomes, etc.)	Identify relevant quantitative indicators used to track the project's underlying development objective (based on TAs: food security, water resources, health outcomes, etc.).
<ul style="list-style-type: none"> Supplemental indicators 	Supplemental indicators specific to the TA(s) addressed by the project should also be considered, where possible (see Tables 5-9).
SUSTAINABILITY	
Considerations	
i. Number of project beneficiaries involved in capacity development for implementation of specific adaptation measures or decision-support tools.	Identify necessary types of capacity development and stakeholders.

ii. Availability of skills and resources necessary to continue adaptation after conclusion of project (at relevant scale), assessed via QBS.	Identify necessary skills and resources to continue adaptation, consider behaviour and capacity development indicators, and design a survey question to assess this.
iii. Stakeholder perceptions of adaptation sustainability.	Design a survey question to assess stakeholder perceptions of the sustainability of adaptation benefits.
REPLICABILITY	Considerations
i. Number of 'lessons learned' codified.	Identify adaptation 'hypotheses' or challenges that will be tested by the project to generate 'lessons learned', and methods to codify these.
ii. Number of relevant networks or communities through which lessons learned are disseminated.	Identify relevant outside networks, programmes, projects or stakeholders that could benefit from the project results.

Annex 7: Detailed project activities

1. This annex provides a more detailed description of the activities proposed under Outcome 3 of the LDCF financed project. The information was prepared in collaboration with Dr Makoala Marake, a Professor of Soil Science at the University of Lesotho – who has more than three decades of experience working on the restoration of degraded ecosystems in Lesotho.
2. Current common agricultural and land-use practices in the Lowlands, Foothills and the Lower Senqu River Basin have measurable negative impacts on the sustainability of the ecosystems. The predominant, observable impacts on the land stem from interactions between agricultural techniques and the use of natural resources, and their influences on the movement of rainwater as it enters the terrestrial water cycle. The ways in which agriculture, vegetation and forests prevent, reduce, worsen or accelerate the damaging effects of disaster-type hazards such as soil erosion and flooding are described in this section.
3. The first barrier to falling rain is provided by the canopy of vegetation covering the area. This barrier may be several meters above the ground or laying directly on top of it. The intensity and duration of the rainfall, and the density and quantity of biomass determine the extent to which the ground is impacted by the rain. Areas with dense and abundant vegetation under light rainfall may completely prevent soils being impacted by rainfall, while those without any cover can be vulnerable to erosion, landslides and promote flooding.
4. Vegetation cover also determines whether the soil surface is vulnerable to splash erosion (see Figure 1) as the physical force of water striking the exposed surface can propagate erosive mechanisms.

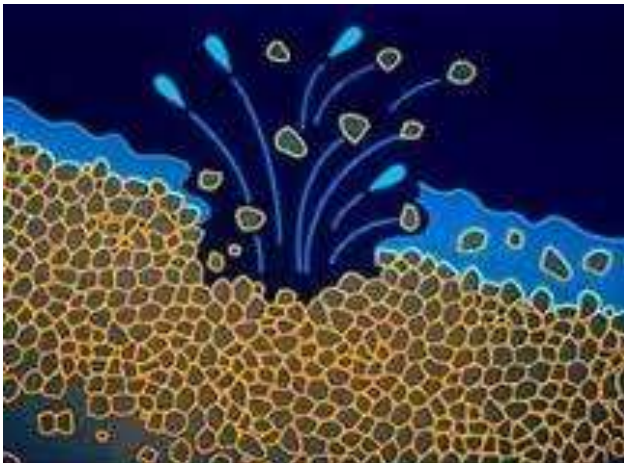


Figure 1. Splash erosion occurs on exposed soils.

5. Where rainwater reaches the ground, it is subjected to both physical and biological influences, which dictate its continued pathway. The type of substrate onto which it lands – as well as the conditions of that substrate – such as its angle and as mentioned before, its exposure, determines the first partition of the body of water. This determines whether the water continues its journey as above surface runoff – with erosive potential – and enters streams and rivers directly, whether it evaporates straight away without entering the substrate or whether it infiltrates into the soil to be further partitioned.
6. For the fraction of water that enters the ground a second partitioning occurs in the root zone where it will either be taken up by plants to be utilised in photosynthesis and growth and ultimately released back into the atmosphere through evapotranspiration, or whether it will continue its journey downwards towards the water table, aquifers and other underground water. The factors that determine this partitioning – whether the water is either taken-up by plants or descends to the soil-bedrock interface – are many, but the main considerations are related to how much and for how long the water remains in the root zone, which is a factor of rootzone depth and soil type.
7. In order to reduce erosive tendencies and prevent flooding, a number of technologies can be implemented at the community levels, which directly affect the mechanisms described above.
8. The overall goal of the LDCF-financed project is the rehabilitation of degraded lands using both mechanical and biological measures. The strategy is to take a catchment area approach in order to concentrate both the structural and vegetative conservation measures for maximum impact and visibility. The vegetative measures include *inter alia* afforestation, range re-seeding, fodder production, and the planting of fruit trees within the target catchments. The structural measures take the form of mechanical construction of diversion furrows, dams and gully stabilization with stone lines in the rangelands. Both the mechanical and vegetative conservation works involve short-term employment opportunities for communities in targeted catchment areas.

Permaculture methods applicable to local conditions

9. Permaculture is the permanent and continuous cultivation of a variety of crops, trees and animals emphasising the interactions between them and resulting in improvements in ecosystem services. Self-maintenance and symbiosis are fostered within the system to ensure sustainability – non-depletion of resources – and without the use of inorganic inputs such as fertilisers and pesticides. Permaculture is particularly appropriate in areas where farmers have little capital or access to inputs and in locations susceptible to land degradation. Permaculture's inherent utilisation of a number of different varieties and types of crops, tree-crops and animals promotes diet diversification and can strengthen food and nutrition security. It should, however, be noted that not using pesticides and inorganic fertilizers can greatly reduce agricultural productivity. This should be taken into account when decisions on landuse are being taken at the village scale.

10. A number of NGOs within Lesotho practice permaculture-type activities. The UNDP project will engage these NGOs and utilise their skills and experience, contracting them where possible to implement activities in association with MFRSC Extension Officers.
11. Conservation farming is a farming system that relies upon three pillars: i) minimum tillage; ii) rotational cropping/intercropping; and iii) permanent cover. Together, these pillars ensure that soil disturbance is kept to a minimum, its nutrients are kept in a replenishing cycle – due to the variety of plants utilizing the same area and the continuous availability of organic material from the mulch – and it is protected from the sun's heat, winds and the physical impacts of rain.
12. As opposed to conventional arable farming, which is characterised by the use of a plough, or other mechanism for turning over the soil, conservation farming promotes no-till or minimal till techniques. The advantage of this is that the soils are not subjected to degradation associated with the reduction in soil organic matter, which is a problem in Lesotho. Organic materials in soils are essential for their structure, and are important for their water storage capacity. Disturbed soil is also highly prone to erosion, another serious problem for Lesotho's thin highly erodible soils.
13. Through ensuring permanent cover – mulch – the microclimate of the soil is stabilized, reducing the impacts of sun and wind, and the erosive capacity of heavy rains. Within and beneath the mulch layer, flora and fauna – which contribute to soil health – thrive and the nutritious and physical properties of the soil benefit. As mechanical tillage is eliminated from this system, a replacement is necessary in order to loosen the soils for planting. To address this, biological tillage is promoted. Biological tillage is the actions of the biota within the soils that naturally maintain a healthy soil texture. Over time, this leads to an improved environment for plant growth and promotes higher yields. Weeds are also suppressed through the elimination of light to the soil surface, reducing the need for weeding over time, and therefore labour.
14. The above techniques do however, present problems, as tillage and burning, which are often used for phytosanitary reasons – the control of pests, weeds and disease – are not allowed under this system. Rotations of crops assist in this through interrupting the chain of infections between successive crops of the same variety. Intercropping can promote plant health through taking advantage of the varying and complementary nature of the physical and chemical properties supplied and required by differing crop types, legume beans and maize is a classic example. Rotational cropping and intercropping take full advantage of the spatial and temporal capacity of an area of land to produce foods, and as such increases both the quantity and diversity of diets for the recipient communities.
15. In Malawi 85% of people are subsistence farmers and permaculture is one approach being adopted to address food and nutrition security. It is a design method that mimics natural systems to decrease the need for outside inputs and increase biological diversity. This approach meets human needs for food, fuel, and fodder and, unlike fortified foods, it is accessible to households across the economic spectrum. By emphasising the use of existing resources, seeds are saved and shared at little to no cost. A focus on diversity within permaculture, increases accessibility of nutritious foods, and allows for year round, seasonal and perennial harvests, helping to alleviate the "hungry season". Additionally, crop diversity increases agricultural resilience in the face of climate change. Preliminary results (see <http://www.conservation-agriculture2012.org>) showed that, on average, permaculture farmers planted more vegetables, fruits and legumes and their households ranked higher in measures of food security and diet diversity, including consumption of micronutrient-rich fruits and vegetables.

16. Farmers in Lesotho are generally risk-averse due to the small yields they harvest and the small margins these leave between subsistence and hunger. Therefore, they cannot afford to gamble on new techniques as they have no buffer or safety net to rely on if the gamble does not pay off. Incremental changes will allow farmers to slowly adapt their farming to a more sustainable high production system, without requiring great labour input changes or risking affecting their ability to provide food for the household. For example, in the first year a home garden living fence can be established – which can also be used as fodder and fuel wood. In the following year, mulching and slope management techniques – such as contour farming for vegetable production – can be introduced.

Conservation farming methods applicable to local conditions

17. For crop farmers, packages based primarily on conservation agriculture and irrigated crop production are recommended. The target ecosystems are fragile and constitute a conservation challenge because Lesotho is rapidly losing productive capacity. Therefore, improved production systems need to be urgently introduced which will help to: i) reduce and reverse soil loss; ii) improve soil chemical, physical and biological properties; iii) increase water infiltration and reduce evaporation from the soil; and iv) protect the vast and degraded watershed areas.
18. Conservation agriculture in Lesotho is an important option in addressing the challenges smallholders face in certain parts of the country – most notably the Lowlands where maize is extensively cultivated. However, in these areas where smallholder agriculture is the dominant mode of agricultural production, conservation agriculture needs to broaden its scope to incorporate crop/livestock integration and agroforestry. Fodder production is a major constraint in Lesotho and tree species can be introduced as cover crops if planting is well planned. Crop management is also closely linked to water management and control. Weak water and watershed management will continue to be a major constraint in agricultural production and food security, and needs to be addressed as an important adaptation option to reduce smallholder vulnerability.
19. Small-scale irrigation and water harvesting and management are a priority adaptation option. The choice of appropriate approaches will be based upon affordability, suitability of the terrain and skills requirements. Gravity fed irrigation is the most inexpensive way of irrigating – the costs of purchase, installation, operations and maintenance are minimal. It has particular potential in the Foothills due to the feasibility of rainwater harvesting through establishment of small to medium scale surface water harvesting structures. Despite its limited success in Lesotho, the arguments for small-scale, low-cost irrigation technologies, including gravity fed sprinkler and/or drip systems are compelling.
20. Crop-livestock integration can be an economically viable and environmentally sustainable option for climate change adaptation if properly introduced. Crops should be planted which would serve both household food security and livestock fodder needs. For example, it is recommended that sweet potatoes should be encouraged because the vines and leaves are used for feeding livestock. Similarly, legume introduction should not be limited to Pinto beans, but should also include dual-purpose cowpea varieties. Furthermore, any proposed drought resistant crop/tree species should also consider dual-purpose – food/feed – varieties.

Agroforestry methods applicable to local conditions

21. Agroforestry: a combination of arable farming and/or pastoral farming with tree crops in a complementary system. It benefits from the interactions provided by the farmer's management of their individual functions to ensure the occupied land's sustainability and productivity.

22. The use of trees for soil conservation and donga/gully reclamation has achieved good results in some sites in Lesotho. In addition, the establishment of woodlots, protective hedges and live fences around homesteads and home gardens have also been relatively successful. Both food and non-food – including fodder tree species and trees for fuel wood and construction material – have been used. The advancement of agroforestry in the country is therefore important not only in terms of climate amelioration, but also as a means for communities to improve their livelihoods and food security through the multitude of products and services it can provide.

23. Some of the benefits associated with agroforestry that are particularly relevant to Lesotho include:
 - protection of arable crops from wind and intense sun and rains;
 - soil stabilization – deep tree roots reducing soil erosion on sloping agricultural areas;
 - diversification of produce and increased marketability – livelihoods and nutrition benefits;
 - fuel wood production;
 - improvement of soils, especially with leguminous trees. Leaf litter also provides mulch material. Agroforestry areas promote settled agriculture in areas which have depleted soils;
 - production of fodder for animals, enabling animals to be contained – reduce pressure on rangelands – and production to be intensified; and
 - rolling cycle of production – continuous food availability/ income potential.

24. A number of agroforestry systems have been identified, which will potentially improve livelihoods. These systems have been shown to be effective in meeting the various basic needs of communities elsewhere in Africa and further afield, as well as in Lesotho. The selection of appropriate agroforestry systems is usually based on existing practices, climate, soil conditions, the level of soil erosion, livestock populations, availability of pastures, household food supply and nutrition, as well as fuel wood requirements.

25. Agroforestry makes specific demands when applied to the Lowlands and will require locally adapted systems. The Southern Lowlands are the driest and warmest areas in the country and overgrazing has led to significant land degradation and soil erosion. The population density is high, placing great pressure on natural resources – notably trees of all ages – and there is an acute shortage of fuel wood. In the recent past many houses in the Lowlands have been damaged, with roofs blown away by strong winds. This gives rise to an urgent need for windbreaks.

26. The agroforestry systems recommended are as follows, and are supported by identified species suitable for each zone:

Home gardens and orchards

27. Home gardens are a common addition to the main cropping areas of most rural households in Lesotho. Whereas the main cropping area will be dominated by maize, home gardens – which as the name implies, are near the house – often have a much wider variety of crops, though on a far smaller scale. Home gardens will often have a variety of beans and root vegetables, leafy vegetables and herbs. In addition, fruit trees can be grown within the homestead. This will allow young trees to be monitored

and protected relatively easily from damage by livestock. Small orchards will be established or individual fruit trees can be interplanted with vegetables within the home gardens. Suitable species of fruit trees for the Lowlands include, *inter alia* stone and pome fruit, nut species, figs, pomegranates, grape vines, mulberries, citrus species and appropriate olive cultivars. As the LDCF-financed project aims to promote and facilitate climate-smart agriculture techniques, understanding and integrating interventions into these established home gardens will be essential.

28. Seedling production is a key element in most agroforestry projects. Current experiences in Lesotho indicate that decentralised farmer-run nurseries have been successful and are aligned with current government policies. However, farmers in rural areas often face difficulties regarding the availability of seedlings of various species for specific purposes. This will need to be explored in further detail and addressed through the implementation of the LDCF-financed project.

Windbreaks

29. Windbreaks will be established around homesteads and homestead gardens rather than around the fields. These will serve to protect homes and gardens against cold, strong winds and protect the soil against wind erosion.

Hedges and live fences

30. The Lowlands area experiences high levels of trespassing. It is therefore advisable to establish protective hedges and live fences around the homesteads, especially against livestock kept within the village. In addition, these hedges and live fences will deter human trespassing. A number of species are suitable for live fencing including *Agave americana*. This species can also be used for fencing in livestock near the homestead. Additional benefits include its use in the production of medicinal products and livestock eat its large inflorescence.

Fodder banks/trees on contour strips in cultivated fields

31. This system is more applicable to the Southern Lowlands where grazing resources are poor. In arid and semi-arid areas of Africa, leaves and edible twigs of trees and shrubs can constitute well over 50% of the biomass production of the rangelands. Even in regions of higher rainfall where grass supplies the major proportion of the dry matter eaten by ruminants, tree leaves and fruits can form an important constituent of the diet – particularly for small ruminants. These trees can be planted in rows intercropped with herbaceous annual or perennial fodder crops.

Donga (gully) rehabilitation

32. There is considerable gully erosion in the Southern Lowlands. Some erosion control and donga reclamation has been undertaken in certain parts of the area. However, extensive work is required to address this issue elsewhere. A combination of trees, shrubs, grasses and herbaceous plant species may be used. Willows and poplars, amongst other species, can be planted on the donga floor where there is likely to be sufficient moisture to support tree establishment.

Beekeeping

33. There are already a number of beekeepers in the Lowlands. However, the practice is not well organised. Indications are that many more Lowland farmers are willing to embark on beekeeping as an income earning opportunity. In the Senqu River Valley area, there are enough flowering plants to justify the starting up of beekeeping on a pilot basis. Suitable species include the fruit trees recommended for home gardens and orchards, as well as several *Eucalyptus* species. These species should ideally be drought tolerant. Care should also be taken to ensure that these are not located close to watercourses where they will place undue pressure on already depleted water resources. In addition, aloes can also be planted. If planted on a large scale, the aloes would support beekeeping industries, as well as serve to restore gulleys.

Livestock

34. Livestock farmers have few options for coping with the impacts of erratic weather and recurring droughts. However, Lesotho's indigenous cattle breeds are highly adapted to drought and spells of extreme low temperature and snowfalls. They are also multi-functional, being used for draught power, milk and meat production, and ritual functions. Livestock farmers have therefore seen no need to change to exotic breeds and experts believe that the indigenous cattle breeds only require optimization of herd management to express their full adaptive and production potential. However, many farmers are not culling undesirable animals. Improvement of herds is therefore difficult and the grazing pressure on the rangelands persists. This pressure will be further exacerbated by climate change. Similarly, sheep and goats supply wool, mohair and meat. They are also well adapted to Lesotho's harsh climate. However, there is an ongoing advocacy and breeding programme for small stock in the Ministry of Agriculture and Food Security, which is focused upon upgrading stocks for improved wool and mohair production in Lesotho.
35. Communal rangelands are badly mismanaged, the range vegetation cover is extremely low and being replaced by unpalatable species. Severe soil erosion further contributes to the loss of productive land. Range management practices are not strategically planned to respond to recurring drought, resulting in low livestock conception and birth rates. Throughout Lesotho, severe overstocking on limited rangeland subjects animals to highly stressful conditions resulting in very high mortality rates – especially of young animals. There are a high proportion of unproductive animals, which should be culled but owners are unwilling to do so.
36. Livestock owners require basic training in herd management to optimize the breed's genetic potential. This would include introducing seasonal mating systems, providing for suitable weaning times, culling unproductive animals and maintaining a manageable animal health programme year-round. Furthermore, alternative intensive pig and poultry production schemes should be encouraged in the rural areas. These are desirable climate risk adaptation options because no rangeland is required – except if the feed is grown – and the animals are housed, thereby protected from the elements.
37. In the Lowlands, animal numbers are not currently high, but still exceed the low carrying capacity of the available rangelands. Consequently, range rehabilitation and regeneration is all but impossible. The traditional practice of transhumance – whereby grazing animals are moved to the cattle posts during the summer months and brought back to the local rangelands during the autumn and winter months – contributes to the severe degradation and is proving difficult to discourage. This is a good example of

adaptive practices, which have evolved historically becoming mal-adaptive under changing climatic conditions. No effort is made to produce and preserve fodder in adequate quantities to sustain animals during cold winters and dry spring months. Fodder production is seen only as a supplement for livestock nutrition and not for reducing pressure on the rangelands.

38. Range management is increasingly difficult because of the socio-cultural issues around the sustainable use of rangelands and range resources. Communities generally believe that they have unlimited entitlement to unlimited access and use of rangelands and range resources for their economic, social and cultural requirements. In the Mohale's Hoek District, this is further compounded by communal grazing and the practice of veld burning – which is still being used by some community members as a strategy to improve rangelands.
39. The reduction of climate-related risks and adaptation to climate change will not be easy and will require long-term approaches because the fundamental systems and processes that must be changed or adapted are communal in nature. Strategies for strengthening adaptive capacity must acknowledge the local communities' needs and aspirations and align these with targeted innovations to create resilience and sustainability. Farmers should be guided to gradually re-orient their farming approaches to be resilient to the eminent effects of climate change in a fragile and highly vulnerable production system.
40. Rangeland overgrazing and degradation must be halted and reversed to allow for recovery to full production potential. Where interventions require livestock to be controlled or restricted from an area, there will be difficult trade-offs to manage and problems to mitigate. Livestock issues are notoriously difficult to manage in Lesotho, as goats and cattle play an important role in traditional culture, and as such are highly valued. This importance negatively affects the inclination of livestock owners to remove or restrict their animals from grazing on the rangelands. The cornerstone of all range management systems in Lesotho is the “Maboella” system, which is a traditional management strategy of the rangeland common property resources. This system is complemented by the transhumance system. Innovations in range management will need to improve on the traditional strategies, possibly with transhumance practices giving way to more innovative systems of range management acceptable to the people.
41. To address land degradation, overgrazing will need to be addressed. To reduce flooding and erosion impacts, areas that are prone to these actions will need to be focused on. Planned and controlled range management programmes must be implemented with grazing areas divided into manageable blocks that allow for rotational grazing with managed rest periods.⁴⁵ The most at risk areas are the steeply sloping areas, which have been disturbed and are the beginning of their regeneration process. Restricting animal grazing in these areas will need to be part of a multi-disciplinary program of creation of living fences around the at-risk areas, establishment of managed grazing areas, planting of fodder trees and establishment of contained areas for cattle fattening.
42. Within the areas that are being re-vegetated, high yielding, quick growing fodder trees can be planted, as well as soil stabilizing, erosion reducing grasses. A fodder production scheme would provide a key alternative and/or supplementary approach to scarce rangeland resources. Fodder species could include *inter alia* inter-row legumes, erosion controlling kikuyu grass, annual teff grass, rye, oats and barley for grazing in winter and early spring. It is also recommended that dual-purpose – food/feed – fodder

⁴⁵ Simultaneously, only productive animals should be retained – undesirable and unproductive animals should be culled. Such a system must be based on established rangeland carrying capacities.

species and varieties, including legumes and sorghum, be considered. The establishment of these trees and grasses will take time. Therefore, incentive mechanisms may be required to ensure the communities experience positive benefits from the interventions in the first years – to counter the limitations imposed by the restrictions of grazing their animals, and to offset the labour inputs.

Biophysical interventions

Terracing

43. Terracing, as a form of slope manipulation is an effective way of reducing slope associated water impacts. In Lesotho, run-off of water from rainstorms is strongly associated with inorganic and organic soil materials being taken from steep elevated areas and entering the river systems. The large volumes of water running off the slopes, coupled with their increased load due to suspended solids /sediments (increasing the volume and impact of the river flow) can be extremely damaging for land users. The removal of this material hinders soil accumulation on slopes and reduces the amount of associated nutrients available for agriculture. Terracing steep slopes is one way to address these problems.
44. Terracing designed for Lesotho should be designed specifically for erosion control to reduce the amount of soil matter that is removed from agricultural lands under heavy, acute and protracted rainfall conditions. Reducing the slope of an area will reduce the speed that water runs across the surface and in most cases improve the opportunity for water to infiltrate into the soil. Reducing the speed and amount of water moving down the slope will reduce the amount of solid material that can become associated with the moving surface water. Run-off intensity is complicated by many factors such as soil type, structure and compaction as well as pre-rainstorm soil saturation, soil cover and above soil obstacles.
45. Terrace structures in Lesotho vary greatly between locations, and depend heavily on the available materials from which to build the terraces. Any terrace implementation project should take availability of appropriate materials into consideration before designing any interventions. Areas without rock, for example, may benefit from other non-terrace slope management activities, such as contour farming.

Contour Farming and Alley Cropping

46. Alley cropping is a cultivation technique that combines simultaneous agro-forestry with arable crop production in order to simulate fallow conditions on permanently cultivated sloping land.⁴⁶ Through having continuous biomass production by perennial woody bushes/trees, replenishment of organic carbon and soil nutrients can be performed without the necessity of leaving whole areas fallow during the recovery cycle. Therefore, less land is required. On sloping lands, planting coppice trees or perennial bush species as buffer hedgerows along contour lines has the added benefit of also reducing

⁴⁶ There can be considerable overlap between the previous described terracing, contour farming and alley cropping.

the impacts of precipitation and run-off on soil erosion as well as providing wood products such as firewood or fodder for livestock. Planting deep rooting trees and grasses can also reduce soil erosion on vulnerable slopes.

47. Simultaneous and permanent culture of quick growing, hardy, and preferably leguminous tree species with arable crops has the ability to mitigate the need for fallow periods – reducing erosion potential – and allows areas to be permanently cultivated. However, the inclusion of non-arable tree crops in an area of land will of course reduce the area available for growing food crops, by as much as 30%, which is considerable where land access is restricted. Furthermore, the 30% of land that is being occupied by the tree legumes can also be used as fodder for housed livestock increasing the productivity of non-crop assets and diversifying production.

Check-dams

48. In areas where erosion has reached a phase of gully formation, drastic and immediate actions may be required in order to prevent the acceleration of the erosion to irreversible levels. Check-dams are one way in which erosion can be halted immediately, through the cessation of flow down through the eroded gully. This stops the flow of water below the dam and allows back-fill to form a step above it, reducing the slope.
49. While it is usually considered preferable, in terms of cost and sustainability to design living check dams, depending on the severity of the erosion, and time constraints, cement or gabions may be used. The design of check-dams must be undertaken by a specialist, as the opportunities for error, and even the worsening of the problem, are many.

Awareness raising activities and dissemination of information

50. LDCF resources will be used to raise awareness of local communities on: i) the negative effects of traditional land use approach; and ii) the necessity to develop and adopt a new approach that does not degrade ecosystems. This new approach will be designed and promoted within communities. This promotion will require the development of teaching and campaign materials. The LDCF project will also make use of traditional and existing communication channels. These traditional communication channels include radios, videos, TVs and other media. Furthermore, the awareness campaigns will build on the experiences and tools that several organisations operating in Lesotho have already developed. Such organisations include World Vision, Send-a-Cow, USAID and FAO. The tools that they have developed include books, pamphlets, posters and other literature to provide guidelines and lessons learned in Lesotho and other countries. These guidelines and lessons will be updated where necessary to include considerations of climate resilience and to reflect the project's focus on ecosystems.
51. Several project activities, such as restoration of degraded ecosystems using small-scale bio-engineering, will generate new information, best practices and lessons for the context of Lesotho. These lessons and best practices will be used to produce booklets and other reference materials that can be distributed among communities in the project districts and other districts. Such approach will

contribute to local capacity building and facilitate the replication of project activities. These reference materials will be printed in the last year of the project to ensure that all lessons learned are incorporated. The project will also use media such as radio programmes, short community-made videos, theatre and other mechanisms appropriate in each area to communicate the project's activities and outcomes to local communities. All of the materials will be translated to Basotho for ease of use. Examples of the types of information materials to be produced under this activity include:

- Methodological booklets to provide a reference for the techniques being introduced by the project. These will include information on methods and techniques for eco-farming and small-scale bioengineering.
- Farming calendars and almanacs adapted for local crops, moon phases and climate information, including forecasts for the year based on astronomical, El-Niño Southern Oscillation and other important variables, which influence agricultural production and vulnerability to disasters.
- Agroforestry/conservation farming templates. These locally adapted templates would show the layout of a functional farm and the types of diversified ecosystem elements that can be included in the design of a farm. For example, a diversified farm in Lesotho include: i) areas for annual crops such as maize planted with legumes; ii) a fruit growing area; iii) living fences to reduce wind and prevent livestock damage; and iv) a vegetable garden. The design of each of these farm features will be detailed in the farming templates, including descriptions of layout, techniques, planting arrangement and spacing, and companion plants. Smallholders will be able to apply the template directly or use it as a guide.
- Radio, video and theatre shows to impart knowledge in alternative forms to complement written materials.

Annex 8: Site Selection

Project pilot sites

1. The project is designed to target areas in Lesotho that are most vulnerable to the effects of climate change, taking into account both their environmental and livelihoods vulnerability. In identifying relevant areas, reference was made to the vulnerability assessment undertaken during the National Adaptation Program for Action (NAPA). In accordance with the NAPA the three main vulnerability zones are: i) Zone I (Southern Lowlands and the Senqu River Valley); ii) Zone II (Mountains); and iii) Zone III (Lowlands and Foothills). Zone I emerged as the most vulnerable area in the country followed by Zone II and Zone III respectively. Communities that reside in Zone I are mainly smallholder subsistence farmers and small livestock farmers, including poor households that have few livelihood options. The area is also under environmental stress and will be highly threatened by climate change. Local communities in Zone III are also exposed and sensitive to the effects of climate change because the area is prone to droughts and livelihoods are supported by farming.
2. While the NAPA identifies the most vulnerable zones of Lesotho to climate change impacts as the Southern Lowlands, the associated Foothills and the Senqu River Valley, the Lesotho Vulnerability Assessment Committee (LVAC) identified a number of livelihood zones and how vulnerable they are to poverty. Coincidentally, some of the most vulnerable livelihood zones are in the Southern Lowlands, their associated Foothills and the Senqu River Valley. These physiographic regions are geographically based on elevation and agro-climatology. However, these physiographic regions also delineate livelihood zones with variable vulnerability and resilience to climate change. The LVAC reported that the Southern Lowlands, their associated Foothills and the Senqu River Valley – which correspond to NAPA's Zone I – are livelihood zones that are most vulnerable to poverty. Consequently, these areas were identified as the most vulnerable in terms of both climate change and livelihoods.
3. The Southern Lowlands form part of a narrow belt along Lesotho's western border with South Africa. Over 80% of the productive arable lands – and the country's highest population densities – are found along this belt. In particular, the Southern Lowlands includes some of the most vulnerable environments, providing extreme challenges to livelihood resilience in the advent of climate change. The associated foothills – ranging from 1800m-2000m above sea level – form a narrow strip running northeast to southwest, adjacent to the lower mountain range to the east. This area covers 8% of the country and supports dense populations dependent on mixed crop and livestock systems.
4. The Senqu River Valley – ranging from 1500m-1800m above sea level – is an important grassland area. However, agricultural productivity is restricted by the low precipitation – resulting from the rain shadow effect of the escarpment – and poor, erodible soils. These constraints are reflected in the area's declining population. In addition, the highest proportions of poor households in Lesotho are located in the Senqu Valley.
5. Since the predicted effects of climate change are worse on poor livelihoods, this overlap of NAPA and LVAC delineations is critical to understanding climate change adaptation and livelihood resilience. The application of the foregoing criteria has resulted in the identification of three Community Councils in the Moleleke's Hoek District: Khoelenya; Lithipeng and Thabo Mokhele. These Community Councils have been selected because they provide a contiguous stretch of the Lowlands, Foothills and Senqu River Valley. The approach for selecting participating villages was watershed/catchment based in accordance with on-going criteria utilised by the Ministry of Forestry, Range and Soil Conservation (MFRSC) in selecting participating communities in the Land Rehabilitation Programme (LRP). GIS mapping databases were used to delineate major catchments using topography and major drainage systems. These were enlarged to highlight the main land uses – for example rangelands, forests and other range resources, water and wetlands.

6. A national village map was overlaid on the catchments – prioritised in each physiographic region within the three Community Councils – to show villages within the major catchments. The GIS technology was used to estimate the area of the various catchments in order to ensure that the overall target area exceeded 50,000 ha and that each ecological zone was well represented. The general descriptive information for the selected watersheds is summarized in Table 1.

Table 1. Selected catchments by Community Council and associated physiographic and demographic characteristics.

Community Council	Ecological zone	Catchment	Electoral division	Catchment area (ha)
Thaba-Mokhele	Foothills	Upper Maphutseng	Monehela Thaba Phiri Ramonyatsi	20179
Lithipeng	Senqu River Valley	Lithipeng	Lithipeng Anone Shalane	4984
		Khoai	Raisa	4033
	Southern Lowlands	Lithipeng Mid Maphutseng	Setanteng Waterfall Makhakhe	13580
Khoelenya	Southern Lowlands	Lower Maphutseng	Ha Makhabane Maphutsaneng Ha Mohlakana	1243
	Lower Senqu River Valley	Mekaling	Nketheleng Phatalla	10976

7. The site selection criteria were validated in a meeting of the national consultants, key line ministries and NGOs. The *ad hoc* committee included representatives from MFRSC; Ministry of Gender, Youth and Sport (MoGYS); and Ministry of Agriculture and Food Security (MAFS). The following NGOs were also represented in the *ad hoc* committee: Rural Self-Help Development Association (RSDA); Send-A-Cow and World Vision. The selection of participating villages or specific sites will be determined after the mapping of climate change risks and vulnerabilities. This approach will make a critical climate proofing tool on the current LRP by ensuring that the selection of interventions sites is not politically motivated but rather based on scientific evidence for risk and vulnerability. Furthermore, it precludes the use of matrices based on *ad hoc* criteria without scientific evidence.

Annex 9: Maps

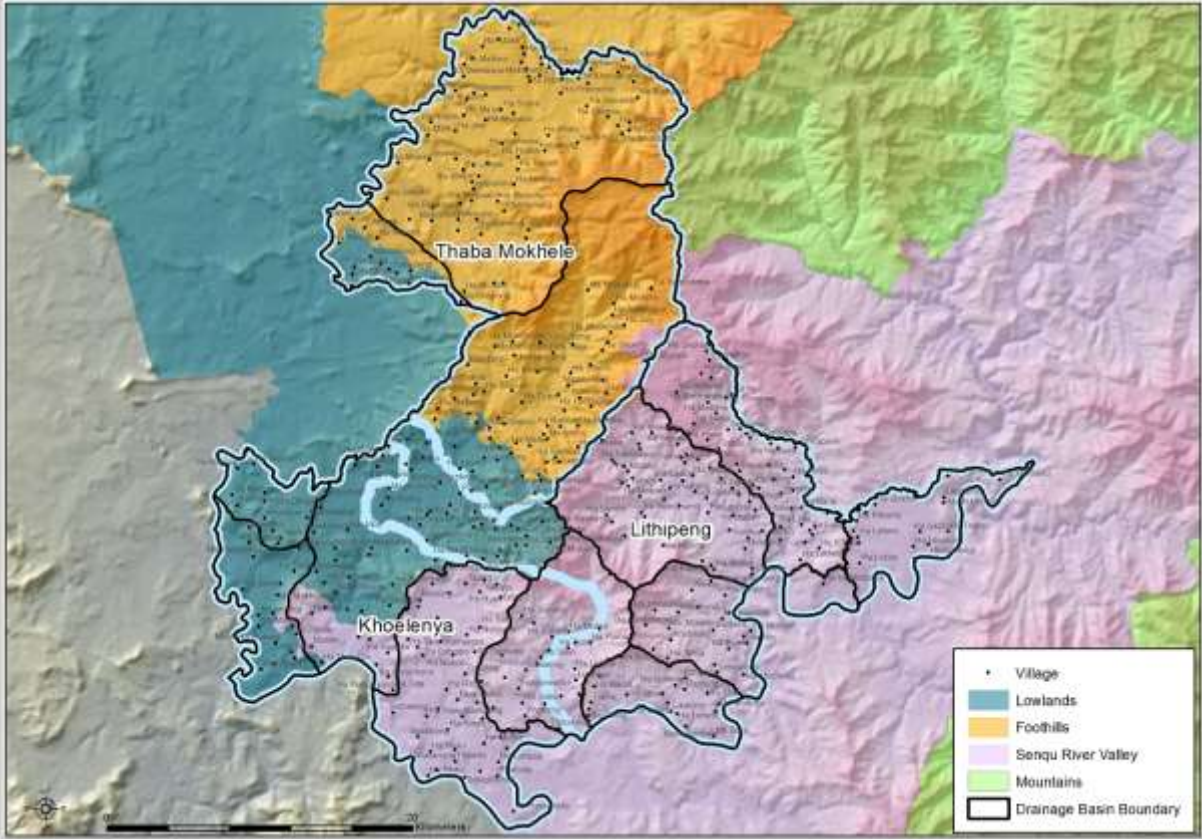


Figure 1. Map of the three Community Councils.

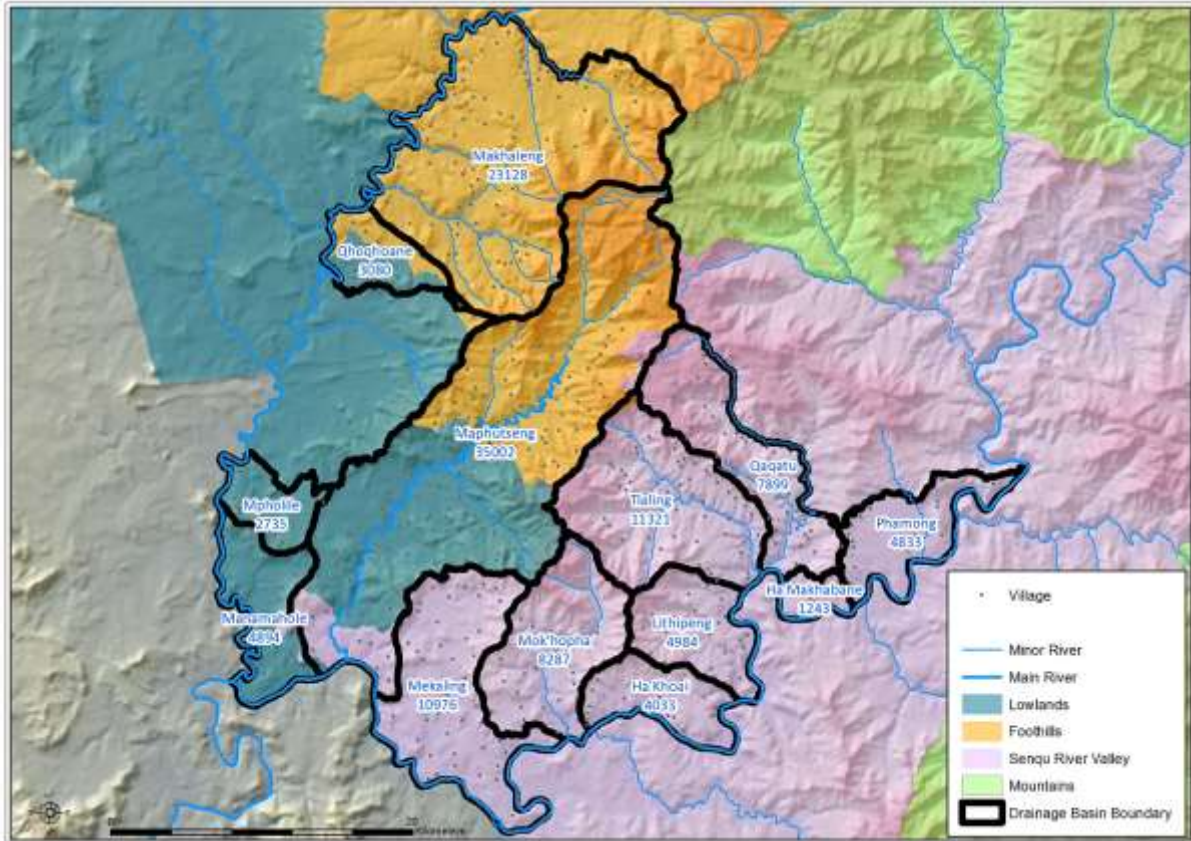


Figure 2. Map of the catchment areas.

Annex 10: References

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