LESOTHO ACTION PLAN FOR THE ORANGE–SENQU RIVER BASIN

ORANGE - SENQU RIVER COMMISSION
BOTSWANA LESOTHO NAMIBIA SOUTH AFRICA
ORASECOM
Established 2000

Empowered lives.
Resilient nations.

UNDP partners with people at all levels of society to help build nations that can withstand crisis, and drive and sustain the kind of growth that improves the quality of life for everyone. On the ground in 177 countries and territories, we offer global perspective and local insight to help empower lives and build resilient nations. www.undp.org

The GEF unites 182 countries in partnership with international institutions, non-governmental organisations (NGOs), and the private sector to address global environmental issues while supporting national sustainable development initiatives. Today the GEF is the largest public funder of projects to improve the global environment. An independently operating financial organisation, the GEF provides grants for projects related to biodiversity, climate change, international waters, land degradation, the ozone layer, and persistent organic pollutants. Since 1991, GEF has achieved a strong track record with developing countries and countries with economies in transition, providing $9.2 billion in grants and leveraging $40 billion in co-financing for over 2,700 projects in over 168 countries. www.thegef.org

The Orange–Senqu River Commission – ORASECOM – was established by the governments of Botswana, Lesotho, Namibia and South Africa to promote equitable and sustainable development and management of the resources of the Orange–Senqu River. This joint commitment was sealed through an Agreement on the Establishment of the Orange–Senqu River Commission signed in November 2000 in Windhoek, which conforms with best international practices regarding the joint management of shared rivers.

The highest body of ORASECOM is the Council, consisting of delegations from each country, supported by various 'Task Teams' that manage projects, and a Secretariat. The Council serves as technical advisor to the member states on matters related to development, utilisation and conservation of water resources of the Orange–Senqu River system. The Secretariat, established by agreement with South Africa in 2006 and hosted there, coordinates ORASECOM activities, implements ORASECOM decisions and is the focal point of the institution.

Lesotho Action Plan for the Orange–Senqu River Basin. ORASECOM Report 004/2014.

Produced by the UNDP–GEF Orange–Senqu Strategic Action Programme

Published by the Orange–Senqu River Commission (ORASECOM), www.orasecom.org

Prepared by the Lesotho Action Plan Working Group: Felix Malachamela, Water Commission; Ntiea Letsapo, Department of Water Affairs; Nthapeliseng Nthama, Department of Environment; Phokoane Monokoane, Department of Range Resources; Fred Tlhomola, Lesotho Highlands Development Authority; Thabo Nobala, Serumula Development Association.

Valuable technical input and guidance was provided by the Lesotho Action Plan stakeholder consultation platform.

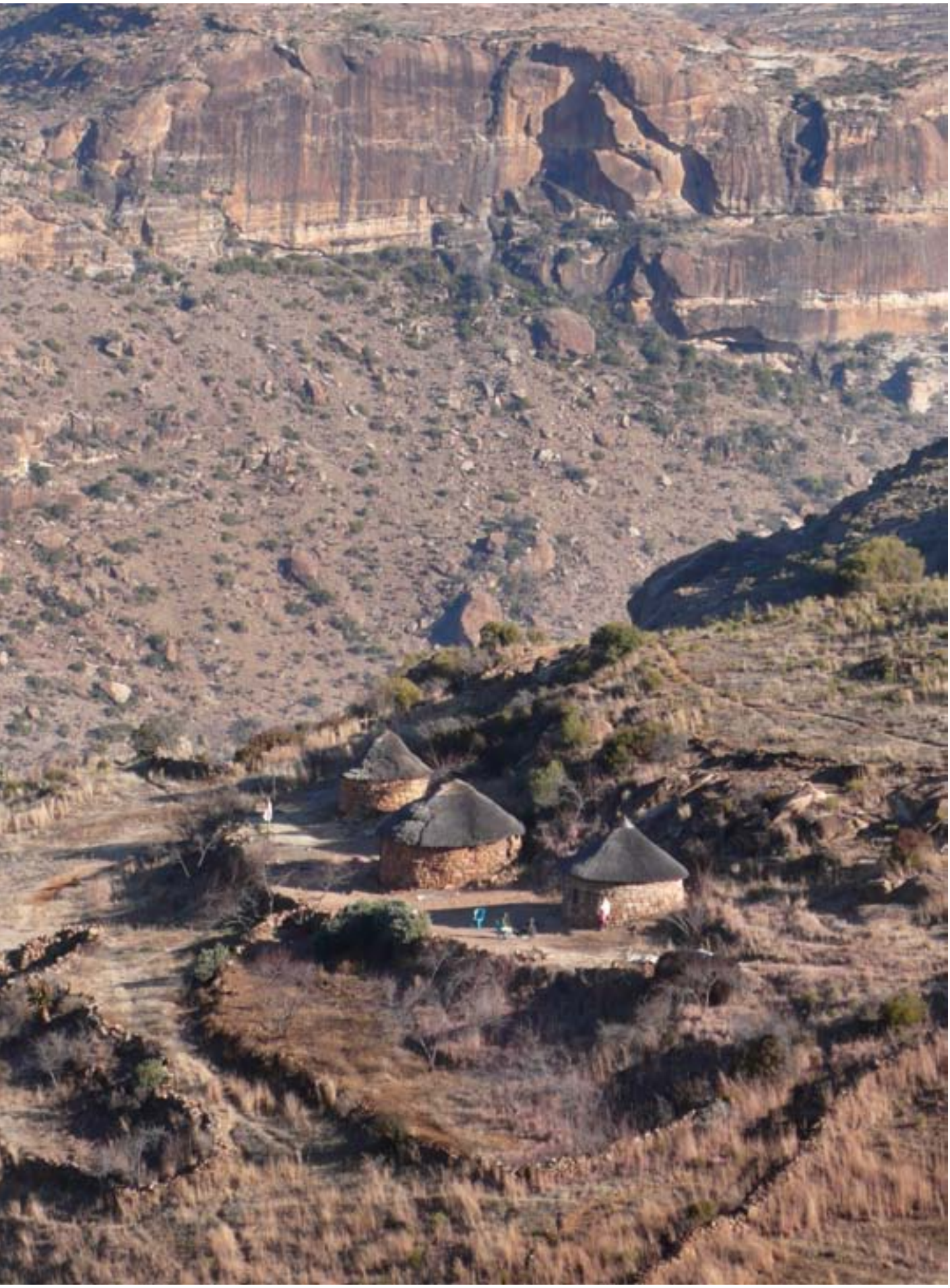
The process was facilitated by Palesa Selloane Mokorosi.

Published in 2014

Suggested citation: ORASECOM, 2014. *Lesotho Action Plan for the Orange–Senqu River Basin.* ORASECOM Report 004/2014.

Design and layout by Handmade Communications
Copy-editing and proofreading by Liz Haines

LESOTHO ACTION PLAN FOR THE ORANGE–SENQU RIVER BASIN



A homestead nestled in the Lesotho Highlands near Mount Moorosi; note the stone walls that have helped terrace the steep slope, prevent erosion and allow grass to establish.

CONTENTS

FOREWORD

© Teboho Maliehe

Clematis brachiata (commonly called 'traveller's joy') is a perennial climber common in lower lying areas of Lesotho, often near rivers and streams.

The Orange–Senqu River Commission (ORASECOM) was established by the governments of Botswana, Lesotho, Namibia and South Africa to advise them on water-related issues towards promoting equitable and sustainable development and management of the resources of the Orange–Senqu River basin.

ORASECOM and its four basin states have been supported by the United Nations Development Programme–Global Environmental Facility (UNDP–GEF) programme in the development of a basin-wide Strategic Action Programme (SAP) and an Action Plan for each basin country to address a variety of identified water-related environmental concerns. The SAP is a negotiated document that provides a basin-wide framework for the implementation of a prioritised set of national and joint transboundary actions and investments. In the context of the Orange–Senqu River Basin Integrated Water Resources Management (IWRM) Plan, the SAP is specifically focused on addressing priority environmental concerns. At national level, the SAP initiatives are integrated into the respective Action Plan of each basin state.

The Lesotho Action Plan for the Orange–Senqu River Basin is based on an assessment of the priority environmental concerns as identified by the Orange–Senqu Transboundary Diagnostic Analysis (TDA), a scientific and technical assessment of the priority environmental concerns and shared management issues in the basin. For the priority issues, the analysis identifies the scale and distribution of environmental and socio-economic impacts at national and basin levels and, through an analysis of the root causes, identifies potential remedial and/or preventative actions. The Action Plan defines technical and management interventions to address these priority concerns at national level. It was developed through an extensive consultation process and has been validated at national level in order to ensure that it reflects the priorities of the country. It is well aligned with the country's national development and sector plans, as well as the institutional frameworks at national and local level.

Developed under the auspices of ORASECOM, this Action Plan – together with the Action Plans of the other three basin states and the SAP – forms the environmental component of the Orange–Senqu River basin IWRM Plan.

ABBREVIATIONS AND ACRONYMS

CITES	Convention in International Trade in Endangered Species of Wild Fauna and Flora
CBNRM	Community-Based Natural Resource Management
DWA	Department of Water Affairs (Lesotho)
GDP	gross domestic product
GEF	Global Environment Facility
ICMP	Integrated Catchment Management Plan
ISCMP	Integrated Sub-Catchment Management Plan
ISWMS	Integrated Solid Waste Management System
IWRMS	Integrated Water Resources Management Strategy
LHDA	Lesotho Highlands Development Authority
LHWP	Lesotho Highlands Water Project
m^3/s	cubic metre per second
MCA	Millennium Challenge Account
MCC	Millennium Challenge Corporation
MDGs	Millennium Development Goals
MEMWA	Ministry of Energy, Meteorology and Water Affairs (Lesotho)
MW	megawatt
NAPA	National Adaptation Programme of Action
NBSAP	National Biodiversity Strategy and Action Plan
NRM	natural resources management
NSDP	National Strategic and Development Plan
ORASECOM	Orange–Senqu River Commission
PCNs	project concept notes
PES	present ecological state
POPs	persistent organic pollutants
SADC	Southern African Development Community
SAP	Strategic Action Programme
TDA	Transboundary Diagnostic Analysis
UNCBD	United Nations Convention on Biological Diversity
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNOPS	United Nations Office for Project Services
WRCP	Wetland Restoration and Conservation Project

© Teboho Maliehe

Themeda triandra (commonly called 'red grass') is widespread across Lesotho. This perennial grass is an indicator of healthy grasslands and its young shoots are palatable to livestock.

EXECUTIVE SUMMARY

The Lesotho Action Plan for the Orange–Senqu River Basin is a strategic implementation plan for addressing priority environmental concerns in the Lesotho part of the Orange–Senqu River basin. It is closely aligned with the Orange–Senqu Strategic Action Programme (SAP), a programme addressing priority environmental concerns at the basin-wide level. In the context of the Orange–Senqu River basin, the Action Plans (and the SAP) are closely linked with the basin-wide Orange–Senqu Integrated Water Resources Management (IWRM) Plan, together forming the environmental component of the IWRM Plan. The Action Plans and SAP, like the IWRM Plan, are developed for a ten-year planning time span with targets set for that period.

The Lesotho Action Plan was developed through an intensive stakeholder consultation process. This process involved intersectoral dialogue to achieve integration in water resources management and most importantly national endorsement of the Action Plan. The political and technical guidance for the Action Plan came from Lesotho, through an Action Plan Working Group as well as a broader national Stakeholder Platform, each structure specifically set up for the purpose of Action Plan (and SAP) development. Lesotho's delegate to the Orange–Senqu River Commission (ORASECOM) Technical Task Team was appointed as the national coordinator of the Action Plan/SAP process. The national Stakeholder Platforms comprised of stakeholders representing a wide range of relevant role-players, including both state and non-state participants. While established initially for the purposes of Action Plan/SAP development, the aim is that the national Stakeholder Platforms and the Action Plan Working Groups are maintained in the long term and become permanent national counterparts for ORASECOM.

The Lesotho Action Plan is based on an assessment of the priority environmental concerns as identified by the Orange–Senqu Transboundary Diagnostic Analysis (TDA), a scientific and technical assessment of the priority environmental concerns and shared management issues in the basin. For the priority issues, the analysis identifies the scale and distribution of environmental and socio-economic impacts at national and basin levels and, through an analysis of the root causes, identifies potential remedial and/or preventative actions. The Lesotho Action Plan is based on the findings of the Orange–Senqu TDA and is closely integrated with the basin-wide Orange–Senqu SAP.

The Lesotho Action Plan is structured around the four environmental priority areas of concern identified in the TDA: increasing water demand, declining water resources quality, changes to the hydrological regime and land degradation. Through the Action Plan consultation process the stakeholders ranked them in order of priority from their national perspective. In Lesotho, the following order of priority was determined.

1 Land degradation

The problem occurs both in the Highlands and the Lowlands, although it is more severe in the Lowlands. Some of the causes of land degradation in Lesotho were identified as uncontrolled fires, overstocking, poor management and governance, and ineffective law enforcement and policy implementation.

2 Declining water resources quality

Surface water sources are affected by both point and non-point source pollution. Poor land management practices and infrastructure development have serious negative impacts on water resources quality. The decline in water resources quality is more severe in the Lowland areas, especially in urban and peri-urban areas, where industrial effluents and sewage are the main contributors to the problem.

Opposite page: Land degradation occurs in both the Highlands and Lowlands of Lesotho.

Lets'eng-la-Letsie, the Ramsar site at the source of the Quthing River is under threat from overgrazing and trampling by livestock.

3 Changes to the hydrological regime (including wetlands degradation)

Most wetlands in Lesotho are found in riverheads at high altitude and serve as the source of most of the major rivers in the country. The extent of the damage is variable: some wetlands are trampled on by livestock and are beginning to lose their function, while others have gullies running through them and have been almost totally destroyed. Some of the main contributing factors to the problem are the unsustainable use of wetlands as rangelands, construction activities and overharvesting of wetland resources.

4 Increasing water demand

In Lesotho, there is increasing demand for industrial and domestic water supply and sanitation services. The existing 'wet' industries and further proposed expansion, particularly in the textile industry, have the potential to place extra pressure on the country's water resources, as well as on water and wastewater infrastructure. There is a trend towards the movement of people from the rural to the urban centres in search of jobs and better livelihoods, i.e. from areas of relatively abundant and largely unutilised water resources to areas where water resources are relatively scarce and under considerable pressure.

National targets were set to address the concerns over a ten-year time period. Interventions to meet these targets were then identified. In line with national policies, strategies and plans, project concepts were developed that package the proposed interventions into structured, implementable projects. These project concept notes (PCNs) form the backbone of the Action Plan. The proposed projects identified for Lesotho are:

Addressing: Land degradation
- PCN 1: Integrated catchment management in the Lower Mohokare sub-catchment
- PCN 3: Upscaling of the ORASECOM demonstration rangeland management project for sustainable management of Lets'eng-la-Letsie (Ramsar site)

Addressing: Declining water resources quality
- PCN 2: Management of water resources quality in Central Mohokare sub-catchment

Addressing: Changes to the hydrological regime (including wetlands degradation)
- PCN 3: Upscaling of the ORASECOM demonstration rangeland management project for sustainable management of Lets'eng-la-Letsie

Addressing: Increasing water demand
- PCN 4: Improvement of groundwater management in selected aquifers within the Central Mohokare sub-catchment

The implementation of the Action Plan is project-specific. The mechanism of implementation of a project is determined by the requirements of the lead implementing agent of that project. Overall coordination and monitoring of the Action Plan is through national government structures using their established structures and systems. Therefore, close collaboration between the ORASECOM Secretariat and responsible national structures is necessary to ensure coordination and monitoring between the implementation of SAP and Action Plan activities in the four basin states.

Funding is sought for each project, either individually or for a combination of projects. Potential funding sources are primarily national governments, international cooperation partners and, to some extent, the private sector. Importantly, given the extensive consultation process through which the Action Plan has been developed and its close alignment with national policies and strategic planning priorities, the Action Plan also provides valuable guidance for targeted budget decision-making and spending at national level.

1. INTRODUCTION

1.1 PURPOSE OF THE ACTION PLANS

The Action Plans are strategic implementation plans for addressing priority environmental concerns in the national part of the Orange–Senqu River basin. They are closely aligned with the Orange–Senqu Strategic Action Programme (SAP), a programme addressing priority environmental concerns at the basin-wide level. The Action Plans are critical tools for the implementation of SAP priority actions at national level and the integration of transboundary and basin concerns into national legislative, policy and budget decision-making processes.

In the context of the Orange–Senqu River, the Action Plans (and the SAP) are closely linked with the basin-wide Orange–Senqu IWRM Plan, together essentially forming the environmental component of the IWRM Plan. The Action Plans and SAP, like the IWRM Plan, are developed for a ten-year planning time span with targets set for that period. Thus, while the IWRM Plan is a comprehensive plan dealing with a wide aspect of water resources management (including water allocation) and economic development aspects pertinent to the basin, the SAP and related Action Plans primarily concentrate on priority environmental issues and form the environmental core component of the IWRM Plan.

The Lesotho Action Plan for the Orange–Senqu River Basin was developed through an extensive consultation process in order to ensure that it reflects the priorities of the country. It is well aligned with the country's national development and sector plans as well as the institutional frameworks at national and local level.

1.2 RELATIONSHIP OF THE ACTION PLAN TO THE TDA AND SAP

The Action Plan is based on an assessment of the priority environmental concerns as identified by the Orange–Senqu Transboundary Diagnostic Analysis (TDA) and defines technical and management interventions to address them. The TDA is a scientific and technical assessment of the priority environmental concerns and shared management issues in the basin. For the priority issues, the analysis identifies the scale and distribution of environmental and socio-economic impacts at national and basin levels and, through an analysis of the root causes, identifies potential remedial and/or preventative actions. The Lesotho Action Plan is based on the findings of the Orange–Senqu TDA and is closely integrated with the basin-wide Orange–Senqu SAP.

Like the Action Plan at national level, the SAP is a negotiated document that provides a basin-wide framework for the implementation of a prioritised set of national and joint transboundary actions and investments. At national level, the SAP initiatives are based on and integrated into the respective Action Plan. Neither the Action Plans nor the SAP work independently – the SAP reflects basin-wide priorities identified through the Action Plan development processes in the four states, while the Action Plans provide the framework for the national level implementation.

1.3 RELATIONSHIP OF THE ACTION PLAN TO EXISTING RELEVANT NATIONAL PLANS

The main national macro-economic policies, namely the national Vision 2020 and National Strategic and Development Plan for 2012/13–2016/17 (NSDP), explicitly declare the management and conservation of the environment to be key drivers for social and economic development of the country. The developmental goals are also included

Opposite page: Improper land use increases soil erosion.

in the IWRM strategy to harmonise social and economic developmental goals with the integrated management of water resources.

National Vision 2020

The Government of Lesotho's Vision 2020 is as follows: 'By the year 2020 Lesotho shall be a stable democracy, a united and prosperous nation at peace with itself and its neighbours. It shall have a healthy and well-developed human resource base. Its economy will be strong, its environment well managed and its technology well established.' Under the Vision 2020, therefore, sustainable development with the adoption of firm environmental management practices is a key strategy.

National Strategic Development Plan 2012/13–2016/17

The National Strategic Development Plan 2012/13–2016/17 recognises the vital role played by sound environmental policies, adaptation to climate change and physical planning for sustainable long-term economic growth of the country. In view of this, the NSDP has developed strategic objectives and actions aimed at reducing land degradation, protecting water resources, conserving biodiversity and promoting sustainable use.

1.4 GEOGRAPHIC COVERAGE

Situated entirely within the headwaters of the Orange–Senqu River basin, Lesotho generates 41.5 per cent of the basin's mean annual runoff despite covering only 3.4 per cent of the basin land area. The mountains of Lesotho support numerous unique wetlands (so-called 'sponges'), which form the sources of the three major rivers in the country (DWA, 2007). These rivers, the Senqu, Mohokare/Caledon and Makhaleng, are all tributaries to the Orange–Senqu system. The runoff from the Lesotho Lowlands drains westwards to the Caledon River while the Highlands drain to the south via the Senqu (DWA, 2007).

The country is divided into four physiographic regions: the Lowlands, which cover mainly the western part of the country; the mountains, which cover 59 per cent of the total area of the country; the foothills, which cover 15 per cent of the country; and the Senqu River valley, which covers 9 per cent of the country and forms a narrow strip of land that flanks the banks of the Senqu River (the main Orange River tributary in Lesotho). Precipitation, influenced by the country's topography, is highly variable both temporally and spatially. Droughts and floods are a very common occurrence. The mean annual rainfall is 788 mm and varies from less than 300 mm in the western Lowlands to 1,600 mm in the north-eastern Highlands. Higher elevations over 3,000 m above sea level experience sub-freezing temperatures during winter, and receive enough snow to cover the ground for several months. (Government of Lesotho, 2007).

Lesotho comprises three main water catchments, namely the Senqu, Mohokare and Makhaleng (TAMS, 1996). The estimated mean annual runoff for surface water is approximately 160 m^3/s. Groundwater resources are estimated at 10 m^3/s. The Senqu catchment is the largest with an area of 20,847 km^2 and contributes 106 m^3/s annually at Seaka Bridge and 6.51 m^3/s groundwater. The Mohokare/Caledon catchment has an area of 6,890 km^2 and contributes 35.4 m^3/s annually at the hydrometric station at Bolikela and 3.07 m^3/s of groundwater. Makhaleng catchment is the smallest of the three catchments with an area of 2,911 km^2 and an average mean flow of 16.7 m^3/s at the exit to South Africa and a groundwater contribution of 1.24 m^3/s (DWA, 2007).

The runoff/rainfall coefficient is much higher in the Highlands than in the Lowlands at 22 per cent and 12 per cent, respectively (Lesotho IWRM Strategy, 2007). Two distinct

features in the Highlands affect the hydrology: (i) the deeply weathered basalt that provides temporary storage for groundwater and (ii) the presence of numerous wetlands that regulate the flow of water. In particular, through their retention and slow release of water, these high altitude wetlands help stabilise the stream flow, attenuate flooding, and reduce sedimentation loads and absorption of nutrients.

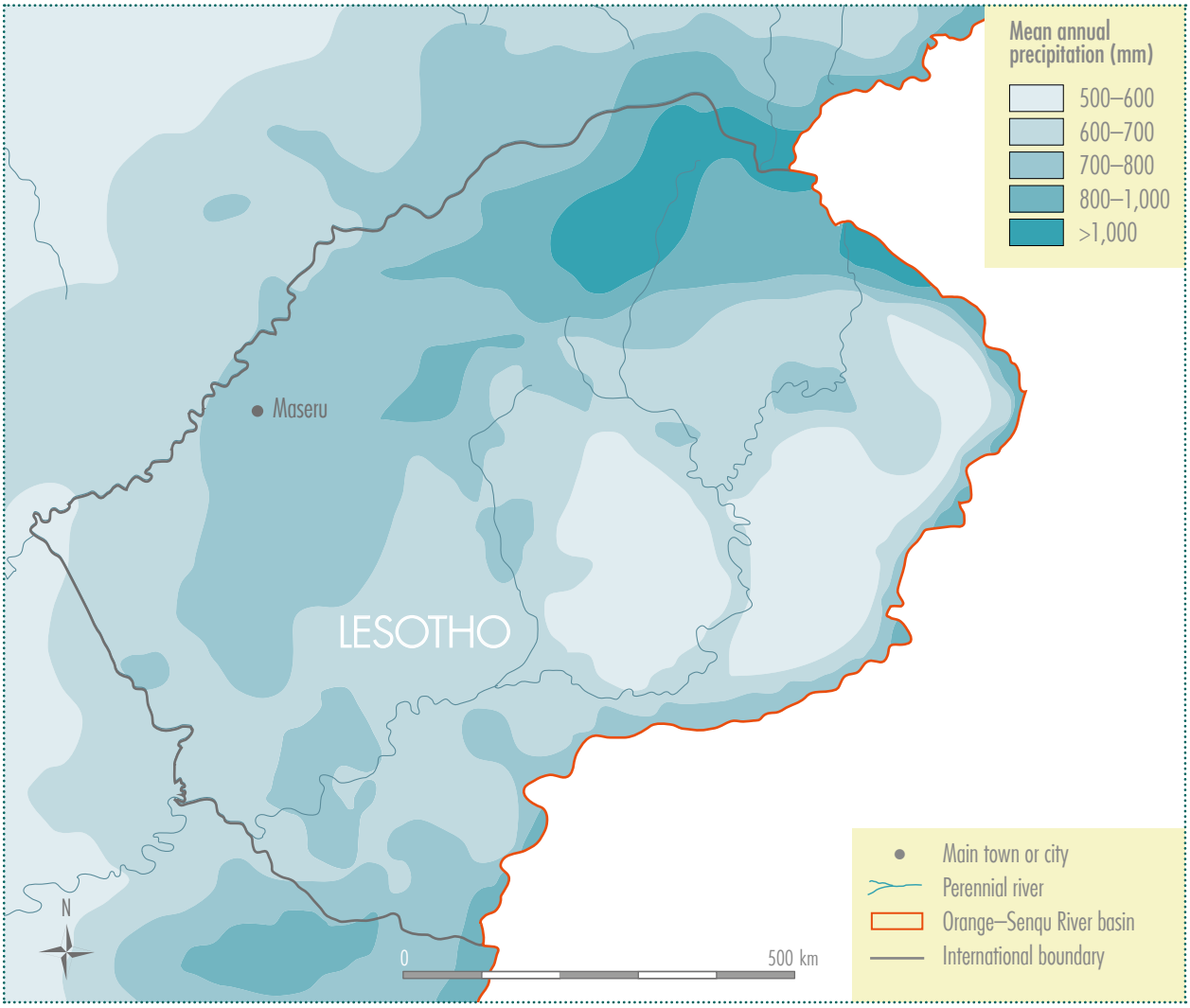


Figure 1: Map of Lesotho with mean annual precipitation
Source: SWRP, 2010/2011

2. GOVERNANCE FRAMEWORK

2.1 NATIONAL FRAMEWORK

Lesotho is a constitutional monarchy, with the King as head of state and the Prime Minister as head of government. The country has two spheres of government: central and local. At local level, Lesotho is divided into ten administrative districts, each with its own district capital. The local government system consists of 65 community councils, 11 urban councils and one municipal council. The Ministry of Local Government has set priorities (2009–2013) which aim to ensure that chieftainship and local authorities operate in harmony and facilitate capacity building of the chieftainship institution to enable chiefs to participate effectively in the local government decentralisation process (CLGF, 2011). The councils are empowered under the Local Government Act, 1997, section 42, to make their own by-laws relating to an array of issues relevant to their own areas. Under this Act, the local government institutions are charged with control of natural resources, environmental protection and water supply (maintenance).

Legal and regulatory framework

The Constitution of Lesotho provides the mandate for environmental management. It allows for the adoption of policies and strategies designed to protect and enhance the natural environment of the country for the benefit of both present and future generations. Lesotho has therefore enacted several pieces of legislation that address the management of environmental resources. The most important law for the management of water is the Water Act, 2008. The Act's overall purpose is to manage water resources in an integrated and sustainable manner. It makes provision for conservation and protection of the water resources from all forms of pollution. It provides for the ownership of all water resources to be vested in the Basotho nation and held in trust by the King. It makes provision for different types of permits, such as those required for abstraction and construction, and how they should be applied for. The Act also formalises the mandate of the Commissioner for Water as custodian of water resources development and management in Lesotho. It provides a sound legal framework for the implementation of the Water and Sanitation Policy (2007) and the Integrated Water Resources Management Strategy

Opposite page: A pristine stream

Left: The Orange–Senqu River rises in the mountains of Lesotho with its tributaries draining the entire country.

(IWRMS). The Act assigns responsibilities for catchment management to the local government authorities. Vision 2020 and the Millennium Development Goals (MDGs) are fully reflected in the Water and Sanitation Sector Policy which also acknowledges the international context of the Southern African Development Community (SADC) Regional Water Policy and the SADC Protocol on Shared Water Courses.

Other noteworthy pieces of legislation that have provisions relevant for the development and implementation of the Lesotho Action Plan are described in Table 1.

Table 1: Action Plan relevant legislation

Law	Short description
Environment Act (2008)	Sets out broad policy statements which must be complied with. It is generally accepted that all other laws and policies are 'subordinate' to this Act. The principles include: (i) ensuring that every person living in Lesotho has a fundamental right to a clean and healthy environment; (ii) establishing adequate environmental standards; (iii) polluter pays principle; and (iv) promotion of national, regional and international cooperation for the protection of the environment.
Local Government Act (1997)	Establishes local councils at district and community level and defines their functions. The Act charges local authorities with the responsibility to regulate, control and administer all matters within their areas of jurisdiction.
Nature Conservation Bill (2008)	Provides for: the management and conservation of Lesotho's biodiversity within the framework of the Environment Act (2008); the protection of species and ecosystems and the sustainable use of indigenous biological resources; the fair and equitable sharing of benefits arising from bio-prospecting of indigenous biological resources; the establishment of institutional structures and mechanisms for nature conservation and biodiversity; and incidental and connected matters.

Policy framework

Lesotho has embarked upon a series of progressive reforms within its water sector over the past decade. The government has developed policies and strategies aimed at enabling the country to better capitalise on development opportunities made available by the relative abundance of its water resources and geographically strategic location. The Water and Sanitation Policy was published in 2007 to provide direction in dealing with water resources. The policy is based on the recognition of the need for a holistic and sustainable water resources management and development approach, ensuring as wide a participation of water stakeholders as possible as well as treating the resource as an economic, environmental and social good.

The IWRMS is one of the roadmaps to achieving policy goals or the desired future for the water sector as outlined in the Water and Sanitation Policy (2007). The objective of the IWRMS is to develop a coordinated approach to the management, utilisation and development of water resources. The Water Sector Interim Strategy covered the sector activities for the period April 2010 to March 2012 and this set the stage for improved sector performance beyond that period. The aim was to achieve improved sector performance by increased investment in water supply and sanitation systems targeting the poor, and capacity development in the Office of the Commissioner of Water, Department of Rural Water Supply, Department of Water Affairs and the envisaged new institutions.

Table 2: Other policies and strategies related to water and environment management

Policy/Strategy	Short description
National Environment Policy (1998)	The policy aims to ensure protection and conservation of the environment with a view to achieving sustainable development for Lesotho.
Draft National Range Resources Management Policy	The policy provides guidance for the development of effective strategies that combat land and vegetation degradation and motivate for improved legislation and implementation thereof.
Agricultural Sector Strategy (2003)	The strategy recognises that proper management of areas of special advantage could lead to competitive output of a number of agricultural products.
Afforestation Programme (2005)	The programme aims to encourage communities and individuals to participate in forestry development to help alleviate shortages of wood fuel, building materials and animal fodder, and to protect against water and wind erosion.
National Adaptation Programme of Action (NAPA)	The NAPA entails the country's 'urgent and immediate' priority adaptation needs aimed at providing an enabling mechanism for the country to minimise the impact of climate change, while at the same time enhancing adaptive capacity of vulnerable communities that are most prone to the adverse effects of climate change. The NAPA recognises that the management and preservation of water resources has become one of the very critical developmental challenges for the country.
National Biodiversity Strategy and Action Plan (NBSAP)	The NBSAP entails priority activities that Lesotho intends to undertake to enable implementation of biodiversity conservation goals. One of the priority activities is to identify and enhance the management of Lesotho's unique wetland systems, and to manage and constrain human activities that are responsible for the destruction of biodiversity.

Institutional framework

The Water and Sanitation Policy (2007) promotes clarity and separation of roles and responsibilities in water resources development and management, as well as water service delivery to meet the needs of the country. The overall management of water resources is the responsibility of the Ministry of Energy, Meteorology and Water Affairs (MEMWA). The other key ministries in the water sector are Local Government and Environment. In addition, the institutions listed in Table 3 are key role-players in the Lesotho water sector.

Table 3: Institutional framework

Institution	Role in the sector
Commissioner of Water	The Commissioner of Water is the head of the water sector, mandated by the Water Act (2008) to provide policy direction to the departments within MEMWA.
Department of Water Affairs (DWA)	The DWA has general responsibility for: surface and groundwater management; the collection and processing of water sector information; the assessment, planning, and development of the country's water resources; and the administration of water resources legislation.
Department of Environment	The Department of Environment is charged with the responsibility of coordinating the functions and activities of all line ministries on environmental issues without interfering with their day-to-day activities. It has the power to review and approve environmental impact assessments.
Local government authorities	Community councils have the legal authority to manage natural resources in Lesotho and to draft resource management regulations that can become community council by-laws. They also prepare natural resources management (NRM) plans that can be built into community council development plans.

©UNOPS/Greg Marinovich

A garment factory worker in the industrial area of Maputsoe collects water in a bucket; water supply is variable with taps running dry for large parts of the day.

2.2 INTERNATIONAL CONTEXT

Lesotho is party to a number of environmental conventions and protocols and has therefore committed itself to aligning its national policies and strategies with these international agreements.

Table 4: Orange–Senqu River basin related international agreements ratified by Lesotho

International agreement
Revised SADC Protocol on Shared Watercourses
Agreement between the Governments of the Republic of Botswana, the Kingdom of Lesotho, the Republic of Namibia and the Republic of South Africa on the Establishment of the Orange–Senqu River Commission (ORASECOM Agreement)
Treaty on Lesotho Highlands Water Development (Lesotho and South Africa) with Protocols I–VI
United Nations Convention to Combat Desertification (UNCCD)
United Nations Framework Convention on Climate Change (UNFCCC)
United Nations Convention on Biological Diversity (UNCBD)
Cartagena Protocol on Biosafety to the Convention on Biological Diversity
Stockholm Convention on Persistent Organic Pollutants
Memorandum of Understanding between the Government of the Kingdom of Lesotho and the Government of the Republic of South Africa in respect of the Maloti–Drakensberg Transfrontier Conservation and Development Area
Convention on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar Convention)
Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)

2.3 SOCIO-ECONOMIC CONTEXT

Lesotho has a population of 1.8 million with an annual growth rate of 1 per cent (Bureau of Statistics, 2008). Population density is 59 people/km^2 and 82 per cent of the population is rural. The Lowlands is the most populated and intensively cultivated zone, followed by the foothills, the mountains and the Senqu River valley. A significant decline in population growth rate was observed in the period between 1986 and 2006, when the growth rate dropped from 2.6 per cent to 0.7 per cent. About 36 per cent of the population is under 15 years old, 58 per cent is aged between 15 and 64 years, while 6 per cent is 65 years and older. Women constitute 51 per cent of the population. Improved drinking water sources are available for 76 per cent of the total population (88 per cent of the urban population and 74 per cent of the rural population). Urban areas are growing by about 6 per cent per year due to migration from the rural areas caused by increasingly poor agricultural yields and lack of alternative employment opportunities in the rural areas (BoS, 2008). In essence, the movement is from areas of relatively abundant and largely unutilised water resources to areas where water resources are relatively scarce and under considerable pressure. The population pressure in the Lowlands and urban centres will eventually put extra pressure on the requirements for domestic water supply. Livestock production is a substantial contributor to rural income. While this sector plays an important role in rural income, the uncontrolled numbers of stock have an adverse impact on rangelands and water resources.

In the past, migrant labourers' remittances played a critical role in providing household incomes. Remittances from Basotho migrant labourers in South Africa have allowed households to reduce their dependence on agriculture and engage in investment activities to supplement their farming incomes. As demand for migrant labour declined and unemployed migrant workers returned to Lesotho, remittances shrank from about 60 per cent of GDP in the 1980s to about 20 per cent in 2005. In recent years, there has been a dramatic drop in the remittances, which has thrown many rural households deep into poverty. While migrant employment in South Africa has declined sharply, the

domestic economy has experienced some increase in employment levels, particularly in the textile industry, which has played a critical role in generating employment, output and exports. However, the increase in domestic employment levels has not been able to absorb the high number of returning migrant labourers previously employed in South Africa.

The country's industrial development has been characterised by the concentration in a booming textile sector, so-called 'wet' industries. These wet industries have the potential to place extra pressure on the country's available water resources as well as water and wastewater infrastructure. According to the draft IWRMS (2007), none of this water is recycled or pre-treated before discharge; for example, the industrial wastewater from the Thetsane Industrial Estate in Maseru is discharged directly and untreated into the Mohokare/Caledon River resulting in organic and mineral pollution.

This stream became known as the 'blue river' because of its blue colour, due to pollution by textile factories.

2.4 TYPES OF STAKEHOLDERS

The relevant stakeholders for water resources management in Lesotho are grouped into the following categories: government/line ministries, civil society, parastatal organisations and and private entities.

Table 5: Stakeholder groups

Category	Stakeholders
Government/line ministries	Department of Water Affairs Department of Environment Department of Range Resources Department of Energy Ministry of Trade and industry Ministry of Mining Ministry of Local Government Ministry of Health Ministry of Development Planning Ministry of Finance Ministry of Roads and Transport Ministry of Agriculture and Food Security
Civil society	Serumula Development Association Lesotho Council of Non-Governmental Organisations Transformation Resources Centre
Parastatal organisations	Water and Sewerage Company Lesotho Highlands Development Authority Lesotho Electricity Corporation
Private entities	Mining companies Industries Herders and livestock owners

© Teboho Maliehe

3. PRIORITY NATIONAL CONCERNS

Based on the transboundary priority concerns identified in the TDA, stakeholder consultations were conducted in Lesotho, through which the priority concerns were assessed and determined from a national perspective as follows:

- Land degradation and increased invasive species;
- Declining water resources quality;
- Changes to the hydrological regime (including wetlands degradation);
- Increasing water demand.

The element of wetlands degradation was specifically added for Lesotho, given the high number of wetlands in the country as well as their importance for livelihoods in Lesotho and for the hydrological and ecological functioning of the Orange–Senqu system as a whole.

© Brewbooks/Wikimedia

The spiral aloe (*Aloe polyphylla*) is an endangered endemic plant of the Maloti and Drakensberg mountains in Lesotho

3.1 LAND DEGRADATION AND INCREASED INVASIVE SPECIES

In Lesotho, the two main pressures or effects of improper land use are increased soil erosion and the rate of encroachment into arable land. Lesotho is characterised by unplanned human settlements, especially in the urban and peri-urban areas where there is increasing encroachment of settlements into productive agricultural land, leading to growing pressure on natural resources. The poor land-use planning impacts negatively on the natural environment and often leads to overcrowding and the consequent environmental and health problems.

The main pressure on the land and the environment results from population increase. In the Highlands, intensive livestock grazing puts pressure on environmentally sensitive areas, such as grasslands and wetlands, leading to land degradation and erosion. Furthermore, encroachment of human activities into environmentally sensitive areas is likely to increase due to additional industrial and agricultural activities and improper land-use planning.

The Basotho way of life is underpinned by the principle and understanding that all land and natural resources are strictly communal – *mobu ke oa Sechaba* (land belongs to the nation) – and that it is the inalienable right of every Mosotho to have access to land, water, pasture, woodland and wildlife. This notion has serious implications in respect of land, land resources use and management (NES, 2002). Land resource management has been characterised by constraints, such as fragmented efforts, lack of clear frameworks for land-use planning, absence of security of tenure, declining traditional authority and mixed rule of law between government institutions and traditional authorities (NES, 2002). These dynamic factors have resulted in bad land-use practices, such as encroachment on agricultural land by residential settlements and on steep slopes and marginal lands by crop farmers, and uncontrolled mining and road construction in other environmentally sensitive areas of the country, such as wetlands.

During the stakeholder consultations, land degradation was prioritised as the most pressing environmental issue for Lesotho. The problem occurs both in the Highlands and Lowlands, although it is more severe in the Lowlands. Some of the causes of land degradation in Lesotho are outlined below.

Uncontrolled fires

Uncontrolled fires contribute to the loss of biodiversity, and their frequency leads to desertification and negatively affects long-term developmental goals. The stakeholders reiterated that there is a tendency for communities to burn rangelands every year, a practice that was viewed good for rangeland management in the past. In addition to this, there are other reasons for uncontrolled fires, including inadequate understanding

Opposite page: Most the population of Lesotho is dependent on the land for their livelihoods. Farming usually consists of a small field and livestock.

by community members (especially youths and herders) of the destructive effects of fire, arson and children playing with fire.

Overstocking

The rangelands of Lesotho have been degraded to levels of non-recovery through overgrazing due in part to overstocking. Estimates of the overstocking rate vary over time and between different studies, but there is general agreement that stock reduction would offer benefits in the form of reduced soil degradation and erosion in the grasslands, and healthier, more valuable and more productive stock. Although some efforts have been made in the past to provide incentives for stock reduction, they have ended in failure, largely due to a poor understanding of local institutions and traditions related to livestock ownership. The stakeholders agreed that the problem of overstocking is exacerbated by the role of livestock in Basotho culture and the local economy, especially in the Lowlands, i.e. high social status equated to a large number of livestock.

Poor land management and governance

Land degradation is also a consequence of poor land management and governance practices, for example, the non-observance of grazing permits. Although it is understood that inappropriate management of rangelands is the root cause of the deterioration of land resources, methods and means of managing rangelands in sustainable ways have been ineffective.

Unclear jurisdictional demarcations

Ineffective implementation of regulatory systems and declining powers of traditional authorities promote unsustainable utilisation of natural resources. Unclear area demarcations between jurisdictions hinder Principal Chiefs from proper control of land resources and their use. There is a need for areas to be clearly demarcated and gazetted.

Ineffective law enforcement and implementation of policies

The government has promulgated several laws and introduced policies but there has been ineffective implementation and enforcement. For instance, the grazing management regulations are (for the most part) not enforced, and grazing permits for cattle post areas are also not enforced; in some areas the fines that are issued on prosecution are too low to be an effective deterrent.

Increased invasive alien species

Degradation of rangelands has led to a decrease in the diversity of species and the invasion of alien species. Alien organisms can replace large numbers, even whole populations of native animals and plants, as alien plants use greater quantities of scarce water resources.

In summary, the driving forces for negative changes to terrestrial and aquatic ecosystems are many and varied, but the most important in Lesotho are:

- population growth;
- population mobility;
- natural disturbances; and
- poverty.

The conversion of natural ecosystems for intensive agricultural production or for grazing livestock is one of the major pressures on plant diversity. The quality and quantity of rangeland resources have, however, declined over the years due to factors such as poor range management, encroachment of human settlements and arable agriculture into the rangelands. Alien invasive plants further degrade rangelands, leading herders to seek alternative grazing areas by letting their animals graze in wetland habitats.

A garment factory in Maputsoe . The garment-manufacturing industry in Lesotho plays an important role in Lesotho's economy and provides employment.

3.2 DECLINING WATER RESOURCES QUALITY

Surface water resources are affected by both point and non-point source pollution. Poor land management practices and infrastructure development have serious negative impacts on water resources quality. These practices degrade the capacity of wetlands to regulate and purify flows. In Lesotho the decline in surface and groundwater quality stems from a variety of sources, notably:

- urban stormwater drainage systems;
- overflowing septic tanks and broken sewage reticulation systems;
- garment factories;
- other types of industries, such as canneries, pharmaceuticals, breweries and mills;
- insecticides used for spraying/dipping of livestock; and
- high sediment yields as a result of erosion.

The main contributors to underground water pollution in Lesotho are:

- pesticides, herbicides, etc. (through leaching);
- latrine water filtering through the ground;
- leaching from waste dump sites; and
- leaching from urban drainage systems.

The decline in water resources quality is more severe in the Lowland areas, especially in urban and peri-urban areas, where industrial effluents and sewage play a dominant role. The following underlying causes of decline in water resources quality were identified by stakeholders.

Lets'eng mine in the Maloti Mountains is the highest diamond mine in the world. It is characterised by producing low-grade ore, but also for having the largest percentage of big diamonds. Mining is believed to contribute to declining water quality in Lesotho and requires attention.

Animal dipping

The continued use of old methods of animal dipping (dipping tanks) contributes to the decline in water quality. Stakeholders pointed out that the effectiveness of new vaccination methods is generally doubted by livestock owners due to a lack of correct information and also because vaccination is perceived to be more expensive than dipping.

Accidental oil leaks from sand mining in the rivers

Though this matter has not been well researched, stakeholders highlight the continual challenge of accidental oil leaks, especially into rivers during the mining of sand. Stakeholders are of the view that the impact of sand mining exacerbates changes in river morphology, water quality and hydrology.

Mining sector

This matter is also not well researched and documented, but stakeholders believe there are impacts on water quality from the diamond mines in the Highlands of Lesotho. Lack of compliance in the mining sector, especially diamond mining, is also identified as contributing to declining water resources quality in the country.

Industrial wastewater

Industrial wastewater generated by such industries as canneries, pharmaceutical companies, breweries, flour mills and clothing manufacturers pose a major environmental and water resource management threat.

Improper management of solid waste

Industrial solid wastes include pumice stones, fabric offcuts, waste cotton and packaging material, including plastics.

3.3 CHANGES TO THE HYDROLOGICAL REGIME – WETLANDS DEGRADATION

Wetlands in Lesotho are commonly found in riverheads at high altitude and serve as the source of most of the major rivers in the country. Wetlands are variable in size, ranging from several square metres to several square kilometres. They cover approximately 1.36 per cent of the total land area. The main ecological functions of the wetland systems are to purify and regulate water flow into streams by storing and releasing water at slow rates. They also prevent flooding during the rainy season. In addition, the systems play an important role in groundwater recharge, organic matter production and the reduction of sediments.

The Afroalpine Grassland Zone, which is found at the highest level, has been subjected to grazing pressure. The wetlands, bogs and sponges within its limits have come under threat of severe damage due to trampling by livestock, in particular cattle. Most of the wetlands, which are unique ecosystems with unique flora, have lost or are losing much of their ability to retain water.

The extent of the damage is variable, with some wetlands beginning to lose their function, while others have gullies running through them and are nearly totally destroyed. The stakeholders identified the following causes of wetlands degradation.

Unsustainable use of wetlands as rangelands

As one of the main uses of wetlands in the Highlands of Lesotho is for grazing livestock, improved range management is the most important factor in sustainable wetlands

management. Many wetlands, particularly mires, are found within rangelands that provide grazing for domestic livestock. Many studies have shown that overgrazing and trampling by livestock has significantly contributed to degradation of many wetlands. This degradation affects the ability of these wetlands to provide goods and services, to both local communities and beyond the wetlands themselves.

© UNOPS/Greg Marinovich

Among the reasons for the degradation of the wetlands are overgrazing and trampling by livestock.

Construction activities

Diamond mining in the Kimberlite pipes and road construction also contribute to the destruction of wetlands. Many wetlands in the mountain areas of Lesotho are heavily degraded due to road construction cutting across the sponges.

Overharvesting of wetland resources

Overharvesting of plants and animals was highlighted as another contributing factor to the degradation of the wetlands in Lesotho. Some previous studies indicate that the harvesting of plants (for medicines, vegetables and crafts) and animals is done by herders, traditional healers and outsiders.

Wetlands converted to cultivated land

Stakeholders also took note that cultivation has caused a reduction in size and drying out of the wetlands as farmers gradually encroach into the area.

Encroachment of settlements

The encroachment of settlements into the wetlands areas is another factor that exacerbates degradation and the loss of their hydrological and ecological properties.

3.4 INCREASED WATER DEMAND

There are various reasons for increased demand for industrial and domestic water supply and sanitation services. The existing wet industries in Lesotho and further proposed expansion, particularly in the textile industry, could place extra pressure on the country's available water resources and water and wastewater infrastructure. Wet industries currently use a significant portion of the readily available freshwater. It is estimated that in the Maseru area up to 20 per cent of the water supply is used by industry (Government of Lesotho, 2007). In addition, there is a general movement of people from rural to urban centres in search of jobs and better livelihoods – from areas of comparatively abundant and largely unutilised water resources to areas where water resources are relatively scarce and under considerable pressure.

4. NATIONAL POLICIES, STRATEGIES AND PLANS ADDRESSING NATIONAL PRIORITY CONCERNS

4.1 LAND DEGRADATION AND INCREASED ALIEN INVASIVE SPECIES

During the national consultations carried out as part of the preparation for the Integrated Water Resource Management (IWRM) Strategy for Lesotho, the establishment of catchment management was regarded by stakeholders as the most important challenge. In response to this, the long-term water and sanitation strategy takes Lesotho towards further implementation of the water and sanitation policy, IWRM and Water Act (2008). The strategy reviews legislative frameworks supporting catchment management in Lesotho and proposes models for implementation. The delineation of catchment management areas is proposed in the strategy and provides three independent catchments: Senqu, Makhaleng and Mohokare catchments, which are all sub-basins of the Orange–Senqu basin.

4.2 DECLINING WATER QUALITY

Draft water quality guidelines and standards have been developed with the aim of improving the ecology status and water quality of surface water, i.e. rivers, lakes, dams and impoundments. While the guidelines aim to provide guidance on the concentration levels of the various parameters for the respective uses of the water, the standards set legally enforceable limits for those relevant parameters.

In addition, plans are under way for the instalment of wastewater pre-treatment infrastructure for some industries to meet the provisional requirements set for discharge of wastewater to Water and Sewerage Company (WASCO) sewers. The Maseru Waste Water Project consists of rehabilitation and extension measures for the improvement of wastewater collection, and treatment and disposal systems in urban areas where a piped sewerage system exists. The project is ongoing and fully funded by the Government of Lesotho under the industrialisation programme of the Ministry of Trade, Industry, Cooperatives and Marketing.

4.3 CHANGES IN HYDROLOGICAL REGIME – WETLANDS MANAGEMENT

The Wetlands Restoration and Conservation Project, which ended in September 2013, was a component of the compact agreement between the United States Government Millennium Challenge Corporation (MCC) and the Lesotho Government. It was intended to help Lesotho address widespread overgrazing and the degradation of alpine wetlands which are prevalent throughout the Highlands and are an important ecological and economic resource to the country and its people. Under the Millennium Challenge Account (MCA-Lesotho) the Integrated Catchment Management Plan (ICMP) for the Lets'eng-la-Letsie catchment was developed as part of the pilot experiences of the Wetland Restoration and Conservation Project (WRCP), which will be used to feed into the proposed Strategic Wetlands Conservation Plan. In addition, the protection of the Orange–Senqu water sources – the Sponges Project – will promote the conservation, rehabilitation and protection of the wetlands in the Highlands of Lesotho in a participatory approach where capacity-building is an integral part of the activities.

In association with the Lesotho Highlands Development Authority (LHDA), the Ministry of Tourism, Environment and Culture is implementing the Highlands Natural Resources and Rural Income Enhancement Project funded by the African Development Bank. The five-year project has experienced a number of implementation challenges, but it continues to promote community management of nature reserves originally established by the LHDA. In 2005, The Food and Agriculture Organization (FAO) also launched a two-year project to support conservation agriculture to prevent land degradation. Four catchment areas were selected for these activities which focus largely, but not entirely, on on-farm conservation agriculture. The main objectives were to demonstrate the value of conservation farming practices, and to train farmers and extension staff in these approaches. The Capacity Building and Knowledge Management Project for Sustainable Land Management in Lesotho is led by the Ministry of Forests and Land Reclamation and implemented through the district; the project is also linked to the other ministries' programmes, particularly the Ministries of Planning; Agriculture and Food Security; Local Government; Tourism; Environment; and Culture.

4.4 INCREASING WATER DEMAND

Lesotho experiences both domestic and foreign (South Africa) demand on its water resources. South African demand from Lesotho is met through the Lesotho Highlands Water Project (LHWP). The planned Phase II of the Lesotho Highlands Water Project includes the construction of the Polihali Dam in Mokhotlong, a transfer tunnel connecting the Polihali and Katse dams, and a pump-storage scheme. Phase II full development also includes the upgrading of the Muela Hydropower Plant with two 55 MW turbines. The forecast anticipates that installed generating capacity will reach some 190 MW; this capacity will be greater than the nation's demands up to 2014.

The Lowlands Water Supply Project Feasibility Study was commissioned to address problems of inadequate water supply in the Lowlands areas of Lesotho. The Metolong Dam is a fast-tracked component of the scheme meant to address water demands facing Maseru City and its surrounding areas. The following projects are also part of the Lowlands water supply scheme:

- Water reticulation rehabilitation and extension projects involving the rehabilitation, upgrading, extension and new works in water system components, such as water sources, water treatment works, reservoirs, bulk pipelines, distribution pipelines and house connections.
- Five Towns Water Supply Project, which involves improvement of water supply infrastructure the towns of Butha-Buthe, Hlotse, Mafeteng, Mohaleshoek and Qacha's Nek.

Katse Dam, situated on the Malibamatso River, is part of the Lesotho Highlands Water Project. It supplies water to South Africa and generates electricity for Lesotho.

5. THE ACTION PLAN

5.1 ACTION PLAN DEVELOPMENT PROCESS

The Action Plan in each country is structured around the four environmental priority areas of concern identified in the TDA: increasing water demand, declining water resources quality, changes to the hydrological regime and land degradation. Through the Action Plan consultation process, each country prioritised four areas of concern from its national perspective. In response to each priority area of concern, national targets were set to address these concerns over a ten-year time period. Interventions were then identified to meet the targets. In line with national policies, strategies and plans, project concepts were developed that package the proposed interventions into structured, implementable projects. These project concept notes (PCNs) form the backbone of each Action Plan.

The Action Plan development process involved intersectoral dialogue to achieve integration of water resources management and, most importantly, national endorsement of the Action Plan. Action Plans feed into the SAP but are independent planning products and their success depends on receiving full support of both state and non-state stakeholders. In practice this means that the political and technical guidance for the Action Plans comes from the countries, through an Action Plan Working Group as well as a broader national Stakeholder Platform, each structure specifically set up for the purpose of Action Plan (and SAP) development.

While it is part of the national stakeholder forum, the Action Plan Working Group is smaller in size (between five and eight members), comprised mostly of individuals holding positions in government related to water, planning and finance. Each country's delegate to the ORASECOM Technical Task Team was appointed as the national coordinator of the Action Plan/SAP process for their country. With support from the consultant team, the Action Plan Working Group was primarily responsible for the development of the Action Plan (and the SAP, together with the Action Plan/SAP Working Groups from the respective other countries) and provided the technical and political guidance for the formulation of the Action Plan.

The national Stakeholder Platforms consist of stakeholders representing a wide range of role-players, including both state and non-state participants. While established initially for the purposes of Action Plan/SAP development, the aim is that the national Stakeholder Platforms and the Action Plan Working Groups are maintained in the long term and become permanent national partners with ORASECOM.

Two workshops of the national Stakeholder Platform were held at national level in each country, in addition to regular meetings of the (smaller) Action Plan Working Groups. Furthermore, the Action Plan Working Groups from the four basin states met collectively three times throughout the process, forming the regional Action Plan/SAP Working Group. This served to ensure synergy between the four Action Plans, as well as joint development of the SAP as the basin-wide planning document.

In addition to the national Stakeholder Platforms and Action Plan/SAP Working Groups, there were other key role-players in the Action Plan/SAP development process. The ORASECOM Secretariat and the United Nations Office for Project Services (UNOPS) provided important political and technical guidance to the process. Likewise, regular information exchange and coordination with other ongoing initiatives (notably the Orange–Senqu Basin IWRM Plan development process) took place in order to ensure technical coherence and harmonisation of the Action Plans (and SAP) with the Orange–Senqu Basin IWRM Plan.

Opposite page: Rehabilitation efforts at Mount Moorosi aimed to reduce erosion, remove alien vegetation, encourage re-establishment of indigenous species and restore biodiversity.

© Teboho Maliehe

The land and other natural resources are strictly communal in Lesotho.

5.2 ACTION PLAN TARGETS AND INTERVENTIONS

In response to the problems identified at transboundary level and the priority areas of concern identified at national level, interventions addressing the four thematic priority areas were developed for the Lesotho part of the Orange–Senqu River basin. The priority areas are closely inter-linked because of the integrated nature of the natural resources being managed and the common goal for management of the Orange–Senqu River basin as a whole. The Lesotho Action Plan identifies objectives, targets and interventions to resolve the problems and threats to the integrity of the river basin, at national level, to promote sustainable management and development of the Orange–Senqu River basin.

Table 6 details the defined country targets for the four priority areas of concern, as well as the proposed interventions required to address the priority problems and achieve the agreed targets. Based on the identified, required interventions, project concept notes have been developed that aim to address the priority problems and contribute to the Action Plan targets. Priority concerns to be addressed at national level are included in Action Plan project concept notes, while those issues requiring basin-wide intervention are integrated into SAP project concept notes.

Table 6: The Lesotho Action Plan

Targets	Proposed interventions	Project concept note	Ongoing initiatives	Policies/strategies/plans/ programmes
PRIORITY AREA 1: LAND DEGRADATION				
Objective: Land degradation and desertification reversed through improved catchment management				
1 Delineation and demarcation of catchment areas institutionalised and catchment management strategy implemented in accordance with the long-term water and sanitation strategy	• Delineate and demarcate agreed integrated catchment management areas • Establish and institutionalise catchment management organisations and stakeholders • Review and harmonise relevant legislative pieces	PCN 1: Integrated catchment management in the Lower Mohokare sub-catchment PCN 3: Upscaling of the ORASECOM demonstration rangeland management project for sustainable management of Lets'eng-la-Letsie (Ramsar site)	• Ministry of Forestry and Land Reclamation promotes capacities and resources to effectively address issues of fire control and management; efforts require strengthening	• IWRM Strategy for Lesotho • Water sector long-term strategy is being developed and delineation of catchments proposed in the strategy • National Wetlands Conservation Strategy (in draft pending cabinet endorsement) • Joint Fire Management Plan developed and implemented by parks division of the Department of Environment • 20-year Action Plan Memorandum of Understanding
2 Fire management strategies, especially in the Highlands, improved and upscaled	• Upscale fire management strategies to cover the whole country • Continue awareness-raising and educational campaigns • Improve fire response mechanisms through training of herders			
3 Land use, administration and management improved	• Promote awareness and advocacy of land-use planning • Promote and strengthen capacity of grazing associations and other relevant community-embedded groups (e.g. village grazing schemes) • Develop incentives and strategies for increasing off-take and explore innovative range of governance approaches • Implement proposed models for improving range management • Finalise and implement land-use plans		• Capacity Building and Knowledge Management Project for sustainable land management in Lesotho • Land-use maps under development by Ministry of Local Government (will require implementation)	
4 Technical and regulatory capacity of local authorities strengthened	• Control land transformation (encroachment into wetlands and marginal lands for cultivation and other unsuitable land use) • Develop by-laws for local authorities • Implement the decentralisation policy • Conduct targeted training for local authorities in the natural resources management			• Policy on decentralisation underway (Ministry of Local Government)
5 Good land management practices replicated and upscaled	• Replicate and upscale community-based rangeland management projects • Identify and develop alternative livelihood sources • Strengthen Community-Based Natural Resource Management (CBNRM) mechanisms • Promote continued research and adaptive land management practices		• ORASECOM Rangeland Demonstration Project in Mount Moorosi, Lesotho	

Targets	Proposed interventions	Project concept note	Ongoing initiatives	Policies/strategies/plans/ programmes
PRIORITY AREA 2: DECLINING WATER RESOURCES QUALITY				
Objective: Water pollution reduced and water resources quality maintained within national and international frameworks				
1 Point-source pollution mitigated	• Identify and map point-sources of pollution • Introduce and encourage technologies for re-use and recycling of waste materials and effluent • Upgrade waste disposal facilities and wastewater treatment works • Develop inventory of chemicals and establish licensing system for chemical use	PCN 2: Management of water resources quality in Central Mohokare sub-catchment SAP PCN 1: ORASECOM information and knowledge management	• Maseru Waste Water Project	
2 National water quality guidelines and standards implemented and enforced	• Enact and implement national water quality standards and guidelines • Monitor and enforce compliance with water quality standards • Include agrochemicals in the monitoring framework of river water and sediments			• National water quality guidelines and standards
3 Preventive measures towards declining water resources quality enhanced	• Encourage livestock farmers to use environmentally friendly paraciticides • Develop strategies for proper management of solid waste and hazardous materials • Assess the impact of sanitation (pit latrines) on groundwater resources • Resuscitate and capacitate national committees responsible for water quality management			
4 River Health Programme (classification, mapping management) developed and implemented	• Improve and expand national river health classification systems and produce river health maps • Document and disseminate information on river health status • Rehabilitate river banks • Build capacity for monitoring river flows			
5 Environmental impact of sand mining in rivers mitigated	• Assess the impact of sand mining on water quality and land degradation • Draft sand mining strategies and enforce sand mining by-laws/regulations • Assess impact of sandstone quarrying on water quality			

Targets	Proposed interventions	Project concept note	Ongoing initiatives	Policies/strategies/plans/ programmes
PRIORITY AREA 3: CHANGES TO HYDROLOGICAL REGIME (INCLUDING WETLANDS DEGRADATION)				
Objective: Impact of hydrological regime change mitigated and ecosystem services functioning of wetlands improved				
1 Inventory of wetlands, categorised according to their ecological and economic importance	• Full inventory of wetlands developed and mapped • Undertake valuation of economic and ecological importance of wetlands and prioritise them according to their importance	PCN 3: Upscaling of the ORASECOM demonstration rangeland management project for sustainable management of Lets'eng-la-Letsie (Ramsar site)		
2 Important wetlands identified for declaration as protected areas	• Identify areas to be put under protection and develop innovative models for communities and/or private establishment to manage the areas • Promote preservation of flora and fauna through education and improving the institutional capacity		.	• Lets'eng-la-Letsie Integrated Catchment Management Plan (ICMP) provides recommendations to declare wetlands protected areas
3 Degraded wetlands rehabilitated and restored	• Remove alien invasive species • Expand rehabilitation and restoration activities (reseeding and rehabilitation structures) to other areas • Implement the Integrated Catchment Management Plan for Lets'eng-la-Letsie wetland		• Protection of the Orange–Senqu Water Sources Sponges Project • Koti-sephola restoration	
4 Feasibility of payment for wetland ecosystem services explored and promoted	• Identify modalities for implementing payment for ecosystem services • Raise awareness of the benefits of the present ecological state (PES) approach in CBNRM • Test the application of PES incentives within the Lets'eng-la-Letsie catchment			
5 Environmental flow regime established and implemented	• Consolidate environmental flow requirement studies for Lesotho • Establish environmental flow regime as part of basin-wide regime • Ongoing environmental flow requirement compliance and efficacy monitoring and adaptive management	SAP PCN 3: Basin-wide environmental flows regime	• SADC Hydrological Cycle Observing System (HYCOS) Project	

Targets	Proposed interventions	Project concept note	Ongoing initiatives	Policies/strategies/plans/ programmes
PRIORITY AREA 4: INCREASING WATER DEMAND				
Objective: Expanded water and sanitation distribution services to industries, commercial centres, households and other institutions				
1 Water and sanitation infrastructure for communities that have no access to services developed	• Maintain the existing water and sanitation infrastructure to restore their functionality • Develop bankable project proposals to fast-track the connectivity of water and sanitation infrastructure • Manage groundwater resources for water supply • Explore feasibility of alternative sanitation concepts (e.g. dry sanitation, etc.)	PCN 4: Improvement of groundwater management in selected aquifers within the Central Mohokare sub-catchment		
2 Water conservation and demand management implemented	• Manage pressure and control of leakages from the supply system • Recycling and re-use of industrial wastewater			
3 Develop additional water infrastructure	• Implement LHWP II and Lowlands Water Supply Scheme • Assess feasibility of multi-purpose schemes to cater for domestic, industrial and agricultural uses within Lesotho • Mobilise financial resources for infrastructure construction		• Phase II of Lesotho Highlands Water Project • Metolong Project (dam and associated infrastructure)	

5.1 ACTION PLAN IMPLEMENTATION, COORDINATION AND MONITORING

The Action Plan has been designed as a portfolio of project concepts. Funding is sought for each project, either individually or for a combination of projects. Potential funding sources are primarily national governments, international cooperation partners and, to some degree, the private sector.

In line with the project approach to the Action Plan, implementation is not through a central implementation agency responsible for the entire Action Plan. Instead, implementation is project-specific and the implementation mechanism is dependent on the requirements of the lead implementing agent for each respective project. A proposed implementation mechanism at project level is described in each project concept note.

Overall coordination and monitoring of the Action Plan is through the relevant government line ministry(ies) using their established structures and systems. Therefore, close collaboration with ORASECOM is necessary to ensure synergy in coordination and monitoring of the implementation of Action Plan (and SAP) activities in the four basin states.

REFERENCES

Chapeyama, O, 2004. Rangeland Management in Lesotho. Report on Assessment of Needs for Reintroduction of Grazing Fees. USAID Contract No. 690-I-00-00-00149-00.

CLGF, 2011. the Local Government System in Lesotho-Country profile http://www.clgf.org.uk/userfiles/1/file/Lesotho_Local_Government_Profile_2013_CLGF.pdf

DWA, 2007. Water Situation Report for - October 2006 to September 2007 (unpublished report)

Government of Lesotho, 2007. Draft IWRM Strategy for Lesotho. Water Sector Improvement Project Umbrella Technical Consultancy.

Government of Lesotho, 2007. Water and Sanitation Policy for Lesotho.

Government of Lesotho, 2012. National Strategic Development Plan 2012/13–2016/17. Growth and Development Strategic Framework.

Government of Lesotho, 2012. 1st Annual State of Water Resources Report (SWRP) 1 April 2010 to 31 March 2011. Prepared under Lesotho Water Sector Improvement Project Phase II, RPF No. LWSIP II 06/02/2011.

Ministry of Energy, Meteorology and Water Affairs, 2013. Long Term Water and Sanitation Strategy. A Model for Integrated Catchment Management.

Ministry of Local Government and Chieftainship, 2009. Ministry of Local Government and Chieftainship Strategic Plan for the period 2009–13.

Ministry of Tourism, Environment and Culture, 2012. Assessment of the Legal and Institutional Gaps and Needs Analysis in the Management of Chemicals in Lesotho.

Ministry of Tourism, Environment and Culture, 2013. National Coordination Strategy on Implementation of Multilateral Environmental Agreements in Lesotho (2013–2018).

NES, 2002. Lesotho Second State of the Environment Report. MTEC. Government of Lesotho.

TAMS Consultants, 1996. Water Resources Management: Policy and Strategies. Government of Lesotho.

Winters can be extremely cold in Lesotho, especially in the Highlands, as shown in this photo of a frozen stream.

ANNEXURE 1: PROJECT CONCEPT NOTES

PROJECT CONCEPT NOTE 1

CORE DATA	
Project number	Lesotho PCN 1
Project title	Integrated catchment management in the Lower Mohokare sub-catchment
Action Plan priority area	Land degradation
Short description	The project seeks to promote participatory co-management modalities under which the village communities' livelihood strategies are aligned with the sustainable use and improvement of public/shared natural resources. The participatory planning will result in the preparation of integrated community plans addressing both natural resources management and improved livelihoods. Natural resources rehabilitative measures will be implemented with assistance from village communities. The project is proposed on the premise that if local communities are educated about the benefits of conservation through an awareness campaign, community-based conservation might be actualised. Furthermore, the project will strengthen the technical capacity of the district councils so that they can provide technical advice to the communities and support the development of sustainable land management plans and ensure implementation. The project also seeks to strengthen the capacity of local community institutions (grazing associations, village development councils, farmers) so that they can support sustainable land-use approaches and ensure that these institutions have the powers to enforce agreed decisions.
PROJECT RATIONALE	
Background	Degradation of the natural grazing lands of Lesotho is largely due to changing land-use patterns, such as encroachment of cultivation and settlements into rangelands, partial breakdown of traditional seasonal grazing patterns due to increased stock theft, less mobility of herds as a result of new settlements, loss of authority of traditional chiefs, confusion about authority concerning land use, the Government of Lesotho's policy of discouraging transhumance, decrease of fallow grazing land, the fear of loss of traditional right of use if not cultivated, uncontrolled burning and excessive livestock numbers. Other factors include climatic changes, such as prolonged winters, droughts and erratic rainfalls which affect rangelands rehabilitation, poor law enforcement and weak institutional arrangements. Sections 15 and 16 of the Water Act (2008) provide for the management and protection of water resources through catchment management approaches. During the national consultations carried out as part of the preparation of the Integrated Water Resources Management Strategy (IWRMS) for Lesotho, the aspect of establishing a catchment management approach was regarded as the most important IWRM challenge for the country. The following issues were given as the main arguments for the urgent need to respond to integrated catchment management: stabilisation of erosion rates, water and biodiversity conservation and water resources quality protection. Among these, soil conservation and associated erosion were seen as the absolute priority for Lesotho, as loss of land productivity and reservoir capacity were found to be major national problems. Elements of water conservation were considered a priority along major streams and their tributaries, Mohokare being one of them. The Mohokare River is a special case in that it forms the border between South Africa and Lesotho along the major part of the Lowlands area. Coordination in management of this catchment is basically only called upon during drought emergency conditions (Government of Lesotho, 2007). According to the draft Model for Integrated Catchment Management of the Long Term Water and Sanitation Strategy, Mohokare catchment has been divided into three parallel catchment management areas: Upper Mohokare – more rainfall and fewer problems; Central Mohokare – high urbanisation and water pollution problems; and Lower Mohokare – drier areas and high land-use stress. The project activities will be focused in the Lower Mohokare sub-catchment. The sub-catchment is characterised by less rainfall, high rates of land degradation and limited vegetation cover. The causes of land degradation and related problems in the sub-catchment have not yet been investigated thoroughly. An integrated approach to catchment management requires the cooperation and participation of the various stakeholders and decision-makers, as well as residents of the catchment in the various levels of land and water resource management. Thus a strong emphasis that underlies the project components is that of adopting a community participatory approach to sub-catchment management. One of the major elements of the project is the development and implementation of a methodology that creates the capacity of all stakeholders to actively participate in the management of the natural resources in the sub-catchment, which may be replicable in other areas or projects that set out to develop and implement catchment management initiatives in a participatory way.
Project objectives	1 Land-use planning, administration and management in the sub-catchment improved and sustainable land-use practices applied. 2 Degraded land rehabilitated and livelihoods of the communities in the catchment enhanced.
Integration with relevant ongoing projects/ initiatives	The Water Act (2008) provides for the minister to designate 'catchment areas for the management and protection of water resources'. As a first step, the site should be designated as a catchment area. The Act clearly states that local authorities shall be responsible for the management of the catchment areas based on catchment management plans prepared in consultations with the population. Furthermore, the Water and Sanitation Policy lists 11 relevant strategies which have direct focus on ICM. The Long Term Water and Sanitation Strategy proposes a model for Integrated Catchment Management in Lesotho and delineation of catchment areas. The Lower Mohokare sub-catchment is one of the delineated areas in the long-term strategy as part of the entire Mohokare catchment.
Project outcomes	1 Integrated Sub-Catchment Management Plan developed and related management programmes operational. 2 Reduced soil erosion and increased vegetation cover. 3 Improved living conditions through implementation of conservation measures and alternative livelihoods.

Technical approach	**OUTCOME 1: INTEGRATED SUB-CATCHMENT MANAGEMENT PLAN DEVELOPED AND RELATED MANAGEMENT PROGRAMMES OPERATIONAL** The project seeks to make planning and management more people-oriented, and to build ownership and sustainability. The participatory planning will result in the preparation of integrated community plans addressing both natural resources management (NRM) and improved livelihoods. The people-oriented planning centres on village development plans, which constitute the building blocks of an Integrated Sub-Catchment Management Plan (ISCMP) comprising sub-plans for rangelands, agricultural land, water and energy. **Output 1.1 Operational modalities for participatory and sustainable natural resource management for the sub-catchment in place** • Identify key stakeholders and mechanisms for engagement. • Conduct community consultations and improve participation in the planning and implementation of NRM. • Formulate an integrated sub-catchment management plan. • Set up community monitoring teams to facilitate implementation of the ISCMP and provide necessary feedback for improved management. • Establish and strengthen local resource user management institutions for long-term sustainability. **Output 1.2 Coordinated sub-catchment management programmes** • Conduct a baseline survey on the status of the sub-catchment for better understanding of land degradation problems and livelihoods patterns. • Train local farmers, chiefs, councillors and herders on conservation. • Improve capacity and engagement of communities' development structures and authorities, i.e. village development committees. • Develop a communication strategy. **Output 1.3 Sustainable grazing management systems established and implemented** • Formulate grazing plans with participation of grazing associations. **OUTCOME 2: REDUCED SOIL EROSION AND IMPROVED VEGETATIVE COVER** This outcome focuses on activities as identified in the Integrated Sub-Catchment Management Plan for rehabilitation and protection of degraded areas. Reversing degradation and reducing soil erosion will establish the base for sustainable economic development and poverty reduction in the sub-catchment communities. Natural resources rehabilitative measures will be implemented with assistance from village communities. **Output 2.1 Rehabilitation of soil and vegetation** • Soil conservation measures. • Rehabilitation of degraded rangelands. • Reseeding of indigenous vegetation. **OUTCOME 3: IMPROVED LIVING CONDITIONS THROUGH IMPLEMENTATION OF CONSERVATION MEASURES AND ALTERNATIVE LIVELIHOODS** Natural resources conservation in Lesotho revolves round the peoples' survival and wellbeing. Local communities expect some immediate benefits from conservation activities. The long-term nature of benefits derivable from conservation projects also account for why some local community members do not participate. Most rural Lesotho citizens do not have a long-term concept regarding conservation of natural resources. They tend to address present subsistence needs rather than future potential long-term benefits of resources conservation. If local communities are educated about the benefits of conservation through an awareness campaign, community-based conservation might be actualised. The project also seeks to strengthen the capacity of local community institutions to ensure that these institutions have the powers to enforce agreed-upon decisions. The rationale is also to strengthen the technical capacity of the district councils so that they can provide technical advice to the communities and support the development of sustainable land management plans and ensure implementation. **Output 3.1 Improved livelihoods from community-based initiatives** • Awareness-raising on the incentives and long-term benefits of natural resources conservation and management. • Demonstration and pilot projects for exemplary learning purposes according to the village development plans. **Output 3.2 Participatory land management plans are developed and implemented in targeted communities** **Output 3.3 Improved land-use and management practices are successfully adopted by farmers and herders in targeted communities and replicated in other areas** **Output 3.4 Market opportunities and other incentive/benefit-sharing mechanisms for the provision of environmental services identified, demonstrated and promoted among land users** *Activities* • Train grazing associations and other identified community-embedded groups on soil conservation and its benefits, and the dangers of land degradation. • Train district council staff, community leaders (traditional and political) and partner non-governmental organisation staff in sustainable approaches and best practices for land management. • Draft land management plans with participation of communities.
Assumptions and risks	Risk: Communities interested in short-term tangible benefits rather than long-term benefits of conservation initiatives.
IMPLEMENTATION	
Project duration	Four years
Project cost	USD1,500,000
Proposed funding sources	To be secured
Implementation mechanism	To be determined

PROJECT CONCEPT NOTE 2

CORE DATA	
Project number	Lesotho PCN 2
Project title	Management of water resources quality in Central Mohokare sub-catchment
Action Plan priority area	Water resources quality
Short description	This project has the overall objective to reduce water pollution and maintain good quality water resources in the Central Mohokare sub-catchment. The catchment experiences increasing levels of water pollution, largely from the expanding textile industries. The project seeks to document environmental change in the river systems and ecosystem health, improve pollution monitoring systems, and reduce water resource pollution levels in the sub-catchment.
PROJECT RATIONALE	
Background	Decline of water resources quality presents a threat to the aquatic environment with effects such as acute and chronic toxicity to aquatic organisms, accumulation in the ecosystem and losses of habitats and biodiversity, as well as threats to human health. As a matter of priority, causes that lead to deterioration of water quality have to be identified and emissions need to be dealt with at source. Currently in Lesotho, in most industries, the wastewater is not pre-treated before discharge, neither into the public sewerage system nor into surface water bodies. Only limited information is available on the quantity and quality of wastewater generated by industries, with no ongoing programme of industrial wastewater sampling and analysis. Point-source pollution is often controlled through water-quality standards and permitting programmes which establish limits on the kind or amount of pollutants each point source may discharge into a body of water. To this effect, the draft national water quality standards for various users, including domestic, industry, agriculture and environment, have been developed. With regard to pollution prevention and control, Lesotho water policy is based on a combined approach using control of pollution at source through the setting of emission-limiting values and of environmental quality standards. In the Water Act (2008) the Government of Lesotho provides for the management, protection, conservation, development and sustainable use of water resources. The Government of Lesotho pledges to ensure the establishment of programmes for the monitoring of wastewater in qualitative and quantitative terms to establish a coherent and comprehensive database for wastewater within each river basin. There is no legislation on chemical wastes in Lesotho; normally there is no import/export of chemical waste. The lack of robust guidelines for pharmaceutical products is also a concern.
Project objectives	1 Reduce water pollution and maintain good water resources quality. 2 Enhance preventive measures towards declining water quality. 3 Mitigate the impact of land-based activities (mining, quarrying) in water resources.
Integration with relevant ongoing projects/ initiatives	The baseline assessment towards the development of an Integrated Solid Waste Management System (ISWMS) for Maseru City was published in 2006. This study is the baseline assessment (situation analysis) of waste management within Maseru City, the capital of Lesotho. It is confined to solid waste only, and excludes liquid and gaseous waste. The study was aimed at carrying out an inventory of waste infrastructure and waste sources, and to map sources of waste generation and current waste treatment infrastructure. In 2005, the National Implementation Plan of the Stockholm Convention on Persistent Organic Pollutants (POPs) was developed. This document outlines the action plans and strategies that the country aims to undertake to manage POPs.
Project outcomes	1 The state of water resources quality in the sub-catchment documented. 2 Improved water quality monitoring systems established. 3 Further water pollution prevented and impact reduced.
Technical approach	**OUTCOME 1: THE STATE OF WATER RESOURCES QUALITY IN THE SUB-CATCHMENT DOCUMENTED** Identification of the location and assessment of situations in which water pollution takes place is essential if viable remedies to the problem are to be addressed. The pollution sources need to be identified and the relative and absolute contributions of each source need to be defined and quantified. The pollution source mapping exercise will provide factual information on the status and distribution of pollution in the Central Mohokare sub-catchment. The pollution source maps will provide users with baseline data to support effective policy and management decisions. Since the evidence of water quality deterioration can provide a stimulus for initiating corrective actions, it is important to document environmental change in the river systems and on ecosystem health. **Output 1.1 Well-documented, systematic and factual assessment of point sources of pollution developed** • Assess and document point sources of pollution within the sub-catchment. • Integrate available data onto the map and produce maps to identify pollution hotspots. **Output 1.2 Impact of economic and social activities assessed** • Assess the impact of mining activities on water resources quality. • Assess the impact of sanitation (pit latrines) on groundwater resources. • Assess the impact of sand mining on water resources quality and land degradation. • Assess the impact of sandstone quarrying on water resources quality. **OUTCOME 2: IMPROVED WATER QUALITY MONITORING SYSTEMS ESTABLISHED** The government is mandated to ensure that water use is sustainable and that the aquatic ecosystems are protected. Monitoring provides the information needed for an assessment of the conditions of the water resources. **Output 2.1 Integrated information system developed** • Develop inventory of chemicals and licencing system for chemicals, including agricultural pesticide use in the country. • Establish an integrated system of information management and decision-making support. **Output 2.2 Strategies, guidelines and procedures to manage water pollution developed** • Draft operating procedures and set up licensing system for sand mining. • Develop strategies for proper management of solid waste and hazardous materials (e.g. used oil, medical waste, etc.). • Develop response mechanisms for accidental pollution. • Draft sand-mining strategies and set sand-mining quotas for river reaches.

Technical approach	**OUTCOME 3: FURTHER WATER POLLUTION PREVENTED AND IMPACT REDUCED** Lesotho IWRMS recognises that the intermediate cause of pollution is related to increased use of insecticides used for spraying and dipping of livestock. There is therefore a need to explore more environmentally friendly methods to substitute the commonly used insecticides. In addition, there is widespread opinion that the sand-mining activities in Lesotho may contribute to the decline of water quality and land degradation, though the issues have not yet been well researched. The outcome is focused on reducing water pollution impact and managing pollution. **Output 3.1 Manage impact of industries on water resources quality and land degradation** • Assess impact of industries (textile manufacturing, sand mining, etc.) on water quality and land degradation. • Develop operating procedures. **Output 3.2 Awareness programmes** • Conduct awareness-raising activities to public at large on water quality issues. • Encourage farmers to use environmentally friendly practices for livestock dipping.
Assumptions and risks	
IMPLEMENTATION	
Project duration	Four years
Project cost	USD1,500,000
Proposed funding sources	To be secured
Implementation mechanism	To be determined

© UNOPS/Christoph Mor

The Senqu River

PROJECT CONCEPT NOTE 3

CORE DATA	
Project number	Lesotho PCN 3
Project title	Upscaling of the ORASECOM rangeland management demonstration project for sustainable management of Lets'eng-la-Letsie (Ramsar site)
Action Plan priority area	Changes to the hydrological regime
Short description	Building on the successful ORASECOM rangeland management demonstration project, this project seeks to promote conservation, rehabilitation and protection of the wetlands within the Lets'eng-la-Letsie catchment by employing CBNRM mechanisms. Degradation of wetlands within the catchment is mainly because of uncontrolled livestock grazing and trampling, siltation and erosion, encroachment of species and over-exploitation of resources. The project therefore seeks to address these challenges such that conservation of resources must also address sustainable livelihoods. The proposed project will strengthen the capacity of local community-based institutions through the establishment of mechanisms for multi-stakeholder collaboration processes that facilitate effective management of the catchment. This is crucial to support sustainable land-use approaches and ensure that these institutions have the powers to enforce agreed decisions. The ultimate goal is that communities can manage and use local natural resources in a sustainable manner. The project is in line with the Lets'eng-la-Letsie Integrated Catchment Management Plan (ICMP) which was published in February 2013 and adopts the process for engaging communities and government in a people-oriented partnership to achieve better natural resource management at the local catchment level.
PROJECT RATIONALE	
Background	The Lesotho wetlands are important for the hydrological functioning of the Orange–Senqu River and they are a direct and indirect source of livelihood and income for the country. Despite their importance, degradation of wetlands in Lesotho has been identified as one of the main environmental problems facing the country. The degradation is caused mainly by uncontrolled livestock grazing and trampling, siltation and erosion, encroachment by cultivation and overexploitation of resources. The ORASECOM-led demonstration project on community-based rangeland management in Mount Moorosi (Quthing District) was successfully implemented by the Serumula Development Association to empower local communities to address landscape degradation resulting from overstocking and overgrazing. The project implemented locally designed measures, which relied on indigenous knowledge and understanding of challenges of rangeland degradation in Lesotho, while also integrating the livelihoods component for improvement of the socio-economic wellbeing of the site communities. The project employed a two-pronged approach, which focused on building the institutional capacity of community-based institutions to sustainably manage and plan their natural resources base utilisation. At the same time, biophysical rehabilitation measures were applied to rehabilitate degraded rangelands. These included uprooting of *Chrysocoma ciliata* and reseeding degraded rangelands with palatable grass species. The project further identified the need to build resident capacity of community-based structures to harvest, store and reseed the degraded rangelands using native grass species to improve establishment rates, vigour and rangeland productivity. The demonstration project has been very positively received, both at community and policy levels. It therefore provides clear guidelines that can be used to scale up rehabilitation and restoration of wetlands of major ecological importance in Lesotho, e.g. Lets'eng-la-Letsie wetland, which is the only designated Ramsar site in the country. Furthermore, as the demonstration project was implemented within close proximity to the Ramsar site, the upscaling of the project to sub-catchment level is likely to enjoy good buy-in from the target communities who utilise the Lets'eng-la-Letsie catchment. The proposed project will further leverage on the implementation of selected components of the Integrated Catchment Management Plan of the Ramsar site. According to the Lets'eng-la-Letsie ICMP, it is estimated that over 20 per cent of the catchment is made up of wetlands. Five types of wetlands are identified within the catchment. These wetlands are important from a hydrological perspective as they are the source of the Mohlakeng River, a major tributary of the Quthing River, which is in turn one of the major tributaries of the Senqu (Orange) River. The Quthing River is reported to contribute about 3 per cent to the Senqu River in Lesotho. The active restoration and rehabilitation will play a vital role in ensuring the conservation of the rangelands and wetlands, and therefore the continued provision of ecosystem services and benefits. The Lets'eng-la-Letsie further states that despite the awareness about the declining condition of the catchment, there appears to be reluctance among resource users to change current use and management patterns. A community-based approach to sustainable management is widely promoted to address the ecological degradation resulting from the unsustainable use of wetland resources. This comprises resources conservation and community wellbeing. The effective management of the Lets'eng-la-Letsie catchment depends on the cooperation and support of surrounding communities. This cooperation and support can be secured by combining participation of the local communities (through community-based associations) in decision-making, and equitable access and benefit sharing of resources and economic opportunities in the catchment that address the local communities' needs and aspirations.
Project objectives	1 Rehabilitate and restore degraded rangelands and wetlands within the Lets'eng-la-Letsie catchment for improved ecosystem services functioning of the catchment. 2 Identify and employ meaningful incentives and a flow of benefits that encourage local resource users and stakeholders to implement and comply with the Lets'eng-la-Letsie ICMP.
Integration with relevant ongoing projects/ initiatives	Lesotho has adopted the NBSAP as a tool for mainstreaming biodiversity in the national developmental programmes to ensure implementation of its key objectives of 'Conservation of biological diversity, Sustainable use of its components and Equitable sharing of the benefits derived out of genetic materials'. The Government of Lesotho initiated a comprehensive programme on wetlands conservation in 2003, and has enlisted the cooperation of other ministries and civil society entities in the programme. One of the main advances has been the ratification of the Ramsar Convention on Wetlands in 2004 and subsequent involvement in the international and regional initiatives in wetlands management with Lets'eng-la-Letsie being the only declared site in Lesotho under the convention. The wetlands management component has been integrated in the work programme of the Orange-Senqu River Commission (ORASECOM). The Wetland Restoration and Conservation Project (WRCP) through the Millennium Challenge Cooperation (MCC) is working on wetland rehabilitation in the Highlands of Lesotho. Lets'eng-la-Letsie is one of the three wetlands that was monitored as part of this project. The development of the Lets'eng-la-Letsie ICMP forms part of the pilot experiences of the WRCP which will be used to feed into the proposed Strategic Wetlands Conservation Plan. The overarching vision of the ICMP is 'the conservation and sustainable management of Lets'eng-la-Letsie natural resources based on integrated catchment management derived from CBNRM principles, for equitable benefit sharing through participation of all stakeholders from appropriate institutions and affected communities, which is supported by concrete policy and legislative frameworks'. The proposed project is in line with the ICMP vision and ongoing processes in the catchment.
Project outcomes	1 Institutional capacity of community-based institutions strengthened for the effective management of the Lets'eng-la-Letsie catchment. 2 Lets'eng-la-Letsie catchment rehabilitated and restored. 3 Feasibility of payment for wetland ecosystem services explored and promoted. 4 Best practices and lessons learned documented to inform conservation of prioritised wetland ecosystems. 5 Resilience of local livelihoods improved.

Technical approach	**OUTCOME 1: INSTITUTIONAL CAPACITY OF COMMUNITY-BASED INSTITUTIONS STRENGTHENED FOR THE EFFECTIVE MANAGEMENT OF THE LETS'ENG-LA-LETSIE CATCHMENT** Strengthening the capacity of local community institutions (grazing associations, community councils, herders, traditional authorities and farmers) so that they can support sustainable land-use approaches and avoid: (i) endless disputes in regard to rangeland management; (ii) cattle-post adjudication; (iii) demarcation and declaration of range management areas (RMAs); (iv) the collapse of grazing associations; and (v) poor rangeland management. This will entail ensuring that these institutions have the powers to enforce agreed decisions. Therefore, CBNRM principles shall be applied to strengthen rangeland-use governance, rehabilitation and protection of wetland ecosystems within the catchment. This will result in overall improvement of land-use planning, administration and management. The outcome also focuses on ensuring that the wetlands are managed sustainably through community-based catchment management plans. Involving the resource users and local households in the process of assessing problems and challenges, as well as in finding solutions, develops a sense of inclusion and ownership in the process. This can further contribute to team-building which in turn leads to a collective responsibility and participation in the future management of the catchment. The Lets'eng-la-Letsie ICMP identifies key role-players in the catchment. The wellbeing of surrounding communities depends on access to and benefits from the use of resources from the rangelands and wetlands in Lets'eng-la-Letsie. The effective management of the catchment depends on the cooperation and support of surrounding communities. **Output 1.1 Capacity-building and institutional strengthening for the conservation and sustainable use of wetlands resources** • Train local community groups in sustainable natural resource management. • Design participatory techniques in problem identification, priority setting, conflict resolution, and monitoring and evaluation. • Formulate community-based integrated ecosystem management. **OUTCOME 2: LETS'ENG-LA-LETSIE CATCHMENT DEGRADED WETLANDS REHABILITATED AND RESTORED** Active restoration and rehabilitation will play a vital role in ensuring the conservation of the rangelands and the wetlands, and therefore the sustained provision of ecosystem services and benefits of resources. **Output 2.1 Degraded wetlands rehabilitated** • Demarcate, rehabilitate and protect degraded wetland areas within the catchment. • Develop plans and sustainable development programmes in the areas of natural resources management. **OUTCOME 3: FEASIBILITY OF PAYMENT FOR WETLAND ECOSYSTEM SERVICES EXPLORED AND PROMOTED** The concept of payment for ecosystem services is currently not applied in natural resources management in Lesotho but is considered to be a possible avenue to improving natural resource governance in the country. This outcome will explore the possibility of introducing payment for ecosystem services in the catchment and applying the concept in pilot sites. **Output 3.1 Payment for ecosystem services explored and promoted** • Develop compatible incentive systems to support implementation of payment for ecosystem services in the area. • Review current legal and policy instruments to identify entry points, opportunities and gaps for mainstreaming of ecosystem services. • Identify, update and develop new information requirements for the bundle of ecosystem services related to wetlands and tourism as key aspects of the sustainable development of the project area. • Pilot implementation, disseminate and train decision-makers and users. **OUTCOME 4: BEST PRACTICES AND LESSONS LEARNED DOCUMENTED TO INFORM CONSERVATION OF PRIORITISED WETLAND ECOSYSTEMS** The demo project on community-based rangeland management in Mount Moorosi, Quthing District, was successfully implemented to empower local communities to address landscape degradation resulting from overstocking and overgrazing. The project implemented locally designed measures which relied on indigenous knowledge and understanding of challenges of rangeland degradation in Lesotho, while also integrating the livelihoods component for improvement of the socio-economic wellbeing of the site communities. **Output 4.1 Best practices and lessons for conservation of wetland ecosystems documented** • Develop and test best practice resource utilisation and resource conservation technologies on demonstration sites. • Compile documentation on lessons learned. **OUTCOME 5: RESILIENCE OF LOCAL LIVELIHOODS IMPROVED** Alternative livelihood systems based mainly on eco-tourism enterprises will be developed, such as tourism-based industries (eco-tourism, adventure tourism, etc.), biodiversity conservation and income generation. The proposed project envisages identifying and implementing alternative resource and non-resource based livelihood options to meet household food security needs and for income generation. Exploration of a variety of tourism-based industries (eco-tourism, adventure tourism, etc.), agri-business development and commercial benefits associated with biodiversity conservation will further inform the selection of appropriate livelihoods options to consider. This will be a highly participatory exercise involving a variety of stakeholders in the project area. **Output 5.1 Livelihoods options identified and implemented** • Income-generation livelihood options identified. • Explore tourism-based business options and commercial benefits.
Assumptions and risks	
IMPLEMENTATION	
Project duration	Four years
Project cost	USD1,000,000
Proposed funding sources	To be secured
Implementation mechanism	To be determined

PROJECT CONCEPT NOTE 4

CORE DATA	
Project number	Lesotho PCN 4
Project title	Improvement of groundwater management in selected aquifers within the Central Mohokare sub-catchment
Action Plan priority area	Increased water demand and water resources quality
Short description	The project seeks to contribute to meeting Millennium Development Goals (MDGs) related to hunger, poverty and environmental sustainability. It also aims to address the issue of increasing water demand in the Lowlands of Lesotho. Information on groundwater resources in Lesotho is generally limited and more effort is required to capture information and present it in the formats that the decision-makers, policy makers and politicians can easily understand. It is essential that the groundwater database and long-term monitoring systems be upgraded to provide the necessary information for groundwater developments to take place. The project will also establish an understanding of the origin of pollutants, the pathways which these pollutants could follow into the environment and thei impact.
PROJECT RATIONALE	
Background	It is estimated that Lesotho has a total of 5,925 Mm^3 of static and 341 Mm^3 of renewable groundwater resources. Groundwater plays an important role in water supply to the rural population of Lesotho. It is projected that water use in Lesotho will increase rapidly with the expansion of urban and peri-urban areas and economic infrastructure. Currently the water demands of peri-urban areas are met from low-yielding aquifers, using spring-insecticides fed gravity systems and hand-pumped boreholes developed for rural water supply. The water requirements of the growing number of textile manufacturing units in Lesotho are also met largely from groundwater sources. The growing demand for irrigation water from the agricultural sector is also supplied from groundwater sources. This growing importance of groundwater to the national economy requires effective resource evaluation and management if long-term sustainability is to be achieved. Information derived from boreholes drilled by the Department of Rural Water Supply (DRWS) provides an indication of groundwater availability in areas designated for peri-urban and urban development by 2050. Although these areas of the Lowlands of Lesotho have an underlying layer of dolerite-intruded sedimentary rocks of low permeability and porosity, the available groundwater resources could provide temporary water supplies to the newly formed peri-urban areas. The vulnerability of these aquifers to pollution from increasingly large numbers of pit latrines within peri-urban settlements and associated waste disposal sites needs to be assessed to define a limited period of useful exploitation.
Project objectives	1 Improve groundwater resources management. 2 Promote sustainable use of groundwater resources.

Exposed soils and alien trees illustrate two of the main causes of land degradation in Lesotho.

Integration with relevant ongoing projects/ initiatives	The Groundwater and Water Pollution Control Divisions of DWA are responsible for groundwater exploration, management and resource assessment at national and district level. This includes the monitoring of groundwater abstraction and water quality and assessment of groundwater vulnerability to pollution.
Project outcomes	1 Human activities and geological characteristics influencing groundwater quality identified and mapped. 2 Groundwater monitoring system improved and implemented (groundwater levels, quantity and quality). 3 Licensing mechanisms for drilling of boreholes and groundwater abstractions improved. 4 Information exchanges enhanced and dialogue between institutions strengthened.
Technical approach	**OUTCOME 1: HUMAN ACTIVITIES AND GEOLOGICAL CHARACTERISTICS INFLUENCING GROUNDWATER QUALITY IDENTIFIED AND MAPPED** Groundwater contamination often occurs as a result of various human activities. The vulnerability of an aquifer to such pollution is directly linked to hydraulic characteristics of the aquifer overburden and is, to a significant extent, determined by the characteristic of contaminant attenuation. The degree/extent of interactions between the soil/aquifer characteristics and the pollutants will determine the vulnerability of an aquifer to pollution. Defining the extent of such interactions requires a multitude of physical, chemical and sometimes biological parameters for both the porous medium and the pollutant of interest. The project seeks to establish an understanding of the origin of pollutants, the pathways which these pollutants could follow into the environment and the impact of these pollutants. **Output 1.1 Existing and potential sources of groundwater pollutants identified** • Identify and document the extent, spatial distribution, propagation and types of contaminants and their associated sources which present the greatest threat to groundwater. • Identify human impact in densely populated areas in order to minimise existing or potential groundwater contamination at the source. • Identify hotspots and major threats. **Output 1.2 Groundwater contamination inventory developed** • Compile data on changes in groundwater quality and contaminants (physical and chemical characteristics, concentration, persistence, mobility and dispersivity). • Develop models and maps for current and predicted future groundwater resources and use demands and other key driver resource changes. **OUTCOME 2: GROUNDWATER MONITORING SYSTEM IMPROVED AND IMPLEMENTED (GROUNDWATER LEVELS, QUANTITY AND QUALITY)** Although some hydrochemical analyses of groundwater were made between 1985 and 1993 by an Italian-funded Groundwater Project, these were limited to determination of major ions as presented on the hydrogeological map of Lesotho. The hydrochemical analytical capability of Water and Sewerage Authority and DWA laboratories is still limited to determination of major ions plus some minor ions. Of the hydrochemical parameters determined, total dissolved irons are high and limited determinations of fluoride indicate possible risk to humans. The project seeks to improve the effectiveness of the monitoring systems and undertake hydrochemical and hydrocensus baseline surveys. **Output 2.1 Effectiveness of the groundwater monitoring system improved** • Undertake hydrochemical and hydro-census baseline survey in the sub-catchment. • Select and install monitoring wells in the prioritised aquifers. • Develop mechanisms for detection and evaluation of groundwater contamination in the sub-catchment. **OUTCOME 3: LICENSING MECHANISMS FOR DRILLING OF BOREHOLES AND GROUNDWATER ABSTRACTIONS IMPROVED** The legal framework for the regulation of groundwater development in the country is provided by the Water Act, 2008. The Act requires permission from the DWA for the drilling of boreholes for water abstraction. Not all boreholes are licensed. **Output 3.1 Current licensing practices for groundwater exploration and use reviewed** • Review and revise current licensing procedures for exploration and use of groundwater resources. **OUTCOME 4: INFORMATION EXCHANGE ENHANCED AND DIALOGUE BETWEEN INSTITUTIONS STRENGTHENED** The Groundwater Division of the DWA maintains a national hydrogeological database; the DWA/Italian project database was modified and expanded in 1996 by the TAMS Project. The Department of Rural Water Supply maintains its own groundwater database. It is essential that the groundwater database and long-term monitoring systems be upgraded to provide the necessary information for future developments to take place. **Output 4.1 Information exchange enhanced** • Review and update the hydrogeological database at DWA. • Produce communication tools in diverse formats to address different stakeholders. • Publish information on the Internet and in hard copy, and distribute to relevant institutions.
Assumptions and risks	
IMPLEMENTATION	
Project duration	Three years
Project cost	USD1,000,000
Proposed funding sources	To be secured
Implementation mechanism	To be determined