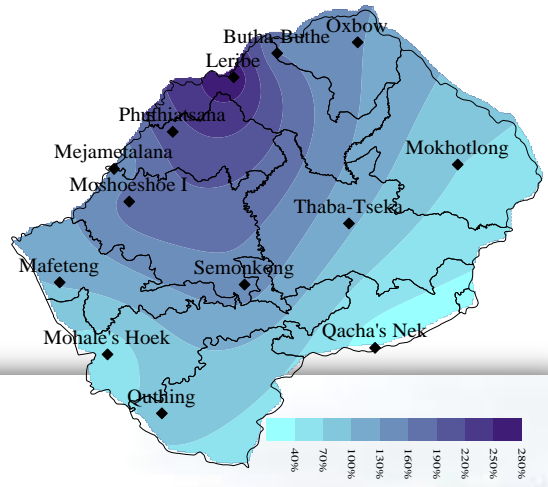




70451



**Post Disaster Needs Assessment  
Heavy Rains 2010/11**



**A report prepared by the Government of the Kingdom of Lesotho, with support from the international community**



**Supported by the international community:  
European Commission, United Nations and The World Bank**



## FOREWORD

The Lesotho Post Disaster Needs Assessment (PDNA) was carried out for the first time in Lesotho during the months of March and April, 2011 to provide the country with an in-depth analysis of the impact of the heavy rains of December, 2010 to January, 2011. The PDNA was a government-led exercise, coordinated by the Disaster Management Authority. It is a first step in the planning process towards recovery and reconstruction that incorporates risk reduction measures, financing plans and systematic links to sustainable development. It provides information on damages and losses as well as post disaster recovery and reconstruction needs.

To build local capacity, 80 people were trained on methodology at the beginning of the PDNA. All trainees were local experts from line Ministries, United Nations (UN) Agencies, Non-Governmental Organizations (NGOs) and officers from the districts.

The PDNA uses two tools: The *Damage and Loss Assessment (DALA)* and the *Human Recovery Needs Assessment (HRNA)*. The DALA is quantitative in nature and is used to value damages and the subsequent economic losses arising from the floods. It highlights possible consequences on the growth of the national economy, the external sector and fiscal balances, as well as impacts due to the decline in income and livelihoods of households and individuals. The HRNA also generates quantitative data but it focuses on the human and community livelihoods, access to services, rights, protection and risk reduction mechanisms. The results are then captured in a recovery framework that summarizes the recovery recommendations from the sector assessments. It also outlines the short, medium and longer term risk reduction priorities for the country's recovery.

The main findings of the assessment include a total of damages and losses estimated at M462.7 million (Lesotho Maloti), where the Public sector suffered most of the damages, while the private sector incurred most of the losses. The overall result is that disaster effects were equivalent to 3.2% of Gross Domestic Product (GDP). The financial requirements to achieve post disaster recovery and reconstruction have been estimated at M666.7 million.

The Lesotho PDNA was carried out successfully with both financial and technical support from development partners including the United Nations Development Program (UNDP), the European Union (EU), the World Bank, UNICEF, WFP, FAO and UN-Habitat. The Office of the Prime Minister greatly appreciates their support.

Our sincere gratitude also goes to experts from relevant line ministries who worked with the international experts to bring out the effects of the rains. Indeed this gesture shows that as a country, we are beginning to demonstrate the fact that **Disaster Risk Reduction is everybody's business**. Cooperation of the District Administrators and other structures at the district level provided invaluable facilitation to the assessment teams. The importance of patience and understanding displayed by respondents in the villages of Lesotho cannot be over-emphasized as most of them took time off to provide the assessment teams with information that is contained in this document. We are very grateful.

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I wish to end by saying that it is time that Lesotho adopts disaster risk reduction as a tool that will guarantee sustainable development in the face of persistent extreme events, both the usual and emerging ones such as the heavy rains that we have experienced. Climate change is bringing in new challenges to our country and economy; therefore we must stand ready to become more proactive in order to save the livelihoods of Basotho, their property and the environment.



A handwritten signature in blue ink, appearing to read 'M. Phooko'.

Hon. Dr. Motloheloa Phooko

**Minister in the Prime Minister's Office**

**ACKNOWLEDGEMENT**

The report was prepared by the Government of the Kingdom of Lesotho, with support from members of the international community, including the European Commission, the United Nations, The World Bank and a wider network of development partners.

In the weeks following the devastating heavy rains between December 2010 and February 2012, an initial assessment was conducted by the Government of the Kingdom of Lesotho. The results of these assessments provided the basis for immediate response and short term recovery. After the initial humanitarian recovery phase, the government initiated a Post-Disaster Needs Assessment (PDNA), which was overseen by Mrs. Moliehi Matabane, Principal Secretary in the Office of the Honourable Prime Minister and supported by Mrs. Ruth Kagia, Country Director, World Bank, Mrs. Ahunna Eziakonwa-Onochie, United Nations Resident Coordinator and Mr. Hans Duynhouwer, Head of Delegation, European Commission. The PDNA Team would like to express its deepest appreciation and gratitude for their leadership, guidance and assistance.

The PDNA itself was coordinated by Ms Motšeli Mojaki, Acting Chief Executive Officer (Disaster Management Authority), Seth Vordzorgbe, Senior Regional Advisor (UNDP) and Husam Abudagga, Senior Country Officer (WB), facilitated with resources and technical assistance from the Global Facility for Disaster Reduction and Recovery (GFDRR), The United Nations Development Programme and the European Commission.

The PDNA core team consisted of sector experts from the Government of Lesotho, supported by experts from the international community, particularly FAO, UNICEF, UNDP, UNFPA, UN-Habitat, WFP, The European Union Joint Research Centre and The World Bank.

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## **POST DISASTER NEEDS ASSESSMENT**

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<sup>1</sup> 1US\$ = 6.9M as of March 16, 2011

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### List of abbreviations and acronyms

AGOA – African Growth and Opportunities Act  
AJR - Annual Joint Review  
AIDS - Acquired Immune-Deficiency Syndrome  
APS – Agricultural Production Survey  
ARV – Anti Retro Viral  
ART – Anti Retroviral Therapy  
BOP – Balance of Payments  
BOS – Bureau of Statistics  
CBD – Central Business District  
CCAC – Community Councils AIDS Committees  
CFS – Crop Forecasting Survey  
CGPU - Child and Gender Protection Unit  
CHAL – Christian Health Association of Lesotho  
CLTS – Community Led Total Sanitation  
CMAM – Community Management of Acute Malnutrition  
CMBSL – Conserving Mountain Biodiversity in Southern Lesotho  
COW – Commissioner of Water  
CPW – Children’s Protection Welfare Act  
CSO - Civil Society Organizations  
CWU - Child Welfare Unit  
DAC – District AIDS Committees  
DALA – Damage and Loss Assessment  
DDMT - District Disaster Management Team  
DHMT – District Health Management Teams  
DLS – Department of Livestock Services  
DMA – Disaster Management Authority  
DRM – Disaster Risk Management  
DRRN – Disaster Risk Reduction Needs  
DRWS – Department of Rural Water Supply  
DSW - Department of Social Welfare  
DWA – Department of Water Affairs  
EC - European Commission  
ECCD – Early Care Childhood Development  
EFU – Education Facilities Unit  
EMIS – Education Management Information System  
EU - European Union  
FAO – Food and Agriculture Organization  
GBV – Gender Based Violence  
GDP – Gross Domestic Product  
GOL - Government of Lesotho

HBC – Home Based Care  
HC – Health Centres  
HDI – Human Development Index  
HFHL – Habitat for Humanity Lesotho  
HIV - Human Immune-deficiency Virus  
HRAP –: Human Rights Approach to Programming  
HRNA – Human Recovery Needs Assessment  
ICT - Information and Communication Technology  
IMAM – Integrated Management of Acute Malnutrition  
IYCF – Infant and Youth Child Feeding  
JMP – Joint Monitoring Program  
LDC – Least Developed Countries  
LDHS – Lesotho Demographic and Health Survey  
LEC – Lesotho Electricity Company  
LHDA – Lesotho Highlands Development Authority  
LHLDC - Lesotho Housing and Land Development Corporation  
LHWP – Lesotho Highlands Water Projects  
LMPS – Lesotho Mountain Police Service  
LMS – Lesotho Meteorological Services  
LRCS – Lesotho Red Cross Society  
LREBRE - Lesotho Renewable Energy Based Rural Electrification  
LSPP – Lesotho Survey and Physical Planning  
LVAC – Lesotho Vulnerability Assessment Committee  
LWSP – Lesotho Water and Sanitation Policy  
M – Lesotho Maloti (M 6.9 =1US\$ as of January 18, 2011)  
MCA – Millennium Challenge Authority  
MCC – Millennium Challenge Corporation  
MDG – Millennium Development Goals  
MDTP – Maluti Drakensberg Transfrontier Project  
MHP - Muela Hydropower Plant  
MISP - Minimum Initial Service Package  
MNR – Ministry of Natural Resources  
MOET – Ministry of Education and Training  
MOHSW – Ministry of Health and Social Welfare  
MOLGC - Ministry of Local Government and Chieftainship  
MOPWT – Ministry of Public Works and Transport  
MUAC – Mid Under Arm Circumference  
MWWP – Maseru Waste Water Project  
NEWU – National Early Warning Unit  
NGO – Non-Government Organizations  
NFI – Non Food Items  
NNS – National Nutrition Survey

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OPD - Out-patient Department  
OVC – Orphan and Vulnerable Children  
PA – Public Administration  
PCA – Police Complaints Authority  
PDNA – Post Disaster Needs Assessment  
PEP – Post Exposure Prophylaxis  
PLWHA – People Living With HIV and AIDS  
PMTCT – Prevention Mother to Child Transmission  
PSU – Primary Sampling Units  
PV – Photo Voltaic  
REU – Rural Electrification Unit  
RRS – Risk Reduction Strategy  
SACU – Southern Africa Customs Union  
SME – Small Medium Enterprise  
SMME – Small, Micro and Medium Enterprise  
SSU – Secondary Sampling Units  
STI - Sexually Transmitted Infections  
TB – Tuberculosis  
UN – United Nations  
UNDP – United Nations Development Program  
UNEP – United Nations Environment Program  
UNICEF – United Nations Children’s Fund  
VDMT – Village Disaster Management Team  
WASCO – Water and Sewage Company  
WASH – Water Sanitation and Hygiene  
WB – World Bank  
WDI - World Development Index  
WFP – World Food Program  
WHO – World Health Organization

## EXECUTIVE SUMMARY

### Disaster risk profile of Lesotho

The Kingdom of Lesotho is a land-locked nation located in the Drakensberg mountain range in Southern Africa. The country has a total area of 30355 km<sup>2</sup> and in 2009 had an estimated population of nearly 2.1 million<sup>2</sup>, with nominal per capita GDP of US\$ 1080 (in 2010)<sup>3</sup>. About 75% live in rural areas, often in scattered mountain villages, while most of the urban population lives in and around the capital Maseru and the surrounding low lands. The hazards that affect Lesotho are drought, snowfall, hailstorms, strong winds, localized floods, and early frost. Lesotho's vulnerability to these hazards is compounded by a number of other underlying factors, including high levels of poverty, particularly in rural areas where the scattered nature of settlements makes the provision of and access to social services difficult. The high HIV prevalence rate has resulted in the existence of vulnerable groups, particularly Orphans and Vulnerable Children (OVCs).

### The disaster

A series of heavy rains hit Lesotho between December 2010 and February 2011, with consequent river floods, run-off from hill slopes and rockslides. For 40 days since the end of December 2010, the amount of rainfall measured in the northern districts of the country was equivalent to six months of rainfall under normal conditions. The rest of the country received 50% of normal rainfall for six months. The accumulated rainfall of December 2010 and January 2011 was the highest amount recorded since 1933 in the lowlands. Additionally, strong winds and localized hailstorms caused severe damage. As initially rains started late and remained below average until November, there was a substantial impact on the agricultural sector. The *Lesotho Vulnerability Assessment Committee* therefore estimated that up to 580,000 people – or 28% of the total population - were affected by these events; among those affected over 3360 were displaced.

### Immediate response – Early assessment and Post Disaster Needs Assessment

After the heavy rains, a nationwide rapid assessment was conducted by the Government of Lesotho (GoL) through its Disaster Management Authority (DMA) in mid January 2011. Following this assessment, GoL met with development partners, including the World Bank, the UN Emergency Task Force (comprised of UNDP, WFP, FAO, UNICEF, WHO and UN-Habitat), and the European Commission, and requested support for a comprehensive Post Disaster Needs Assessment (PDNA). The national emergency response and contingency plans developed in February 2011 estimated a total resource requirement of M670 million (US\$95.7 million) to address the immediate and medium term impacts of the heavy rains. In order to fund the emergency response and contingency plan, the government planned a round table discussion with donors in Lesotho. In response to the floods the UN mobilized a total of US\$ 1.35 million, while the Lesotho Red Cross Society (LRCS) mobilized Non-Food Items (NFI) worth M691,862. Following the humanitarian relief efforts the PDNA was conducted between March 22 and April 20, 2011, as a first building block in the planning process towards recovery and reconstruction. The PDNA process involves background work, capacity building, field assessments, sector reporting and macro-economic modelling. The results of the PDNA were presented to the cabinet on May 4.

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<sup>2</sup> UNdata

<sup>3</sup> WDI July 2011

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### Methodology used for PDNA

The PDNA uses two tools: The 'Damage and Loss Assessment' (DALA) and the 'Human Recovery Needs Assessment' (HRNA). The DALA is quantitative in nature and is used to value damages and the subsequent economic losses arising from the floods. It highlights possible consequences on the growth of the national economy, on the external sector and fiscal balances, as well as the impact on the income and livelihoods of households or individuals.

The HRNA also generates quantitative data as needed but focuses on the human and social impact of disasters, analyzing how they affect personal and community livelihoods, access to services, rights, protection and risk reduction mechanisms. The results are then captured in a Recovery Framework that summarizes the recovery recommendations from the sector assessments identified through the PDNA. It outlines the short, medium and longer term risk reduction priorities.

### Assessed damages and losses

The total value of disaster effects was calculated at M462.7 million (US\$67 million), which is equivalent to 3.2% of the country's *Gross Domestic Product* (GDP) and 5.2% of *Gross Fixed Capital Formation* (table 1). Most of the flood damage was sustained by the road transport sector (M80.3 million or 33.3% of the total), followed by livestock (18.6%), water, sanitation and hygiene (15.7%) and education (11.7 %). Considering losses in production and higher costs of services, the sector of agriculture crops was most affected (M103.6 million or 46.7% of the total), followed by road transport (25.9%), livestock (13.5%) and commerce (9.2%) (figure 1). These sectors are crucial to the livelihoods of the poor in Lesotho, and the impact of the events has increased the vulnerability of large portions of the population.

Table 1: Summary of damages and losses by sector (in Lesotho Maloti (M)<sup>4</sup> million)

Sector Sub-Sector	Damage			Losses			Total Damage and Losses		
	Value	Ownership		Value	Ownership		Value	Ownership	
		Public	Private		Public	Private		Public	Private
in Lesotho Maloti (million)									
<b>Social</b>	<b>51,139.3</b>	<b>908.5</b>	<b>50,230.8</b>	<b>7,355.8</b>	<b>5,195.8</b>	<b>2,160.1</b>	<b>58,495.2</b>	<b>5,677.2</b>	<b>52,390.9</b>
Housing	22,374.1	-	22,374.1	2,802.7	642.6	2,160.1	25,176.8	642.6	24,534.2
Health	481.4	481.4	-	3,959.8	3,959.8	-	4,441.2	4,441.2	-
Education	28,283.8	427.1	27,856.7	593.3	593.3	-	28,877.2	593.3	27,856.7
<b>Productive</b>	<b>69,474.9</b>	<b>-</b>	<b>69,474.9</b>	<b>153,864.0</b>	<b>-</b>	<b>153,864.0</b>	<b>223,338.8</b>	<b>-</b>	<b>223,338.8</b>
Agriculture (Crops)	5,628.0	-	5,628.0	103,579.4	-	103,579.4	109,207.4	-	109,207.4
Agriculture (Livestock)	44,808.3	-	44,808.3	29,815.5	-	29,815.5	74,623.8	-	74,623.8
Commerce and Industry	19,038.5	-	19,038.5	20,469.0	-	20,469.0	39,507.6	-	39,507.6
<b>Infrastructure</b>	<b>120,468.9</b>	<b>120,068.9</b>	<b>400.0</b>	<b>60,395.2</b>	<b>3,014.4</b>	<b>57,367.5</b>	<b>108,864.1</b>	<b>123,096.7</b>	<b>57,767.5</b>
Transport	80,324.5	80,324.5	-	57,367.5	-	57,367.5	137,692.0	80,324.5	57,367.5
Communication	750.0	350.0	400.0	13.3	-	-	763.3	363.3	400.0
Electricity	1,522.8	1,522.8	-	125.3	125.3	-	1,648.1	1,648.1	-
Water and Sanitation	37,871.6	37,871.6	-	2,889.1	2,889.1	-	40,760.8	40,760.8	-
<b>Total</b>	<b>241,083.2</b>	<b>120,977.5</b>	<b>120,105.7</b>	<b>221,615.0</b>	<b>8,210.2</b>	<b>213,391.5</b>	<b>462,698.1</b>	<b>128,773.8</b>	<b>333,497.2</b>

<sup>4</sup> 1US\$ = 6.9M as of March 16, 2011



Damage and losses were not evenly distributed across the country; some districts were more affected than others (figure 3). Maseru District sustained the highest value of damage or asset destruction (M79.6 million), followed by Mokhotlong (M41.8 million), Botha Bothe (M24.7 million), Leribe (M23.8 million) and Bera (M23.4 million). Regarding production losses, the most affected Districts were Mokhotlong (M41.5 million), followed by Leribe (M32.3 million) and Maseru (M31.2 million). The higher values of damage and losses per capita caused by the floods disaster corresponded to the Districts that showed the lowest values against the *Human Development Index* (HDI).

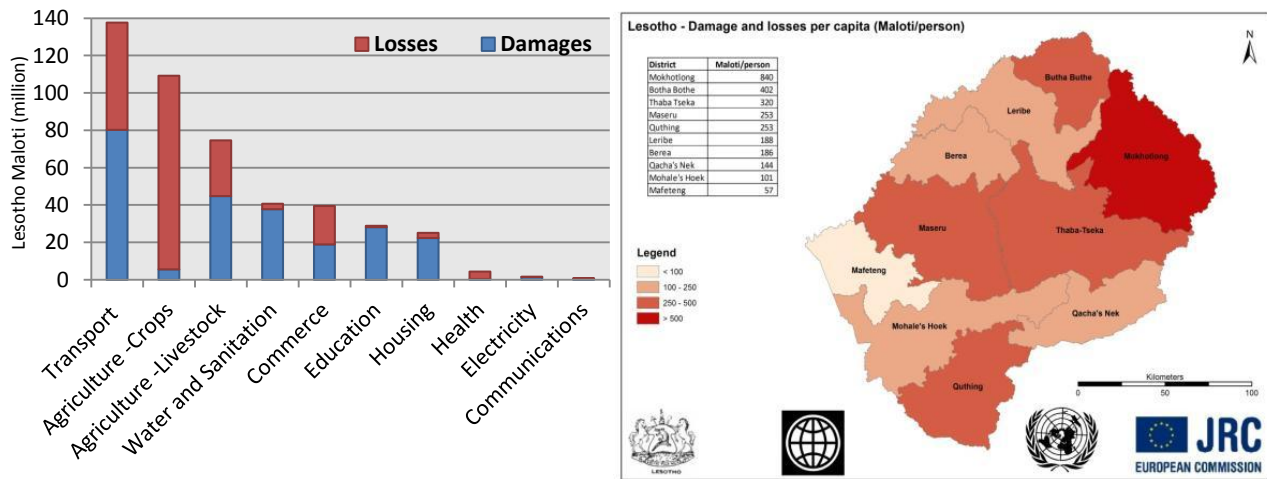


Figure 1: (left) Damages and losses per sector; (right) Most affected regions

**Recovery and reconstruction needs**

The financial requirements to achieve post-disaster recovery and reconstruction have been determined at M666.7 million. The PDNA makes a distinction between recovery needs and reconstruction needs, with the former covering the restoration of livelihoods and governance systems and services, while the latter covers repair, rebuilding and the improvement of private and public infrastructure, as well as investments to mainstream disaster risk management (table 2).

**Short-term recovery needs**

The PDNA reveals that Lesotho is on the immediate verge of a food security crisis that will start during the second half of 2011. The impending food crisis may be partially mitigated by the harvesting of the winter crops, but will not be overcome until the harvest of the 2012 summer crop. Unless it is met by some kind of intervention, the food deficit is likely to result in widespread hunger and increased malnutrition and disease. The recovery recommendations were designed to be responsive to the development setting of the country. For example, the analyses point to the need for immediate action to forestall projected potential worsening of food insecurity in the coming six-months. The financial requirements to achieve post-disaster recovery have been determined on the basis of the estimated value of production costs and the likely higher costs of living, and are grouped into three categories for (i) restoration of personal and household incomes; (ii) rehabilitation of basic services; and (iii) restoration of productive activities and food security.

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Table 2: Total estimated post-disaster needs (in Lesotho Maloti (thousand), 2011 prices)

Sector	Recovery (i)	Reconstruction (ii)	TOTAL
	Lesotho Maloti (thousand)	Lesotho Maloti (thousand)	Lesotho Maloti (thousand)
<b>Social Sectors</b>	<b>4,441</b>	<b>75,409</b>	<b>79,850</b>
Housing	643	46,829	47,472
Education	818	28,023	28,841
Health	2,980	557	3,537
<b>Productive Sectors</b>	<b>325,422</b>	<b>22,587</b>	<b>348,009</b>
Agriculture - Crops	234,014	413	234,427
Agriculture - Livestock	87,314	4,209	91,523
Commerce	4,094	17,965	22,059
<b>Infrastructure Sectors</b>	<b>16,808</b>	<b>204,573</b>	<b>219,554</b>
Transport	16,300	161,300	177,600
Communications	8	990	998
Water Supply	500	40,456	40,956
Electricity	TBD	1,827	1,827
<b>Cross- Sectoral</b>	<b>17,500</b>	-	<b>17,500</b>
Cash for Work Program	17,500	-	17,500
<b>Total</b>	<b>364,170</b>	<b>302,569</b>	<b>666,739</b>

Out of the total estimated recovery needs of M364.2 million, the needs for the agricultural sector are by far the greatest, summing up to M321.3 million, followed by the transport sector (M16.3 million). Of the recovery needs for the agricultural sector, the estimated costs for food imports make up the largest part of these needs, with M202.9 million for importing cereals and M74.9 million for importing meat and other livestock related items.

It is proposed that the strategy of choice for restoration of personal and household incomes can be carried out through a social protection/cash-for-works program. This should in particular target the most vulnerable population, namely women-headed households, widows and the food insecure, by providing them with a rapid source of cash to restore their livelihoods. At the same time, it will help restore basic public services and degraded ecosystems under the principles of building back better. Part of this social protection strategy should therefore also address rehabilitation needs.

### Long and medium-term recovery and reconstruction needs

Financial requirements for reconstruction with disaster-reduction features are determined on the basis of the estimated value of damages, plus the costs of 'building-back-better'. They also take into consideration the estimated costs of cross-cutting disaster risk management priorities, which have not been taken into account in the various affected sectors.

Total reconstruction costs are estimated at M302.6 million. The financial requirements for reconstruction are greatest for the road transport sector with M161.3 million, which is equivalent to 53.3% of all reconstruction needs. Most of these are for the reconstruction and building back better of roads, bridges and culverts. The housing sector requires M46.8 million for reconstruction (15.4%); the

water and sanitation sector M40.4 million (13.4%), most of which is needed for the reconstruction of the urban water supply system (M37.1 million); and the education sector (M28 million or 9.3%).

Reconstruction must take into consideration the effects of inflation due to higher post-disaster costs, and will include the improvement of quality in housing and other sectors, as well as improved design and construction standards, involving risk reduction measures. Recovery and reconstruction needs are summarized in table 2.

**Disaster risk reduction program needs**

The results of the PDNA indicate that the 2011 disaster happened due to a combination of erratic climate variability (likely to intensify with increasing climate change) and Lesotho’s intrinsic natural vulnerability. The country’s vulnerability is set to worsen due to weak spatial planning, exposure to economic shocks, and behavioural patterns. New disasters are likely to occur unless there is a fundamental shift in development and economic planning.

Table 3 shows estimates of Disaster Risk Reduction Needs based on comparisons from countries with similar hazard profiles as Lesotho and best practices. More detailed budget amounts should be determined as part of DMA disaster management and planning activities. Among the risk reduction programs needed are programs to design, advocate and enforce building and spatial planning codes (safety codes and resilient planning). This will help guide developments to areas less vulnerable to natural hazards.

Table 3: Summary of incremental costs for disaster risk reduction needs

<b>Activity</b>	<b>DRR needs</b> Lesotho Maloti (thousand)
1) Mainstream disaster risk reduction and climate resilience into policies and planning, including - strengthened construction norms for the transport and housing sector	27,800
2) Strengthen risk assessments and early warning systems	11,500
3) Reduce underlying risks and integrate disaster risk management into major investment programs, including - promotion of sustainable land management and - resilient low cost housing programs	38,150
4) Facilitate institutional strengthening and capacity development for disaster risk management and preparedness, including - development of sustainable financing mechanisms	1,750
<b>Total</b>	<b>69,250</b>

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### Box 1: Update to the findings of the PDNA

Following the heavy rains that started in December 2010, the Lesotho Vulnerability Assessment Committee (LVAC) originally estimated that 250,000 people would not meet their food needs due to the loss of 34% of crops and a 3% increase in food import prices. The deterioration of the nutritional status of affected individuals had not yet emerged as the impacts on the availability of and access to food would only become fully apparent at the next harvest.

#### The findings of the April/May agricultural production survey

Through the Bureau of Statistics, the GoL carries out *Agricultural Production Survey* (APS) on an annual basis and conducts *Crop Forecasting Surveys* (CFSs) in April of every year with the collaboration of the National Early Warning Unit (NEWU).

The main findings of the recently completed APS are that:

1. Whilst acreage planted for maize (the main staple food) declined by 3%, maize production for the Agricultural Year 2010/11 will decrease by 59.8% compared to the previous year;
2. The 2010/11 forecast for sorghum shows a decrease of 79.7% from the 2009/10 Agricultural Year;
3. Whilst area planted for wheat increased by 27%, wheat production has decreased by 19% in the current year.

**The *Agricultural Productivity Survey* indicates that some 580,000 people were directly affected by the heavy rains and will require some form of assistance to ensure they are able to meet their nutritional requirements.** The annual cereal balance sheet has also been updated through the survey and indicates a sharp escalation in cereal shortfalls and uncovered shortfalls/import gaps as illustrated in table 4 below. The table indicates high domestic shortfalls for the three cereal crops, as well as shortfalls despite planned commercial, government and WFP imports.

Table 4: Cereal Balance Sheet for Lesotho: 2009/10 – 2011/12

	Maize		Wheat		Sorghum		Total	
	2009/10	2011/12	2009/10	2011/12	2009/10	2011/12	2009/10	2011/12
Domestic Availability	133,414	76,005	44,393	33,362	28,730	5,486	206,537	114,853
Gr. Domestic Requirements	250,719	252,197	82,938	83,427	23,764	23,904	357,421	359,528
Dom. Shortfall /Surplus	-117,305	-176,190	-38,545	-50,065	4,966	-18,418	-150,884	-244,675
Total Planned Imports	140,676	72,100	89,494	-50,200	-	-	230,170	122,300
Uncovered Shortfall /Import Gap	23,371	-104,092	50,949	--	4,966	-18,418	79,286	-122,375

## SECTION 1: THE DISASTER

### 1.1 Introduction

Lesotho experienced very heavy rains from the end of December 2010 to the first week of January 2011 that led to a country-wide disaster. As a result of the floods, the Government of Lesotho (GoL), through the Disaster Management Authority (DMA), carried out a rapid assessment of the impacts of the rain in mid-January 2011. Following the rapid assessment, GoL met with development partners including the World Bank, the UN Emergency Task Force, (comprised of UNDP, WFP, FAO, UNICEF, WHO and UN-Habitat), and the European Commission and requested the carrying out of a comprehensive **Post Disaster Needs Assessment (PDNA)**.

The PDNA has found that in addition to damages across the productive, social and infrastructure sectors (figure 3), the main impact of the heavy rains has been to agricultural production. All indications show that as a result of the rains, there will be significant increases in food insecurity in rural areas, at least until the next (2012) summer crop harvest.



Figure 2: (left) Maize field water logged at Thaba-Tseka; *Source: DMA Rapid Assessment Mission*; (right) Multiplate culvert washed away at Kubetu along B24 Road

This document describes the implementation of the PDNA process, presents the findings of the assessment and makes initial recommendations for post-disaster recovery, reconstruction and risk reduction activities, to be considered by the Government.

### 1.2 Lesotho's vulnerability to natural hazards

#### Background

Lesotho has a very harsh ecological environment. Less than 10% of the land is suitable for agricultural production. Lesotho also has a fragile mountainous ecosystem. According to the UN Convention Framework on Climate Change, as a small land-locked country prone to natural hazards and liable to drought and to desertification, Lesotho is a country highly vulnerable to climate change. The country is already paying high premiums because of the impact of global warming, evidenced by the increasing frequency of natural hazards, devastating droughts and

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progressive desertification. The skewed distribution of water resources, erratic climatic conditions and extended periods of drought, environmental degradation, declining soil fertility and poor land management practices, compound problems of declining agricultural productivity, with severe consequences for household food security and levels of poverty. It is now acknowledged globally that climate change will intensify and aggravate these vulnerabilities.

### **Disaster profile**

The disasters that affect the country from time to time are drought, snowfall, hailstorms, strong wind, localized floods, and early frost and pest infestations. A brief summary of the relief activities that the DMA has undertaken indicate some of the severe disaster events that have occurred over the last two decades as listed below:

- The heavy snowfall relief of 1996;
- The 1997/98 drought relief;
- The 1999 tornado relief;
- The 2000/01 famine relief; and
- The 2003/04 drought emergency relief operation.

Although blessed with abundant water resources, Lesotho is prone to severe drought due to variable climatic conditions. Drought has recurred with increasing regularity over the last two decades, with major drought emergencies experienced in 1983/84, 1991/93, 1994/1996, and 2002/2004. While drought must be regarded as a regular feature in Lesotho, the country's vulnerability is aggravated by chronic food insecurity, poverty and low agricultural productivity, and the impact of the HIV/ AIDS pandemic.

Other potential natural hazards are seismic activities and strong winds which destroy houses. Lesotho is not immune to hazards such as Avian Influenza, Swine Influenza (A1 H1N1) and SARS, transmitted from other parts of the world. Some communities also experience localized hazards peculiar to particular areas such as locusts in Mafeteng District and termites in Berea and Mafeteng.

The rapid expansion in industrial development increases the potential for technological or industrial disasters, including the effects of industrial waste and spill. Urban areas are growing rapidly, with expectations that 50% of the population will soon live in urban areas, increasing the potential disaster risk related to urbanization.

**Box 2: Lesotho in a nutshell – A socio-economic background**

Lesotho emerged as a nation some 200 years ago, when King Moshoeshoe 1st assembled the local inhabitants of modern day Lesotho and refugees from the ongoing regional wars and famines. Moshoeshoe was able to resist attempts to annex the country to what was to become the Republic of South Africa, and secured British protectorate status for the country until its independence in 1966. Most of the population (99.7%) consists of the Basotho, a largely homogenous and mainly Christian group. There is a small minority of Ngunis mainly in the south of the country, as well as a limited number of Indian and more recent Chinese immigrants.

From independence to the present, Lesotho has undergone several extended periods of political turmoil. Following the second general elections of 1969, the results of which the incumbent government refused to recognise, Lesotho entered into a period of undemocratic government, including three periods of military rule, until the democratic elections in 1993.

Lesotho is completely surrounded by the Republic of South Africa. A small and highly mountainous country, it lies entirely above an altitude of 1,000 metres (3,300 feet) above sea level and has the highest lowest point of any country in the world.

In 2010 Lesotho reported a GDP per capita<sup>5</sup> of US\$ 1004 (World Bank, 2010). Despite its middle-income status, Lesotho still has one of the highest levels of inequality with 58 percent of the population living below the poverty line of US\$1.50 per day. Moreover the country ranks 141st out of 169 in the United Nations Human Development Index (UNDP, 2010).

About half (56.7%) of the population of about 2.1 million people live below the poverty line. Recent decreases in life expectancy at birth from 48 years in 2000 to 47 years in 2010 can mainly be attributed to the increasing rates of mortality due to HIV and AIDS, mean that Lesotho's human resources are being depleted. Lesotho is unlikely to meet its Millennium Development Goals (MDGs), with the exception of goals 3 and 4, achieving universal primary education and promoting gender equality respectively,

The human development of much of Lesotho's population is compromised by a web of interacting economic, environmental, and climatic vulnerabilities. Economically, the country depends for much of its revenue on receipts from the Southern African Customs Union, (SACU), which saw a decline of 50% during the period 2010/2011 as a result of the global economic crisis. The lower SACU receipts, which are expected to increase slightly in the coming years, saw the country suffer its largest ever budget deficit of 12.3% of GDP in 2010/2011.

A large percentage (77%) of the population of Lesotho lives in the rural areas and makes its living from subsistence agriculture, whose contribution to GDP has declined from 10% at the beginning

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<sup>5</sup> GDP per capita (current US\$)

of the century, to 7.9% in 2009/2010. The scattered and isolated nature of human settlement patterns in the rural areas means that the provision of basic services, including roads, potable water, and sanitation and energy, is expensive and extremely difficult.

Poverty in Lesotho is defined by geography, with rural populations poorer than urban populations, and levels of poverty varying across the four agro-ecological zones characterised by climatic and ecological differences: the Lowlands; the Foothills; the Mountains; and the Senqu River Valley region. Poverty is most endemic in the rural foothills, whereas other ecological zones offer better opportunities, either through subsistence agriculture and related on-farm income generating activities, (in the Senqu River Valley), or through more profitable livestock production in the rural Mountains regions. Nevertheless, only 7% of Lesotho's total land mass is arable, and combined with the effects of ongoing soil degradation, the options for increased agricultural production sufficient to sustain the rural population are limited and declining.

Over the last decade, subsistence agriculture, combined with rural cash earnings, did not provide enough income to meet the food needs of the bulk of rural households. In 2004, the poorest households in the rural Lowlands and rural Foothills could produce only 25% of their food needs, and households in the rural Mountains produced even less. Casual labour is another important source of cash income for poor and very poor households, contributing up to 40% of total annual household income. There were no increases in labour wages during the period 2008 to 2010, which combined with declining labour opportunities in rural areas over the past few years. This means that net income benefits to households are on the decline. As a result, rural households are experiencing growing food insecurity and are increasingly reliant on food aid from donor organisations, which disincentives the development of a sustainable domestic market for agricultural produce.

The urban population subsists on public and private sector employment, including in a proliferating informal and small enterprise sector. An unknown but growing number of urban households are migrants from the rural areas, including large numbers of women drawn to the textile industries, which have provided considerable, but insecure employment opportunities.

Nevertheless, prospects for significant income and employment increases in urban areas are constrained by the structural nature of the Lesotho economy. Lesotho is endowed with limited natural resources including water, much of which is transferred to the Republic of South Africa; diamonds, which are showing increasing benefits to the national economy but which cannot provide significant employment opportunities; and manufacturing, enabled through trade agreements, mainly the *African Growth and Opportunities Act (AGOA)*, which is subject to the vagaries of international political developments.

### **Economic vulnerability**

Global and regional economic and political changes can have huge impacts on the Lesotho economy and on growth, incomes and employment. Lesotho is a dependent economy, reliant on productive activities, much of which are exogenous and beyond the country's control. The mainly rural population relies to varying extents on subsistence agriculture, which is on the decline.



Migrant remittances used to contribute to the bulk of national income, but have been declining following the long term downturn of the mining sector in South Africa and on the back of the global economic crisis. Receipts from the Southern African Customs Union (SACU), which contribute to about half of government revenue, declined by some 50% during the 2010/2011 period due to the effects of the global economic crisis. Revenues from the clothing and textile sector also declined during the recent period; the sector is largely dependent on one or two international agreements which are themselves subject to the vagaries of political change.

**Poverty**

Poverty is the main vulnerability factor in Lesotho. As of 2002/03 approximately 37% of households in Lesotho lived on less than US\$1 per day and about half the population lived below the poverty line. The poor mainly rural population reliant on subsistence agriculture, farm and off-farm employment, migrant remittances and other livelihood sources are highly vulnerable to disasters, particularly disasters that impact agricultural production and the rural economy including droughts and floods. These types of disasters have been shown to increase the food insecurity of poor households which is precarious at the best of times.

**HIV and AIDS**

A critical axis of Lesotho's vulnerability is the degree of HIV prevalence, which at 23.2%, is the third highest in the world. An estimated 40% of people between the ages 30 and 40 are HIV positive and at the end of 2007, an estimated 50 people died each day due to AIDS and an estimated 270,000 were living with HIV, of which 11,800 of them were children. In 2004, 30% of children had lost one or both parents and the number of AIDS orphans was estimated at 108,700 in 2007. HIV fuels increasing vulnerability by attacking peoples' livelihoods. HIV impacts household livelihood strategies by reducing household productivity as a result of illness and morbidity, depletes household resources as savings and assets are redirected towards care for the sick and towards burial costs, and has the effect of leaving orphans and vulnerable children (OVCs) whose care, upbringing and education becomes the responsibility of often already stressed relatives or of state and other institutions, many of which are ill equipped to manage their growing number. The pervasive and growing impact of HIV and AIDS does not only affect agricultural and rural livelihoods, but also the overall employment situation in all productive sectors.

**Governance**

Developmental and environmental risks caused by human activity and expanding urban populations pose significant risks and increase people's vulnerabilities. These risks may result from poor or unplanned land use, uncontrolled settlements, and lack of enforcement of building standards. Conditions of vulnerability to disasters are exacerbated by lack of knowledge and awareness, under-employment and unemployment, the remoteness and inaccessibility of many settlements, the inadequate implementation of government programmes, the inefficient delivery of services and the inadequacy of capacity and resources to sufficiently respond to disaster when they occur.

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### 1.3 Heavy rains December 2010 to February 2011

#### Rainfall

While rainfall remained below the long term average in October and early November 2010, it was substantially above normal in December 2010 and January 2011, in terms of total and 24 hours precipitation, as well as in number of rainy days. Tables 5,6 and 7 illustrate this. For all stations in the north and east of the country between -10% and -38 % of the average precipitation was reported at the beginning of the rain season. During this period, the southern parts of the country received normal or moderately above average rainfall. At the beginning of December precipitation exceeded the long term mean precipitation. Figure 5 shows the cumulative seasonal rainfall starting from September 2010 for Phuthiatsana station (Berea district). Stations in the three northern districts

Table 5: Total precipitation for Lesotho measured at various stations in October

STATION NAME	Monthly Total (mm)			Number of Rain Days		Highest Precipitation (mm) 24-Hrs			Highest monthly since 1970	% age Depart. normal
	2010	Highest	Normal	2010	Average	2010	Date	Highest		
Phuthiatsana	56.6	256.0	66.2	4	6	27.0	23 <sup>rd</sup>	50.0	92.0	-14.5
Butha-Buthe	71.4	252.2	79.5	8	8	40.0	23 <sup>rd</sup>	74.9	125.9	-10.1
Oxbow	99.5	309.9	130.7	7	12	61.4		58.0	126.1	-23.9
Leribe	51.2	232.0	66.8	8	8	42.0	23 <sup>rd</sup>	69.1	83.1	-23.3
Mafeteng	39.4	207.5	59.4	6	6	18.3	13 <sup>th</sup>	45.9	83.8	-33.7
Mejametalana	39.6	168.4	64.1	6	7	25.2	13 <sup>th</sup>	40.0	63.5	-38.2
Moshoeshoe I	54.7	175.0	76.1	5	10	32.0	13 <sup>th</sup>	44.0	56.3	-28.1
Mohale's Hoek	47.3	213.4	65.2	5	6	24.4	13 <sup>th</sup>	46.8	93.1	-27.4
Mokhotlong	56.9	173.0	64.6	7	9	19.9	23 <sup>rd</sup>	76.8	65.2	-11.9
Qacha's Nek	89.3	213.6	68.9	6	9	47.3	13 <sup>th</sup>	89.0	55.0	29.5
Quthing	80.7	173.4	66.9	5	7	35.0	13 <sup>th</sup>	71.1	80.7	20.7
Thaba-Tseka	53.0	201.4	74.0	9	10	20.0	13 <sup>th</sup>	46.0	58.0	-28.4
Semonkong	83.8	139.5	60.0	8	8	37.6	13 <sup>th</sup>	40.4	100.1	39.7

Table 6: Total precipitation for Lesotho measured at various stations in December

STATION NAME	Monthly Total (mm)			Number of Rain Days		Highest Precipitation (mm) 24-Hrs			Highest monthly Since 1970	% age Depart. normal
	2010	Highest	Normal	2010	Average	2010	Date	Highest		
Phuthiatsana	222.9	272.5	88.2	13	10	47.2	31 <sup>st</sup>	46.8		152.7
Butha-Buthe	324.6	383.4	118.3	18	12	64.4	15 <sup>th</sup>	142.2		174.4
Mafeteng	159.4	352.0	83.5	13	8	37.0	14 <sup>th</sup>	102.0		90.9
Mejametalana	202.8	224.0	85.6	16	10	51.0	12 <sup>th</sup>	76.7		136.9
Moshoeshoe I	280.1	213.5	95.2	15	13	58.0	12 <sup>th</sup>	54.0		194.2
Mohale's Hoek	139.7	326.6	96.3	15	8	23.5	2 <sup>nd</sup>	79.0		45.1
Mokhotlong	146.9	176.7	94.0	18	12	27.7	12 <sup>th</sup>	43.0		56.3
Qacha's Nek	181.9	333.5	136.2	17	12	48.6	20 <sup>th</sup>	91.7		33.6
Quthing	233.9	351.5	109.9	15	10	65.0	30 <sup>th</sup>	90.2		112.8
Thaba-Tseka	226.1	278.8	100.1	19	13	40.0	14 <sup>th</sup>	47.0		125.9
Semonkong	188.3	199.0	88.0	16	11	36.0	20 <sup>th</sup>	57.5		114.0

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Table 7: Total precipitation for Lesotho measured at various stations in January

STATION NAME	Monthly Total (mm)			Number of Rain Days		Highest Precipitation (mm)		24-Hrs Highest	Highest monthly Since 1970	% age Depart. normal
	2011	Highest	Normal	2010	Average	2010	Date			
Phuthiatsana	424.2	342.9	123.0	21	10	59.2	31 <sup>st</sup>	59.5		244.9
Butha-Buthe	333.4	428.4	134.7	18	12	44.2	31 <sup>st</sup>	142.2		147.5
Mafeteng	242.1	328.0	114.2	15	8	50.3	25 <sup>th</sup>	102.0		112.0
Mejamentalana	247.9	330.2	113.7	17	10	49.5	25 <sup>th</sup>	96.3		118.0
Moshoeshoe I	307.0	331.5	116.6	17	13	57.0	25 <sup>th</sup>	82.6		163.3
Mohale's Hoek	164.6	405.1	108.4	17	8	22.0	23 <sup>rd</sup>	79.0		51.8
Mokhotlong	193.0	262.6	104.4	19	12	25.7	14 <sup>th</sup>	43.0		84.9
Qacha's Nek	168.0	300.7	156.0	18	12	25.9	9 <sup>th</sup>	91.7		7.7
Quthing	172.2	500.6	113.9	18	10	27.5	10 <sup>th</sup>	90.2		51.2
Thaba-Tseka	191.3	237.5	102.9	21	13	30.5	25 <sup>th</sup>	61.0		85.9
Semonkong	246.7	242.9	87.9	20	11	27.0	23 <sup>rd</sup>	57.5		180.7

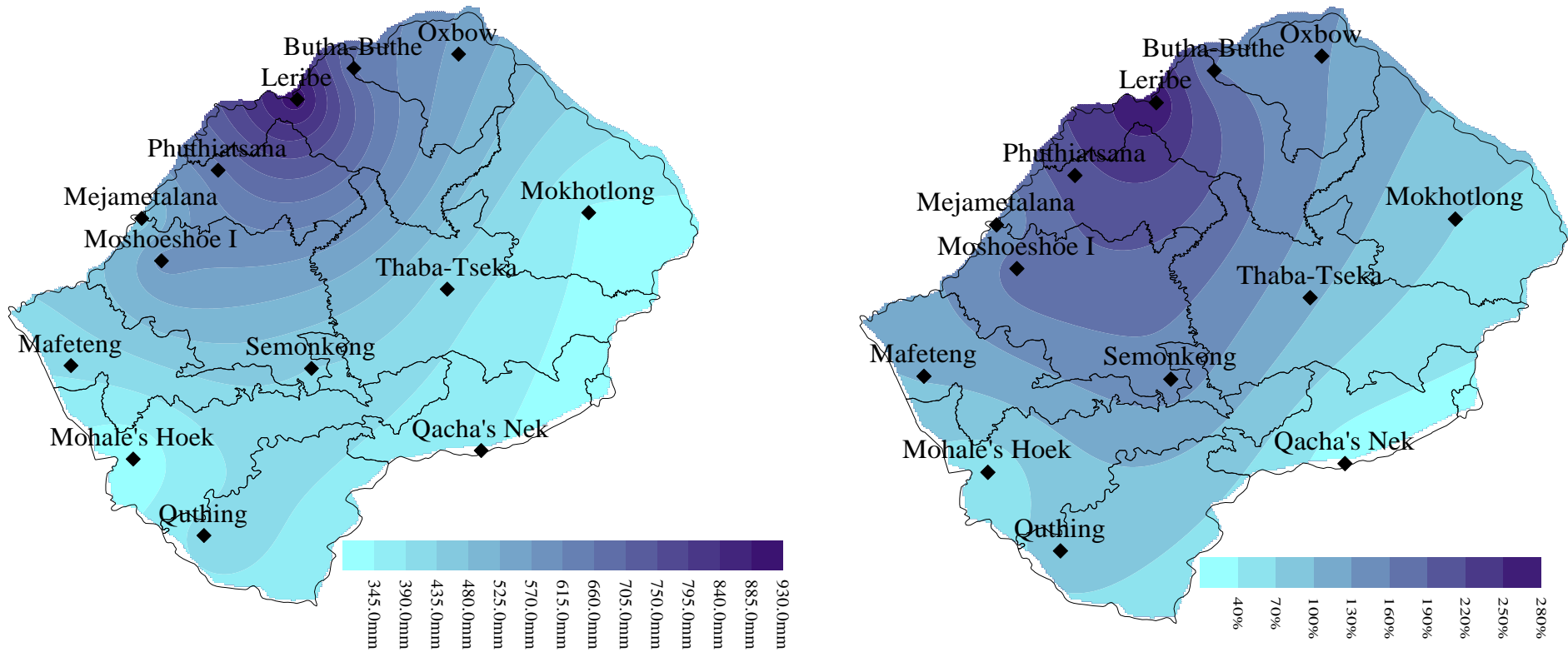


Figure 3: (left) December 2010 and January 2011 departure from normal rainfall (sum of December 2010 and January 2011 rainfall); (right) actual rainfall total of December 2010 and January 2011 (01.12.2010 – 31.01.2011); *Source*: France Mokoena, Lesotho Meteorological Services (LMS)

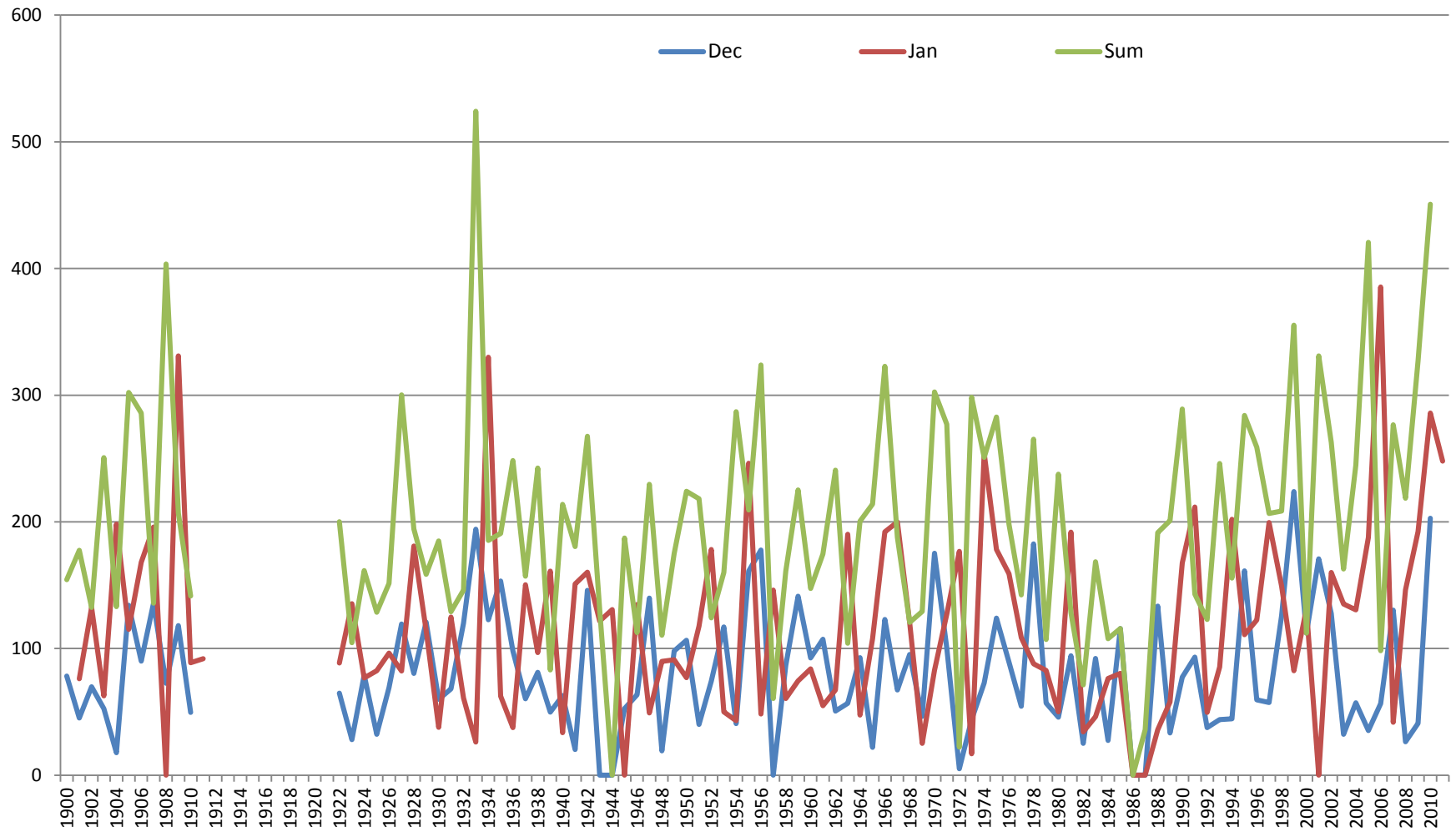


Figure 4: Total precipitation for December and January months as well as their sum (December +January) reported at Mejametalana since 1900;  
 Source: France Mokoena, Lesotho Meteorological Service (LMS)

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reported rainfall between 150% and 200% above the normal December levels. At Moshoeshoe II station (Maseru international airport), the highest monthly precipitation in history was reported with 280mm (long term mean 95 mm). In January a new precipitation record of 424.2 mm was set at Phuthiatsa station (Berea district; long term mean 123 mm). At the same time, recorded precipitation in some of the southern stations remained just above average, e.g. Qacha's Neck with 33% above in December and only 7% above in January. Figure 4 shows the distribution of rainfall in Lesotho (cumulative from December 2010 and January 2011). While precipitation was above average in December and January in most parts of the northern lowlands, similar and even higher monthly rainfalls have been recorded in the past. However, cumulative rainfall of December 2010 and January 2011 was the highest reported since 1933. Figure 5 illustrates this for Mejametalana station (Maseru district).

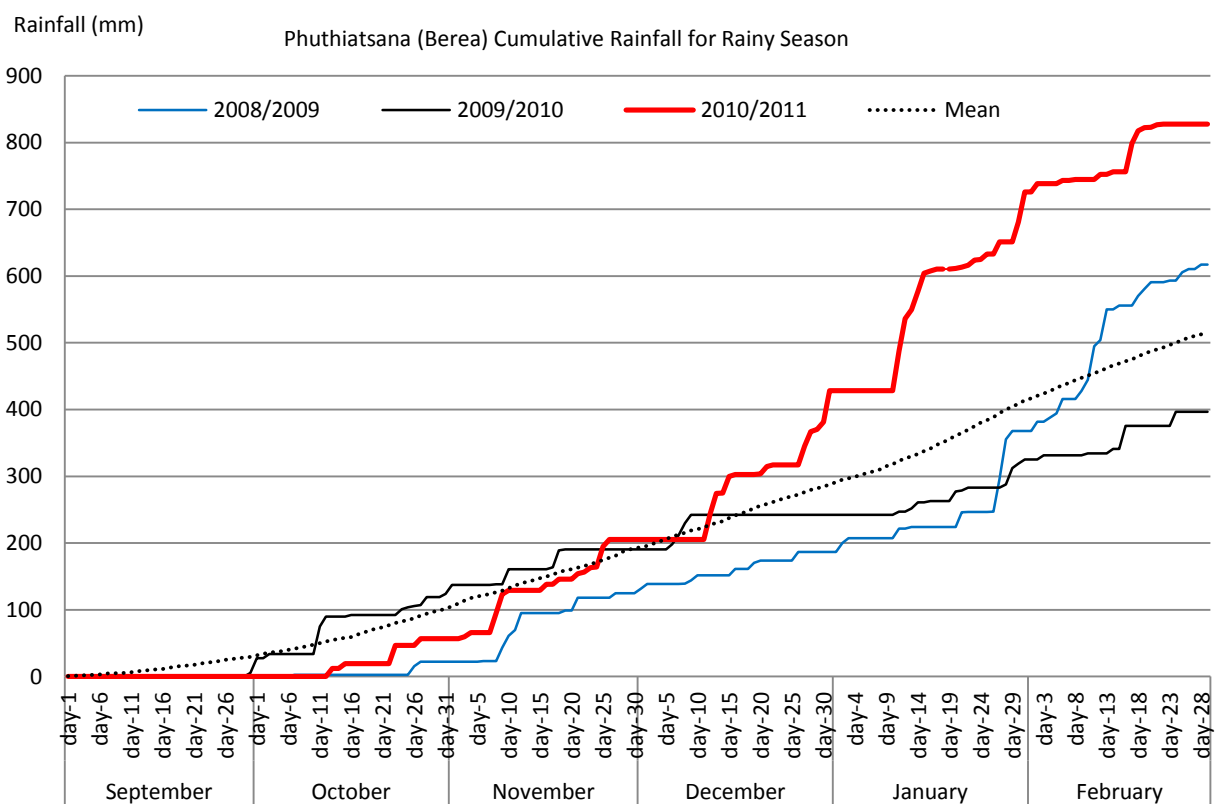


Figure 5: Cumulative rainfall from September 2010 to February 2011 at Phuthiatsana station (Berea district), compared to the previous two years and the long term mean; *Source:* France Mokoena, Lesotho Meteorological Services (LMS), 2011

### Storm and hail

Strong winds and localized hailstorms are common phenomena during the summer rain period in Lesotho. Several Community Councils reported severe damage caused through storm and hail to the Disaster Management Authority. In several villages roofs were blown off, and hail storms had a severe impact on agricultural crops and damaged windows. The current weather station network in Lesotho doesn't cover wind speed and direction, or hail intensities throughout the country.

However, LMS has a record of issued storm warnings, which were issued for December 2, December 15 and January 28.

### **Impact**

The late onset of the rains, with high rainfall (up to 245% above average), and particularly their long duration, had a severe impact in Lesotho. It led to saturated soils, rapid run-off from hill slopes, high water levels in the Caledon and Senqu rivers and its tributaries, as well as localized rockslides.

The following sectors were affected:

- **Agriculture:** Maize plants, the major rain fed staple crop, received high amounts of rainfall at a small growing stage, with saturated soils further hampering growth. Several fields in river beds were washed away, and hail storms locally had an impact on the crop.
- **Transport:** Rapid run-off from hill slopes, and high water levels in the larger rivers and their tributaries, washed away several bridges, damaged passages and culverts, and affected many primary, secondary and tertiary roads.
- **Housing:** Intensive rainfall, run-off from hill slopes, sedimentation and water pounding on the small terraces where houses are constructed, weakened and consequently destroyed several mud houses. Additionally, houses built in river beds got washed away. Those located on and near hill slopes were damaged and destroyed by several rock slides. Strong winds blew several roofs off, particularly of weakly constructed houses in Mafeteng, Berea and Leribe districts.

### **1.4 The humanitarian response**

The *Lesotho Vulnerability Assessment Committee (LVAC)* estimated that a total population of 580,000 people (28% of total population), was affected by the impact of the heavy rains. This estimate was based on only two assumptions: (i) 34% of crops planted were destroyed (estimate from the rapid assessment conducted in January); and (ii) a 3% increase in the price of staple food.

Following the floods a nation-wide rapid assessment coordinated by DMA was conducted in January 2011. The assessment report revealed the impact of the heavy rains on agriculture and food security, on health and nutrition, on water and sanitation and on transport and housing infrastructure.

The national emergency response and contingency plans developed in February 2011 estimated a total resource requirement of M670,208,862.20, (US\$97,131,719) to address the immediate and medium term impact of the heavy rains. In order to fund the emergency response and contingency plan, the government planned a round table discussion with donors in Lesotho. However, this did not take place. In response to the floods the UN mobilized a total US\$1,350,000, to support affected households with agricultural inputs, medical supplies, food assistance and safe drinking water. The Lesotho Red Cross Society (LRCS) mobilized Non-Food Items (NFI) worth M691,862 (CHF89,880).

### SECTION 2 POST DIASTER NEEDS ASSESSMENT (PDNA)

#### Post Disaster Needs Assessment

After the humanitarian relief effort, recovery and reconstruction needs follow. The PDNA is a first building block in the planning process towards recovery and reconstruction. The assessment is a government-led exercise, coordinated by DMA and supported by the European Union, the United Nations and the World Bank to establish a coordinated and credible basis for recovery and reconstruction planning that incorporates risk reduction measures, financing plans and systemic links into sustainable development.

#### 2.1 The PDNA methodology

The PDNA uses two tools: the 'Damage and Loss Assessment' (DALA) and the 'Human Recovery Needs Assessment' (HRNA). The DALA is quantitative in nature and is used to value damages and the subsequent economic losses arising from the floods and highlights possible consequences on the growth of the national economy, on the external sector and fiscal balances, as well as the impacts due to the decline of incomes and livelihoods of households or individuals. The HRNA also generates quantitative data as needed but focuses on the human and social impact of disasters, analyzing how disasters affect personal and community livelihoods, access to services, rights, protection and risk reduction mechanisms. The results are then captured in a Recovery Framework that summarizes the recovery recommendations from the sector assessments identified through the PDNA. It outlines the short, medium and longer term risk reduction priorities for the country's recovery. Working under the leadership of the DMA, the objectives of the PDNA are to:

- Estimate the overall impact of the rains on the socio-economic development of Lesotho and affected areas and communities;
- Assess the damages and losses of services in the social, productive and infrastructure sectors;
- Assess human and community-based recovery needs;
- Assess priority needs for early recovery;
- Develop a strategy for early, medium and long-term recovery and reconstruction, including the costing of identified needs in all key sectors of the economy;
- Develop a strategy to integrate longer term risk reduction programs into recovery and reconstruction activities; and,
- Redefine the national Disaster Risk Management Strategy.

The PDNA started with the training of some 70 key government, civil society and partner organization individuals in the PDNA methodology, followed by the establishment of several sector teams to carry out field level assessments and impact and needs analysis:



Social	Productive	Infrastructure	Cross-cutting
Education	Agriculture	Housing	Social Protection
Health	Commerce and Industry	Transport	Environment
Nutrition		Water and Sanitation	Disaster Risk Reduction
		Energy	Gender (mainstreamed)
		Telecommunication	HIV/AIDS

**Box 3: Damage and Loss Assessment – Methodology and Definitions**

The Post-Disaster Needs Assessment (PDNA) makes use of a Damage and Loss Assessment (DaLA) methodology. The DaLA methodology is based on the ECLAC methodology for disaster assessment, developed in the 1970s. It has continuously been simplified and expanded for use in different areas of the world. DaLA bases the assessment of disaster impacts on the overall economy of the affected country as well as on the household level. This provides a basis for defining the needs for recovery and reconstruction following any disaster. DaLA estimates:

1. **Damage** as the replacement value of totally or partially destroyed physical assets that must be included in the reconstruction program;
2. **Losses** in the flows of the economy that arise from the temporary absence of the damaged assets;
3. The resulting **impact** on post disaster economic performance, with special reference to economic growth, the fiscal position and the balance of payments, as well as on personal and household level.

**2.2 PDNA outputs**

The final PDNA document, approved and owned by the GoL, has a number of potential functions:

- Firstly, it provides a real opportunity for the integration of disaster risk reduction into national development planning initiatives and the mainstreaming of risk reduction strategies into all national development activities.
- Secondly, the PDNA comes at an opportune moment as the GoL, through the Ministry of Finance and Development Planning, is preparing the new National Development Plan. This disaster illustrates the actual and potential impacts of disasters on national economic and development plans and how the implementation of risk reduction and mitigation measures can minimize their effects.
- Thirdly, the PDNA is also a credible instrument for the possible reprioritization of government resources as a result of the disaster, and for fund mobilization amongst development partners.

**Summary of damages and losses**

The total effects of the disaster caused by the December 2010 to January 2011 rains and floods in Lesotho have been estimated – using the damage and loss assessment methodology – to be

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M462.7 million, equivalent to US\$67.1 million (table 8). This amount is equivalent to about 3.2% of the country's gross domestic product in 2010, which is a reflection of the relatively limited magnitude of the flood disaster when measured at the level of the overall national economy.

Table 8: Summary of damage and losses caused by the flood disaster in Lesotho (Source: Estimations of the Assessment Team)

Sector	Sub-Sector	Disaster Effects, Lesotho Maloti (thousand)		
		Damage	Losses	Total
<b>Social</b>		<b>51,139.3</b>	<b>7,355.8</b>	<b>58,495.2</b>
	Housing	22,374.1	2,802.7	25,176.8
	Health	481.4	3,959.8	4,441.2
	Education	28,283.8	593.3	28,877.2
<b>Productive</b>		<b>69,474.9</b>	<b>153,864.0</b>	<b>223,338.8</b>
	Agriculture	5,628.0	103,579.4	109,207.4
	Livestock	44,808.3	29,815.5	74,623.8
	Commerce	19,038.5	20,469.0	39,507.6
<b>Infrastructure</b>		<b>120,468.9</b>	<b>60,395.2</b>	<b>180,864.1</b>
	Transport	80,324.5	57,367.5	137,692.0
	Communications	750.0	13.3	763.3
	Electricity	1,522.8	125.3	1,648.1
	Water and sanitation	37,871.6	2,889.1	40,760.8
<b>Total</b>		<b>241,083.2</b>	<b>221,615.0</b>	<b>462,698.1</b>

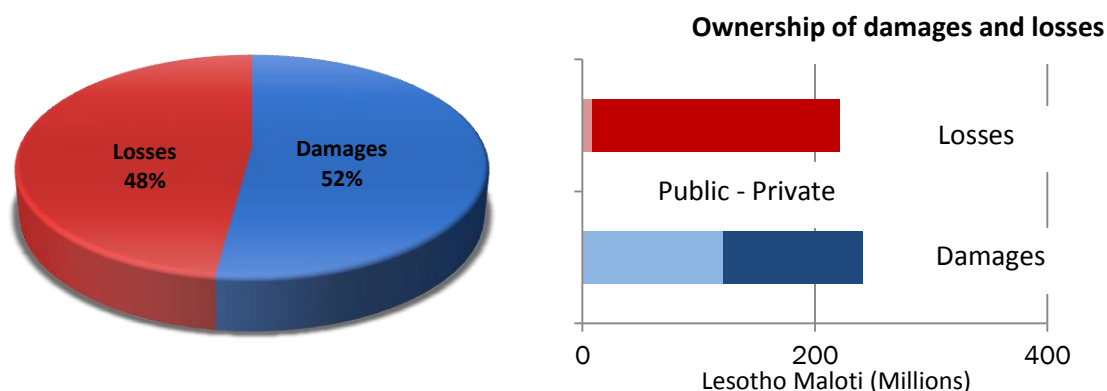


Figure 6: (left) Distribution of damages versus losses; (right) Distribution of ownership of damages and losses (public / private)

### Distribution of the Disaster Damages and Losses between Public and Private Sector

The amount of disaster effects may be broken down into M241.1 million that represent the value of destroyed fixed physical assets in all sectors of economic activity (52% of total effects), and M221.6 million that reflect the associated decline in production of goods and services and an increase in costs of access to services by the affected population (48% of total effects).

The disaster effects are equivalent to 3.2% of *Gross Domestic Product* (GDP).The value of destroyed assets is equivalent to 5.1% of the amount of *Gross Fixed Capital Formation* in the country as measured in 2010, and the value of losses in production is equivalent to less than 1.5% of GDP in that same year.

The ownership of disaster effects is shared by the public and private sectors. In the case of destroyed assets, the split is nearly even between those that belong to the public sector administration and those that belong to private persons and enterprises. However, nearly 90% of production losses and higher costs of services fall in the domain of private individuals and enterprises (figure 7).

**Distribution of the damages and losses within main sector of activities**

Infrastructure works and services sustained the highest value of damage (M120.5 million), followed by productive sectors (M69.5 million) and by social sectors (M51.1 million). In terms of production losses and higher costs, the productive sectors were the most affected (M153.9 million), followed by infrastructure (M60.4 million), and by social sectors (M7.4 million).

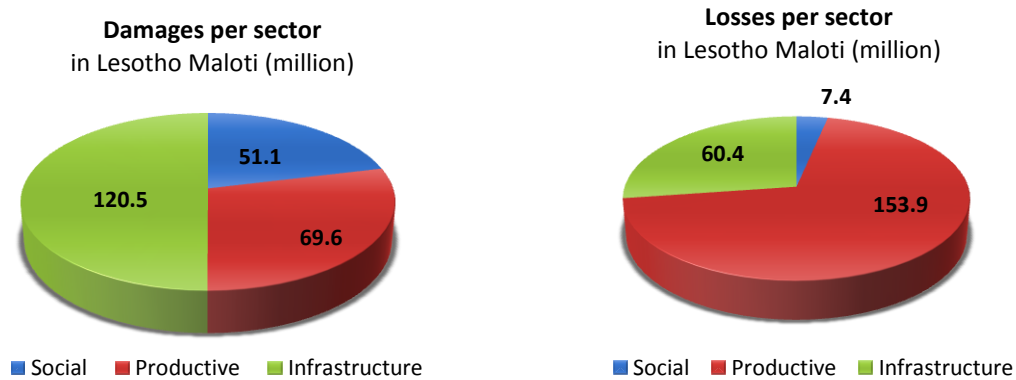


Figure 7: (left) Distribution of damages for different sectors; (right) Distribution of losses for different sectors

**Distribution of the damages and losses within individual sectors**

When breaking down the effects of the floods disaster by individual sectors of economic activity, it is worth pointing out that road transport sustained the highest value of damage (M80.3 million), followed by livestock (M44.8 million), water sanitation and hygiene (M40.8 million), education (M28.3 million), and housing (M22.4 million). Considering losses in production and higher cost of services, the agriculture sector (crops) was most affected (M103.6 million), followed by road transport (M57.4 million), agriculture (livestock) (M29.8 million) and commerce (M20.5 million).

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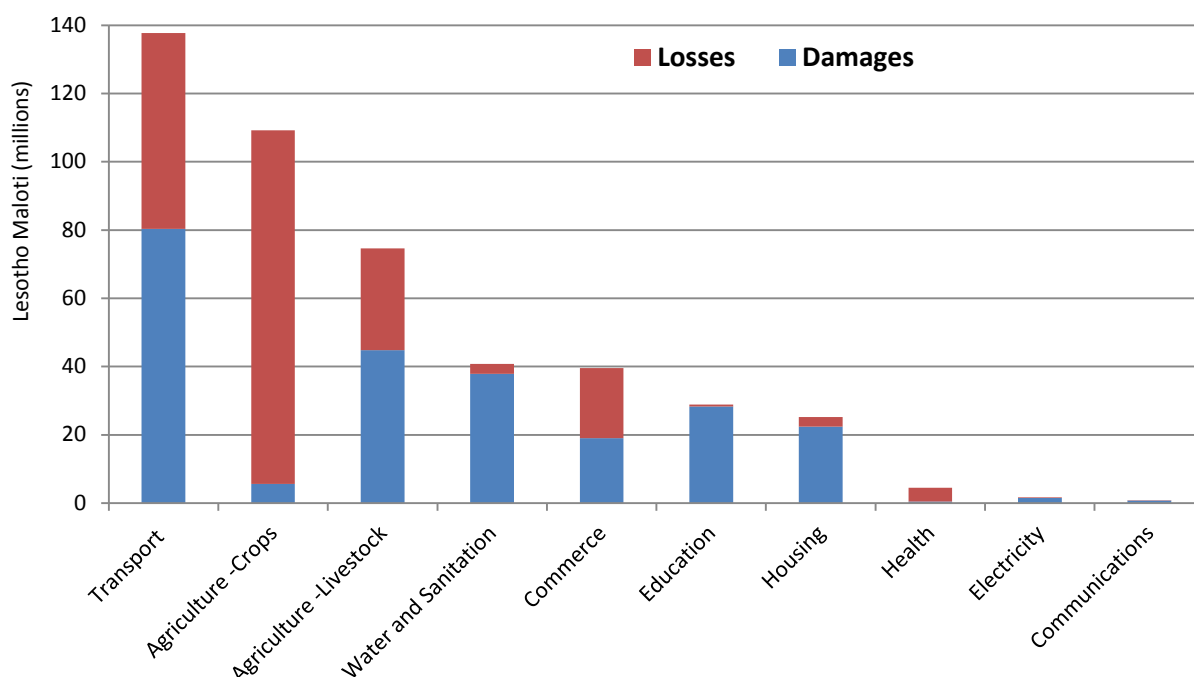


Figure 8: Disaster effects (damages and losses) for different sectors

### Distribution of the damages and losses by district

The spatial distribution of damage and losses was not even; some districts were more affected than others, as may be observed in table 8. Maseru District sustained the highest value of damage or asset destruction (M79.6 million), followed by Mokhotlong (M41.8 million), Botha Bothe (M24.7 million), Leribe (M23.8 million) and Berea (M23.4 million). In terms of production losses, most affected were Mokhotlong (M41.5 million), followed by Leribe (M32.3 million) and Maseru (M31.2 million).

Table 9: Damage and losses by affected district (*Source: Estimations by Assessment Team*)

District	Disaster effects, Lesotho Maloti (million)		
	Damage	Losses	Total
Maseru	79.6	31.2	110.8
Mokhotlong	41.8	41.5	83.3
Leribe	23.8	32.3	56.1
Berea	23.4	23.7	47.1
Botha Bothe	24.7	20.3	45.0
Thaba Tseka	16.2	25.9	42.1
Quthing	16.3	15.5	31.8
Mohale's Hoek	7.9	10.2	18.1
Mafeteng	4.9	6.2	11.1
Qacha's Nek	1.9	8.3	10.2

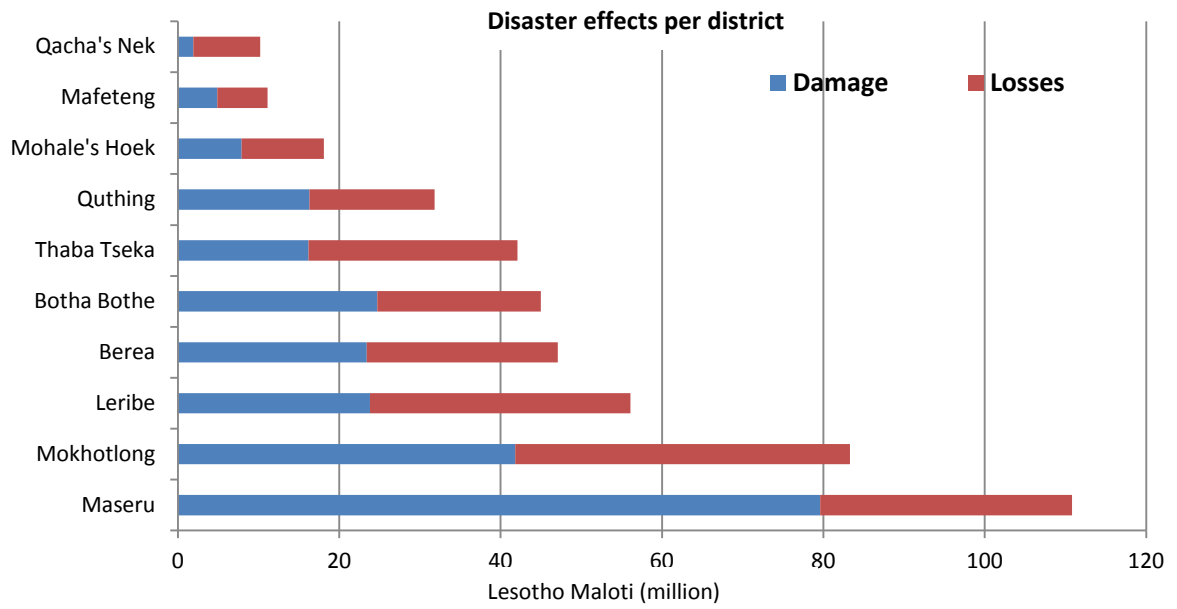


Figure 9: Disaster effects per district

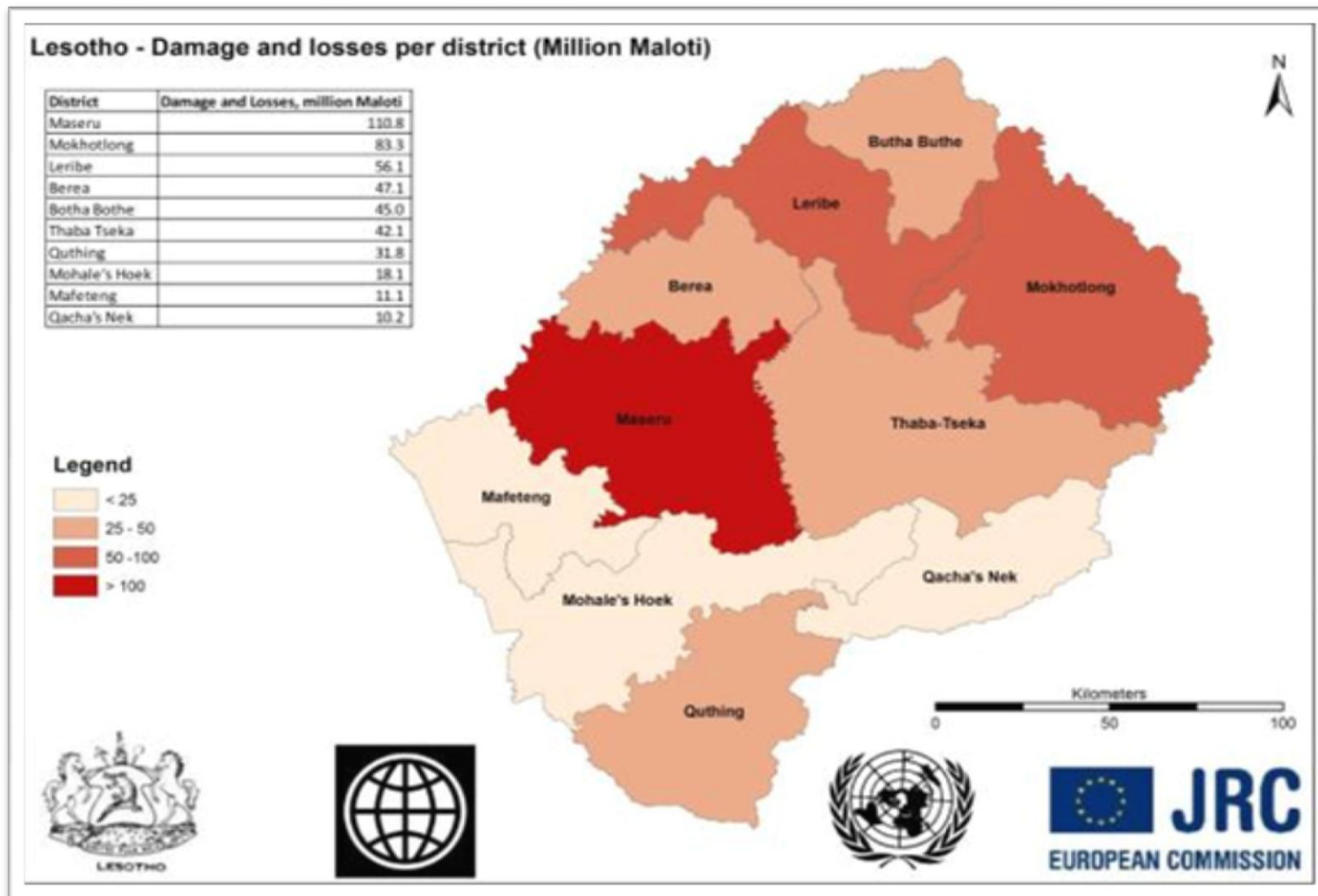


Figure 10: Spatial distribution of damages and losses (per district, in Lesotho Maloti (million)).

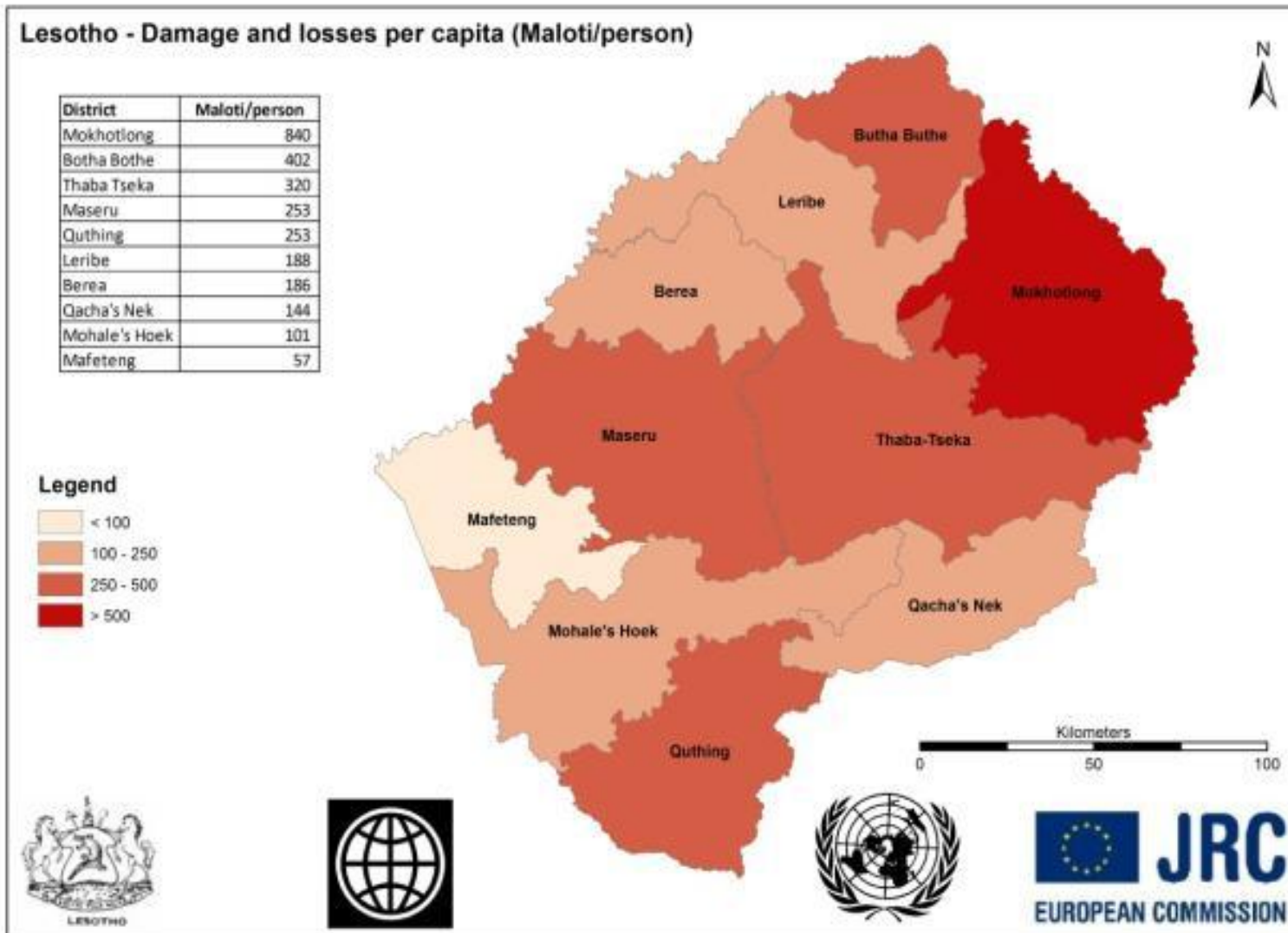


Figure 11: Spatial distribution of per capita damage and losses caused by the heavy rains

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Table 10: Overview of damage and losses, specified for ownership, sector and sub-sector

Sector Sub-Sector	Damage			Losses			Total Damage and Losses		
	Value	Ownership		Value	Ownership		Value	Ownership	
		Public	Private		Public	Private		Public	Private
in Lesotho Maloti (million)									
<b>Social</b>	<b>51,139.3</b>	<b>908.5</b>	<b>50,230.8</b>	<b>7,355.8</b>	<b>5,195.8</b>	<b>2,160.1</b>	<b>58,495.2</b>	<b>5,677.2</b>	<b>52,390.9</b>
Housing	22,374.1	-	22,374.1	2,802.7	642.6	2,160.1	25,176.8	642.6	24,534.2
Health	481.4	481.4	-	3,959.8	3,959.8	-	4,441.2	4,441.2	-
Education	28,283.8	427.1	27,856.7	593.3	593.3	-	28,877.2	593.3	27,856.7
<b>Productive</b>	<b>69,474.9</b>	<b>-</b>	<b>69,474.9</b>	<b>153,864.0</b>	<b>-</b>	<b>153,864.0</b>	<b>223,338.8</b>	<b>-</b>	<b>223,338.8</b>
Agriculture (Crops)	5,628.0	-	5,628.0	103,579.4	-	103,579.4	109,207.4	-	109,207.4
Agriculture (Livestock)	44,808.3	-	44,808.3	29,815.5	-	29,815.5	74,623.8	-	74,623.8
Commerce and Industry	19,038.5	-	19,038.5	20,469.0	-	20,469.0	39,507.6	-	39,507.6
<b>Infrastructure</b>	<b>120,468.9</b>	<b>120,068.9</b>	<b>400.0</b>	<b>60,395.2</b>	<b>3,014.4</b>	<b>57,367.5</b>	<b>108,864.1</b>	<b>123,096.7</b>	<b>57,767.5</b>
Transport	80,324.5	80,324.5	-	57,367.5	-	57,367.5	137,692.0	80,324.5	57,367.5
Communication	750.0	350.0	400.0	13.3	-	-	763.3	363.3	400.0
Electricity	1,522.8	1,522.8	-	125.3	125.3	-	1,648.1	1,648.1	-
Water and Sanitation	37,871.6	37,871.6	-	2,889.1	2,889.1	-	40,760.8	40,760.8	-
<b>Total</b>	<b>241,083.2</b>	<b>120,977.5</b>	<b>120,105.7</b>	<b>221,615.0</b>	<b>8,210.2</b>	<b>213,391.5</b>	<b>462,698.1</b>	<b>128,773.8</b>	<b>333,497.2</b>

### Distribution of the damages and losses per capita

Per capita average damage and losses caused by the floods was found to be M240 per person, or its equivalent of US\$ 34 per person. Average values of per capita damage and losses varied among the Districts since the population is unevenly distributed in spatial terms, as shown below.

Table 11: Per capita damage and losses by affected district

District	Per capita disaster effects, Lesotho Maloti/ person		
	Damage	Losses	Total
Maseru	182	71	253
Mokhotlong	422	419	840
Leribe	80	108	188
Berea	92	93	186
Botha Bothe	221	181	402
Thaba Tseka	123	196	320
Quthing	129	123	253
Mohale's Hoek	44	57	101
Mafeteng	25	32	57
Qacha's Nek	26	118	144

Figure 11 shows the spatial distribution of the average per capita damage and losses in the affected districts, where it may be observed that Mokhotlong was by far the district with the highest total value (M840 per person) followed by Botha Bothe (M402 per person), Thaba Tseka (M320 per person), Maseru and Quthing (M253 per person).

The above per capita damage and loss figures by district were used in combination with the most recent values of the Human Development Index (HDI), developed by the UNDP.<sup>6</sup> The higher values

<sup>6</sup> See *National Human Development Report, Lesotho – 2006*, United Nations Development Program (UNDP).



of damage and losses per capita caused by the floods disaster occurred in districts with the lowest values on the human development index. Or, to put it differently, in the Lesotho floods disaster persons and families having the highest vulnerability sustained the highest damage and losses (See table 12 below). This can be observed clearly in the case of the Mokhotlong district. It has the lowest value of HDI (0.420) and sustained the highest per capita damage and losses (M840 per person). See figure 12 for a graph that plots HDI versus per capita damage and losses by affected district.

Table 12: Average values of damage and losses per capita and of Human Development Index in affected districts

District	Damage and losses per capita, Lesotho Maloti/ Person	Human Development Index, 2006
Mokhotlong	840	0.423
Botha Bothe	402	0.460
Thaba Tseka	320	0.463
Maseru	253	0.517
Quthing	253	0.484
Leribe	188	0.496
Berea	186	0.499
Qacha's Nek	144	0.485
Mohale's Hoek	101	0.482
Mafeteng	57	0.497

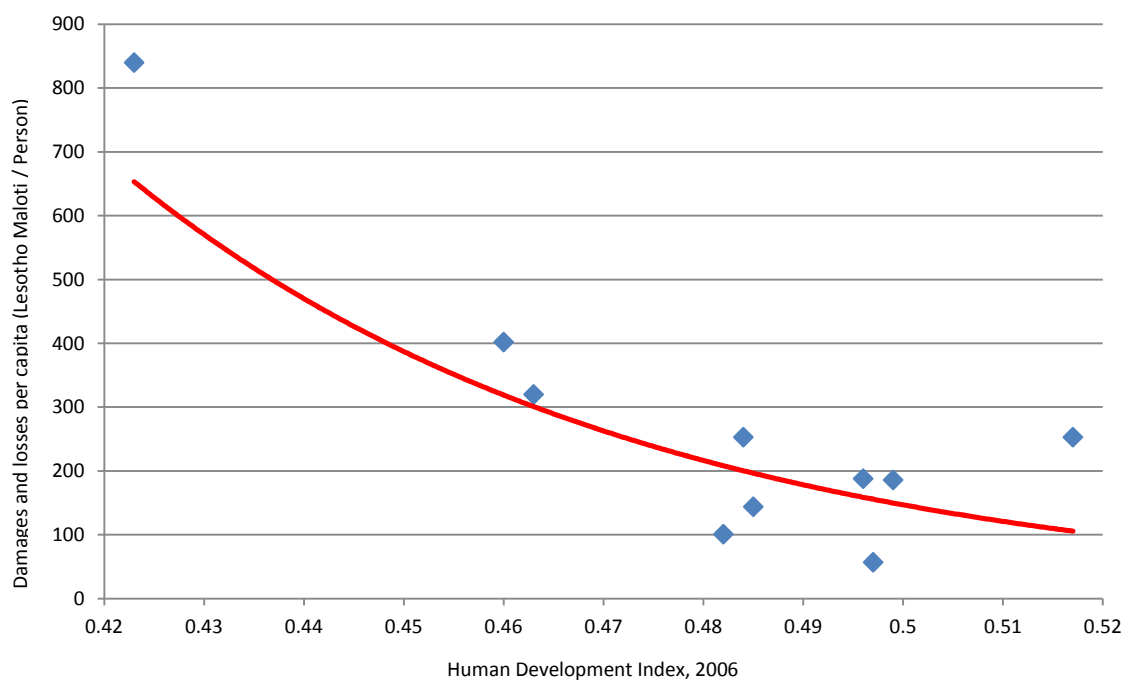


Figure 12: Relation between per capita damage and losses and *Human Development Index*

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### SECTION 3 SECTOR SOCIO-ECONOMIC EFFECTS

The identification of human development recovery and physical reconstruction needs is derived from the socio-economic effects of the disaster on the relevant sectors. The assessment of the effects should help to determine the necessary requirements for a full resilient recovery of human development across the affected sectors, populations and communities. This requires consideration of the impact the loss of access to goods and services had on lives and livelihoods in affected sectors, as well as consideration of the processes, rights and risks relating to support.

#### 3.1 Social sectors

Assessing the impact the disaster had on social sectors is critical: How the heavy rains were experienced in the social sectors will determine the approach to restore livelihood systems, address pressing basic needs and services, undertake reconstruction of damaged infrastructure and build post-flood disaster risk management capacity to enhance resilience against disaster risk. The social sectors covered in this assessment are education and health; the flood impact on nutrition is integrated with agriculture and food security.

##### 3.1.1 Education

Due to flooded streams and rivers, many pupils were not able to access schools, which had a huge impact on the quality of education.

- A total of 45 primary schools were damaged, (44 partially damaged and 1 totally destroyed), affecting a total of about 9,841 children;
- Anecdotal information suggests that a number of secondary schools did sustain both damages and losses but this was not formally reported to the Ministry of Education and Training;

Table 13: Number of schools damaged by district

District	Number of primary schools damaged
Thaba-Tseka	5
Leribe	3 (with 1 totally destroyed)
Mohale's Hoek	4
Mafeteng	2
Maseru	20
Berea	3
Qacha's Nek	2
Quthing	6
TOTAL	45

- A large amount of teaching time was lost across the districts as a result of the need to close schools early with the approach of the rains: Roughly 25-30 days in total per school from November 2010 to March 2011;

- Nutrition levels declined in the catchment areas of several schools as the school feeding program was disrupted (the only or main source of food for many pupils). The destruction of crops resulted in reduced household food security. The World Food Program indicated that they were not able to supply food to 2,225 children during a period of 53 days;
- The few schools used by communities for various activities were damaged or inaccessible. No schools were used as shelters; this is an opportunity to reconstruct school facilities to function as emergency shelters in the future.

### **3.1.2 Health**

The heavy rains did not cause major damage to infrastructure and equipment at hospital and health centre levels. However, access to health facilities and to health supplies and medicines was reduced as a result of disrupted service delivery and damaged facilities.

- Only three health posts (one in Maseru, one in Thaba Tseka and one in Botha Bothe) were destroyed;
- Community access to many facilities was interrupted for up to 20 days. This was due to damaged roads and bridges, the closure of some facilities for almost a month in January, and the inaccessibility of some centers. For example, health personnel stranded on the other side of the river was unable to access the Linakeng Health Centre in Thaba-Tseka, and 16 out of 27 villages that normally access the Matebeng Health Centre (in Qacha's Nek) were unable to reach the centre for a period of three weeks;
- Shortages of medicines including TB and HIV drugs and vaccines for preventable diseases were mainly experienced in facilities located across major rivers without well established bridges such as in Thaba Tseka, Sehonghong, St Theresa and Linakeng. Access was hampered by the flooded Senqu River;
- Basic outpatient and outreach services (such as child immunization, ante-natal care, growth monitoring and HIV testing and counseling), normally provided in communities located far from health centers, could not be provided for two months;
- Drinking water supply sources were contaminated in rural areas.

### **3.1.3 Housing**

The housing sector was substantially affected mainly due to the destruction of weakly constructed mud-brick houses or houses, which were located in vulnerable areas. Mud brick houses are particularly vulnerable to extreme weather events and may require urgent redesign. Across all locations, most people affected were able to stay with relatives or with neighbors in their villages.

- The destruction of mud brick houses as a result of the long period of intensive rainfall in December and January;
- The destruction of houses exposed in river beds flooded by high water levels, such as the Caledon and Senqu Rivers and their major tributaries;
- The blowing off of roofs by strong winds particularly in the Leribe, Berea and Mafeteng Districts, affecting bungalows and rondavels constructed of concrete bricks with poorly attached roofs;

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- Rock slides affecting several houses exposed on the rocky slopes of hills.

The impacts on the housing sector vary from district to district and can be related to many factors, among others resources and construction material locally available.

- The highest number of affected houses were in Berea, Leribe and Botha Bothe, followed by Mafeteng, Mokhotlong, Quthing, and Maseru;
- Thaba Tseka and Qacha's Neck reported few damaged houses;
- In relation to the total number of houses affected, Botha Bothe and Leribe were worst affected with more than 1% of all houses damaged or destroyed;
- In total, between 2,000 and 2,500 houses have been affected (damaged or destroyed) as a result of the heavy rains.

### 3.2 Productive sectors

The productive sector was substantially impacted, of which most impacts were accounted for in the agricultural sector (crop production and livestock) most affected. The impact on the commercial sector was limited, while impacts on the informal trade sector are difficult to quantify. Details on the impact on the informal sector are presented in section 4.

#### 3.2.1 Agriculture, food security and nutrition

Early crop production prospects for the 2010/11 farming season were promising due to steady rains in November 2010. Expectations of high 2010/11 production encouraged aggressive summer cropping and resulted in increased area planted. However, the exceptionally high rains caused the water-logging of most planted fields and the reduction in weeded acreage, which led to field infestation by weeds. Other areas remained fallow because the land could not be cultivated. This led to reduced crop production, loss of soil fertility and reduced crop productivity.

- Nearly 75,000 hectares of crops were lost as a result of the heavy rains and another 800 hectares of agricultural land destroyed.
- Poor rural households did not have the opportunity to earn income through casual labour working in the fields of better-off households, as opposed to normal times.

In most parts of the country, most livestock were in poor condition by the time the rains fell. This, in combination with poor grazing, made the animals susceptible to diseases. Among the diseases reported to have increased were foot rot, black quarter, anaplasmosis, lumpy skin disease and blue tongue.

- The heavy rains partially coincided with the sheep shearing season. The sheared sheep were susceptible to death by exposure due to temperature drops during the prolonged wet spell.
- Over 44,000 livestock died and another 25,000 were reported sick at the time of the assessment. Households had to spend more on veterinary drugs than normally.
- Delays in shearing of wool and mohair, the death of animals due to drowning and the loss of animal products caused a decline in the income for livestock farmers. Furthermore, reduced wool quality will also result in lower prices.

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Production prospects were reduced by the rains and normal income-generating opportunities to enable households to purchase food were also reduced. Consequently greater food insecurity is expected, and a deterioration of the nutritional status of affected individuals. However, this has not emerged as yet as the impacts on the availability of and access to food will only become fully apparent at the time of the next harvest (starting April/May).

### **3.2.2 Commerce and industry**

Physical damages to the commerce sector were minimal as business premises are required to meet basic construction standards in order to be licensed. Affected properties had minor damage to roofs and ceilings and incurred some damage to assets. The main impacts of the floods were in respect of losses to businesses, due to limited supply of goods to business owners, and limited access for buyers to goods and services.

- For a number of days, the Senqu River was impassable at Koma-Koma in the Thaba Tseka District and in the Berea District; access to Mapoteng was highly compromised.
- Price rises resulted from significantly increased transport costs and lower supply in some areas, and in areas which could not be easily accessed by customers; there was a decline in business turnover.
- The decline in business income affected the numerous Basotho traders who mainly operate as Small and Medium Enterprises (SMEs) in the most affected rural areas. Although losses to individual SMEs were small, the recovery impacts are likely to be significant due to poor access to finance.

### **3.3 Infrastructure sector**

The single most affected sector was the transport sector, mainly due to substantial damages on transport infrastructure and losses to public transport and taxi operators and companies. The impact on the water and sanitation sector was mainly related to the disruption of the water supply in Maseru. Electricity, energy and communication sectors were hardly impacted.

#### **3.3.1 Transport**

The transport sector was substantially impacted due to several bridges, river crossings, culverts and others destroyed by the heavy force of fast rising rivers. Due to impacted infrastructure, blocked roads, taxi and bus operators had to travel longer to reach the same locations. The private transport sector had to consequently bear substantial losses.

- Short-term (up to 1.5 days) traffic interruptions occurred in some towns and between urban and rural areas. The Orange River could not be crossed for many days at some locations because the boats used were either insufficient to deal with high river water levels or had deteriorated;
- In the Berea District, vehicular traffic on road B-24 that connects the towns of Mapoteng and Teyateyaneng was effectively cut off when the ensuing floods destroyed two culverts; over 95% of normal traffic had to use an alternative road that is 38.8 kilometers longer; and access to the hospital in Mapoteng was disrupted;

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- Transport owners and operators suffered sales losses. For example, operators in Botha Bothe estimate losses of 50% of their daily collections. Operators had to come up with innovative solutions to remain solvent and to retain drivers during this period.

### 3.3.2 Water and sanitation

Although water supply was disrupted at many locations, the overall impacts can be largely attributed to a disruption and damage to the water supply scheme of Maseru.

- Water supply was disrupted in over 40 places. These were mostly small rural pipelines, where the operation was disrupted following damages affecting boreholes, wells, springs, pump houses, staff gauges, concrete support structures and pipes.
- The total damages and losses are estimated at M40.7 million, of which damages account for M37.8 million caused by direct physical damages on the water supply systems. Direct loss of revenue and additional expenses (such as the trucking of water) contributed to losses of M2.8 million.
- Urban water systems suffered more losses than the rural systems. In Maseru alone, the damages are estimated at M35.5 million, which is about 95% of total damages incurred in urban areas. Total losses in the urban sector amounted to M37.4 million while losses in the rural sector amounted to M3.3 million.
- The losses in sanitation were mainly related to the cost of damaged latrines, which were only M 107,300. Losses for the water component were significantly heavier, at M40.6 million.

### 3.3.3 Electricity/ energy

Only the following minor damages and losses were attributed to the electricity sector.

- Electricity supply was interrupted for brief periods not lasting more than a few hours, as service was restored promptly by LEC crews;
- Post-disaster demand for electricity declined slightly as a limited number of houses that sustained damage were cut off the electricity grid;
- Biomass was exposed to and affected by the heavy rains. Households who depend on this source had to turn to other means of energy supply.

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## SECTION 4 ECONOMIC AND SOCIAL IMPACTS

### 4.1 Macro economic impact

The rains hit Lesotho as its economy was still slowly recovering from the 2008 global economic crisis, and as it was suffering from a 50% drop in SACU revenues, which constitute a major part of government revenues. The damages suffered due to the heavy rains probably reduced GDP growth by 0.5% to 3.1%. Appropriate recovery and reconstruction efforts undertaken by the government could alleviate the effects of the rains and boost the economy, but the cost of these measures would impact the fiscal balance and the balance of payments.

Most severely affected were the agriculture, transport, infrastructure and water sectors. In agriculture, crop production and productivity was greatly reduced. Many livestock were weakened and got sick, and thousands died. Damages to roads directly affected the transport sector, and reduced mobility across the regions. Access to schools and hospitals was cut off, and many people in rural areas could not get to work for days or even weeks.

#### 4.1.1 Pre-disaster economy of Lesotho

Lesotho is a dependent economy, traditionally reliant on subsistence agriculture, migrant remittances, SACU revenues and increasingly, revenues from textiles and clothing exports. These are made possible by a number of international trading agreements, most importantly, the *African Growth and Opportunities Act (AGOA)* with the United States of America.

Real GDP per Capita was about M 5,165.8 (US\$ 645.73). SACU revenues contributed up to 50% of revenue in the past, but have declined to 30% in 2010/11, due to secondary effects of the global economic crisis. For the first time in five years Lesotho is beginning to register fiscal and current account deficits.

Following economic growth driven by investments in Phase 1 of the Lesotho Highlands Water Project in the 1990s and 2000s, growth was influenced by investments in the textile sector and the opening of new diamond mines in the mid-2000s. Both the textile and mining sector experienced a downturn as a result of the economic crisis.

Real GDP growth is expected to slow to 2.2% in 2010/11, but should increase to 4.3% by 2012/13, as the construction of the Metolong Dam and Phase II of the Lesotho Highlands Water Project get underway. Primary industries have grown significantly over the past five years. The mining sector registered high growth from 2006 to 2008 (28.2% and 33.6%), but this came to an abrupt halt in 2008/2009. Growth in the sector is expected to pick up over the coming years. The agriculture sector saw a decline in 2008/09 due to the effects of a severe drought. However, improvements in livestock from 2006 to the end of the decade contributed to good aggregate figures for the sector.

Secondary industries are expected to grow at 4.6% between 2010 and 2014 due to product diversification and increased spending through dam construction. Until 2003, AGOA created opportunities for Lesotho's textile exports and contributed substantially to economic growth, but

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the textile sector saw negative growth from 2008 to 2010. The construction sector registered relatively high growth, mainly due to construction activities related to the Metolong Dam, other government projects, and infrastructure investments funded through the Millennium Challenge Compact (MCC).

Tertiary industry experienced a growth of 4.4% between 2006/07 and 2008/09. This resulted from an increase in telecommunication subscribers, the relaxation of lending practices on the part of financial institutions, and the growth in number of insurance companies. Public administration grew in line with GoL's payroll. The sector is expected to experience modest growth, although in line with GoL's austerity measures, public administration will decline.

Total government revenues increased sharply by 47% between 2006/07 and 2009/10, due to higher SACU revenues (25% increase in 2009/10) and improved tax administration (with increases of 70.5% between 2006/07 and 2009/10). This enabled GoL to increase expenditure by 20.5% during the same period, with the biggest increases recorded in employee compensation and the use of goods and services (98% and 61% respectively). However, high budget surpluses (14.2% of GDP in 2006/07) disappeared and a deficit of 5.2% of GDP was recorded in 2009/2010. The government maintained the recurrent budget below levels of 2009/10 and reduced spending. In the medium term, recurrent expenditure is forecast to increase from M 6,817.1 million to M 8,346.5 million in 2013/14. Total revenue outturn is expected to drop to M 8,906.2 million from M 9,554.7 million recorded in 2009/10. This is attributed to a 50% decline in SACU revenues, and declines in local taxation. Revenue from both sources is expected to improve again.

Grant assistance increased from M 92.4 million to M 693.4 million over the past five years. This was mainly due to the injection of M 513.4 million for projects under the MCC. The grant for 2010/11 will increase by 123%, mainly due to budget support provided by development partners, falling thereafter due to the winding down of MCC projects.

The increase in capital expenditure from M 1,252.1 million in 2006/07 to M 3,450.4 in 2009/10 is mainly attributable to the MCC. M 3,570 million is proposed for capital spending in 2011/2012, which is comprised of government revenue, grants, budget support and external soft loans. This represents a growth of 3.5%, whereas recurrent expenditure is proposed to be reduced by 16%.

The importance of SACU revenues to the Lesotho economy is discussed in box 4. These revenues accounted for 50% of total revenue in the period 2002/03 and 2007/08, followed by significant decreases as a result of the global economic downturn.

Migration to South Africa has always been an important labour absorbing feature of the Lesotho economy. An estimated 32% of the male labour force between the ages of 16 and 65 is comprised of labour migrants to South Africa. Mine migration peaked in 1989/90 with approximately 127,000 Basotho employed in the industry, declining to 42,252 in 2009/10. The importance of migrant remittances to the Lesotho economy is illustrated in the table below.



**Box 4: Implications of overdependence on SACU Revenue**

Domestic revenue averaged 52% of GDP at market prices between 2002/2003 and 2007/2008. This was buoyed by a considerable increase in customs receipts from the SACU revenue pool, which has recorded an annual growth of 22.8% between 2002/2003 and 2007/2008. In the same period, SACU revenue accounted for annual average of about 50% of total revenue, indicating a very strong and heavy dependence of government operations on these receipts. This makes economic fortunes in Lesotho highly vulnerable to events that may affect these receipts.

A good illustration of this sudden change in fortune occurred between 2001/2002 and 2003/2004. SACU receipts increased from M1.4 billion to M2 billion as a result of a huge increase in the demand for intermediate inputs imported for use in the textile industry and when the new SACU revenue formula came into effect.

The slowdown in global economic activity in the USA led to a decline in imports of textiles from Lesotho, which has also reduced imports for raw materials for the textile industry and caused a similar reduction in the SACU revenue pool.

These effects underscore the vulnerability of the SACU revenue pool as the fulcrum on which to erect predictable development financing. It remains, at best, an unstable source of revenue and one on which sustained long-term development cannot be built. The imperative for Lesotho, therefore, is to diversify the sources of revenue in order to reduce its dependence on SACU receipts as a major source of revenue.

Remittances as a percentage of GDP were as high as 29.4%, but are projected to decline further with continued mine retrenchments and the gradual structural transformation of the Lesotho economy.

The impacts of mine migration and the ensuing remittances on the rural landscape cannot be underestimated. The remittances are said to have sustained 40% of rural and 15% of the urban population, with each mine migrant said to have supported between 7 and 9 people.

In the medium term, Lesotho's growth will be driven by private sector development. An improved business environment and infrastructure development, exploiting the opportunities of the rapidly urbanising city of Maseru, will help to position it as a competitive regional node, and the development of commercial agriculture can grow by tapping into strong links to value chains in South Africa. However, the ability of the (mainly rural) poor to benefit from this may be constrained by the high level of income inequality, the low level of literacy and education amongst the rural poor, and by low remittance flows from urban areas.

Significant structural changes need to be made in the agriculture sector and to bring private sector development, utilising Lesotho's relatively well educated human resource base, as well as its proximity to and integration into the South African economy. Without these changes, the country will find it difficult to emerge from its underdeveloped status.

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### 4.1.2 Macro-economic impact of the disaster

#### Impact on economic growth

The heavy rains hit Lesotho when its economy was particularly vulnerable. Macroeconomic conditions deteriorated sharply after 2008, reflecting the adverse impacts of the global economic crisis. Economic growth slowed from 4.7% in 2008 to 2.5% in 2009 due to reduced demand for diamond and textile exports. The recovery since, has been slower than expected. The economy is also reeling from the 50% drop in SACU revenues from previous fiscal year, as a result of declining imports into the Southern African region. SACU revenues accounted for 51% of government revenues in 2009/10, and this decline has resulted in large fiscal and external imbalances, and worsened the near term macroeconomic outlook.

Real GDP growth in 2011 was projected to come in around 3.6%. The losses suffered because of the heavy rains will likely bring this down to 3.1%. Appropriate recovery and reconstruction efforts by the Government could alleviate the effects of the severe weather and boost the economy. In the absence of external support, this will adversely impact the fiscal position and the balance of payments, and overall macroeconomic stability.

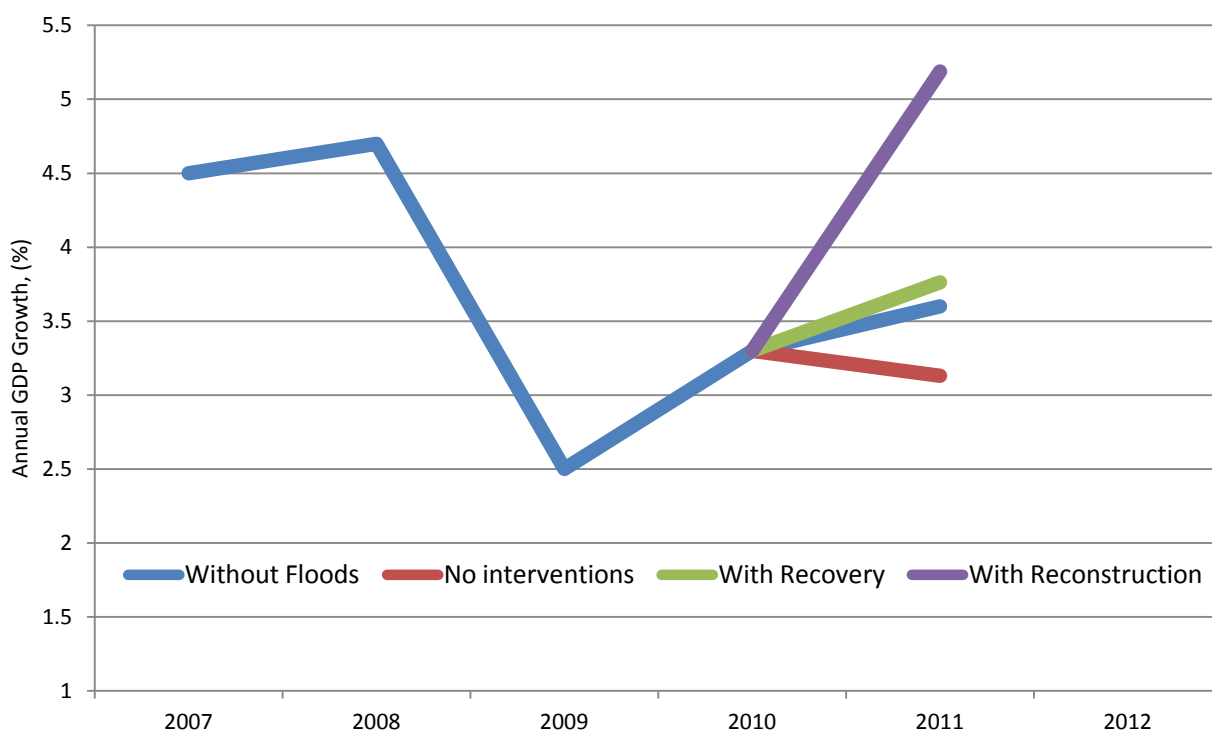


Figure 13: Projected real GDP growth: Impact of 'Recovery' and 'Reconstruction'; (Source: Ministry of Finance and Development Planning, Projections of PDNA Team)

#### Impact on the government's fiscal position

The effects of the large decline in customs (SACU) revenues continue to persist. The Government has embarked on a medium-term program of fiscal consolidation to restore fiscal sustainability,

but was still projecting a deficit of 15% of GDP in 2011/12. There is consequently little room to further increase expenditures.

The immediate impact of the event on fiscal balances is small. Tax revenues are projected to decline by around M3 million in 2011/12, largely related to foregone tax revenues from commerce, as well as fees and revenues collected from infrastructure providers such as the Water and Sewage Company (WASCO). Lost revenues are small as much of the impact in the commercial sector was on the “informal” sector. The Government also increased spending in the aftermath of the heavy rains, most notably for the health sector (M4 million). The lost revenues and additional expenditures would increase the projected deficit for 2011/12 marginally by 0.02% to 15.02%.

The fiscal situation would however be more significantly impacted if the Government were to increase expenditures to undertake necessary recovery and reconstruction efforts. The recovery activities alone will cost M346.7 million. This would increase current expenditures for 2011/12 by around 4% and raise the projected deficit for the year to 16.5% of GDP. If, in addition, reconstruction activities are undertaken as detailed earlier, both capital and current expenditures would increase over their presently budgeted levels by 1% and 0.7% of GDP respectively, and the deficit would increase to a projected 17.5% of GDP, the highest in Lesotho’s history. Government deposits with the Central Bank of Lesotho could partially help finance this deficit, but the Government would need to also borrow from domestic and external markets and increase public debt. A joint assessment by the World Bank and IMF in May 2010 assessed Lesotho to be at a moderate risk of debt distress.

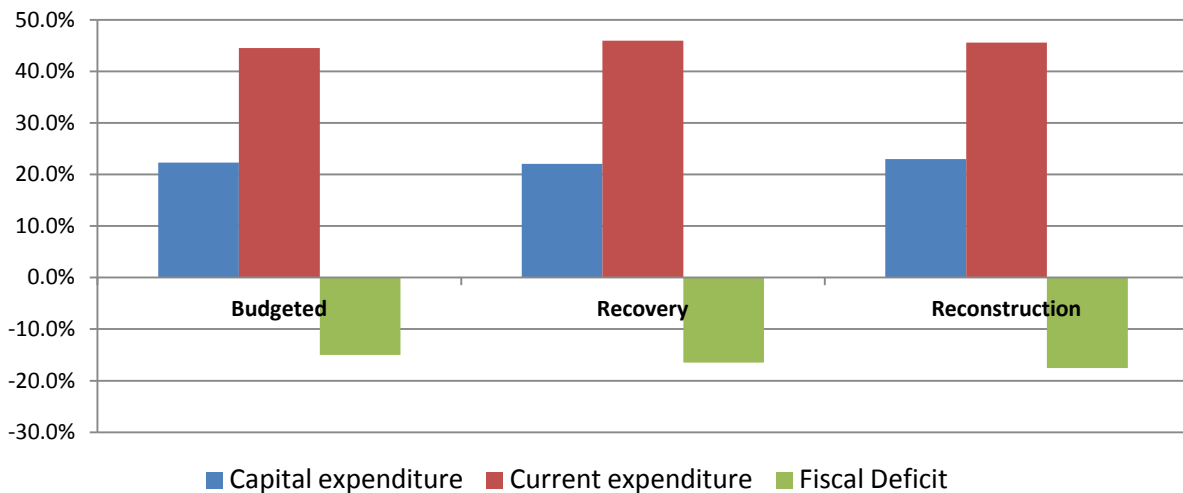


Figure 14: Projected impact of ‘Recovery’ and ‘Reconstruction’ on the fiscal position; (Source: Ministry of Finance and Development Planning, Projections of PDNA Team)

**Impact on the balance of payments**

The global economic crisis also had a significant impact on Lesotho’s Balance of Payments (BoP) position. The garments industry, one of the major export earners, was badly hit and remains weak. Diamond exports were similarly hit, but are recovering. Remittances from mine workers in South

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Africa also declined. The weakening of the trade balance and the steep decline in SACU revenues has adversely affected the external current account position. This is estimated to have worsened from a more or less balanced position in 2009 to a deficit of 16% of GDP in 2010, and even without the heavy rains, was projected to deteriorate further in 2011.

The severe weather event is not likely to significantly impact Lesotho's exports. Textiles account for around 74% of exports and these were not significantly impacted. Although the agricultural sector was more affected, it accounts for only around 1.5% of exports, and even here the effect on exports of livestock are limited.

However, recovery and reconstruction needs are expected to increase the import bill in 2011 and in subsequent years. Recovery interventions, particularly imports of food supplies and livestock, are likely to increase imports by around M 346.7 million, and lead to a worsening of the current account balance of around 1.3 percentage points of GDP to around 24.7% of GDP. Reconstruction of housing, damaged schools and roads will similarly require imports of machinery and equipment and construction material amounting to an estimated M 63.4 million. In the absence of external support, running such a large current account deficit would be difficult for a country in Lesotho's position.

### **4.2 Impact on food security**

While the analyses conducted show a relatively low impact at the macro-economic level as well as a significant reduction in equivalent employment and personal or household income, the true measure of the 2010-2011 summer heavy rains in Lesotho cannot be easily seen yet. What is emerging from the damage, loss and needs assessment, however, is the fact that due to the heavy rains, Lesotho is on the verge of a food security crisis that will only be evident in the second half of 2011 and must be addressed promptly and efficiently.

Lesotho is a very vulnerable country, and one of its main vulnerabilities is the fact that it is not self-sufficient in food production. The country only produces, on average, 30% of the food needs of its population, and the balance must be imported. The food balance sheet for 2009-2010, prepared by the World Food Program (WFP) with the cooperation of the Government of Lesotho, is shown in the table below.

Table 14: Cereal balance sheet for Lesotho, 2009-2010 (Source: World Food Programme WFP)

		Maize (tons)	Wheat (tons)	Sorghum (tons)	Total (tons)
Domestic availability		133,414	44,393	28,730	206,537
	Opening stock as at 1 April 2009	35,379	33,753	648	69,780
	Formal, monitored	29,638	32,880		62,518
	On farms, monitored	5,741	873	648	7,262
	Gross harvest production	98,035	10,640	28,082	136,757
Gross domestic requirements		250,719	82,938	23,764	357,421
	Human consumption	246,402	81,487	23,282	351,171
	Feed, seeds, etcetera	4,317	1,451	482	6,250
Domestic shortfall or surplus		- 117,305	- 38,545	4,966	- 150,884
Total planned imports		140,676	89,494	-	230,170
	Commercial imports	140,676	89,494	-	230,170
	WFP Food Aid	-	-	-	-
	Government aid	-	-	-	-
Uncovered shortfall or import gap		23,371	50,949	4,966	79,286
Current stock level as at 31 April 2010		25,513	31,097	-	56,610

Due to the substantial losses in the 2010-2011 agricultural crop production and in the production of livestock by-products, both caused by the heavy rains, food availability will not be sufficient to cover the needs and demands of the population, especially the demands from farmers in subsistence agriculture. Since summer crops are normally harvested starting April/May of each year, subsistence agriculture farmers have been using their food stocks from the previous season up to now, or have been buying from the market. The summer crop harvest was reduced significantly – from 25% to more than 80% of the normal in many districts – and will result in farming households having to buy food sooner than they would have otherwise. In addition to the above, the drowning of animals and the fact that some animals are sick will result in the loss and/or reduction of income (from the sale of animals and their products), and reduced access to milk, meat and other products consumed by the household.

The following table summarizes the gaps arising from the production losses in both crop production and livestock by-product output caused by the floods, which amounts are over and above the normal level of imports from abroad.

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Table 15: Estimation of food products to be imported from abroad, 2011 – 2012

Product	Production gaps	Estimated Import Value, Lesotho Maloti (million)
Maize	58,700 tons	99.8
Wheat	13,500 tons	22.7
Sorghum	14,000 tons	29.8
Beans	3,400 tons	50.7
Meat	40,000 tons	42.0
Milk	4.1 million liters	32.8
<b>Total</b>		<b>287.8</b>

From the above table, it can be visualized that the production losses in crops and livestock by-products which have an estimated value of M125.8 million – measured at local producer prices – will now cause food imports needs for M287.8 million since they have to be replaced at international market prices.

### 4.3 Impact on income and livelihoods

#### 4.3.1 Impact on livelihoods

This assessment focuses on the impact of the floods on key livelihood strategies of communities in the affected areas, as well as their implications for the wider society. These livelihood strategies mainly ensure income generation but also include mechanisms for adapting to and coping with threats and shocks, as well as those for social capital development and utilization.

In terms of topography, the most affected areas were in the mid-to-upper foothills (Maseru, Beria, Leribe and Botha-Buthe) and the upper-east mountains (Mokhotlong). The major income livelihood strategies in these regions are shown in table 16.

Table 16: Major income livelihood strategies

Livelihood Zone	Wealth group			
	All/Average	Very poor/poor	Middle	Better-off
Foothills	<ul style="list-style-type: none"> <li>• Employment</li> <li>• Remittances</li> <li>• Petty trade</li> <li>• Sale of livestock and products</li> <li>• Self-employment</li> </ul>	<ul style="list-style-type: none"> <li>• Labour –piece jobs</li> <li>• Remittances</li> </ul>	Sale of livestock and products	<ul style="list-style-type: none"> <li>• Sale of livestock and products</li> <li>• Sale of crops</li> <li>• Employment</li> <li>• Remittances</li> </ul>
Mountains	<ul style="list-style-type: none"> <li>• Crop sales</li> <li>• Sales of livestock and products</li> <li>• Employment</li> <li>• Remittances</li> </ul>	<ul style="list-style-type: none"> <li>• Employment</li> <li>• Remittances</li> </ul>	<ul style="list-style-type: none"> <li>• Employment (e.g. factories, locals business enterprises)</li> <li>• Sale of livestock (sheep, goats)</li> </ul>	<ul style="list-style-type: none"> <li>• Livestock sales</li> <li>• Livestock product sales</li> <li>• Crop sales</li> </ul>

Source: LVAC (2006)

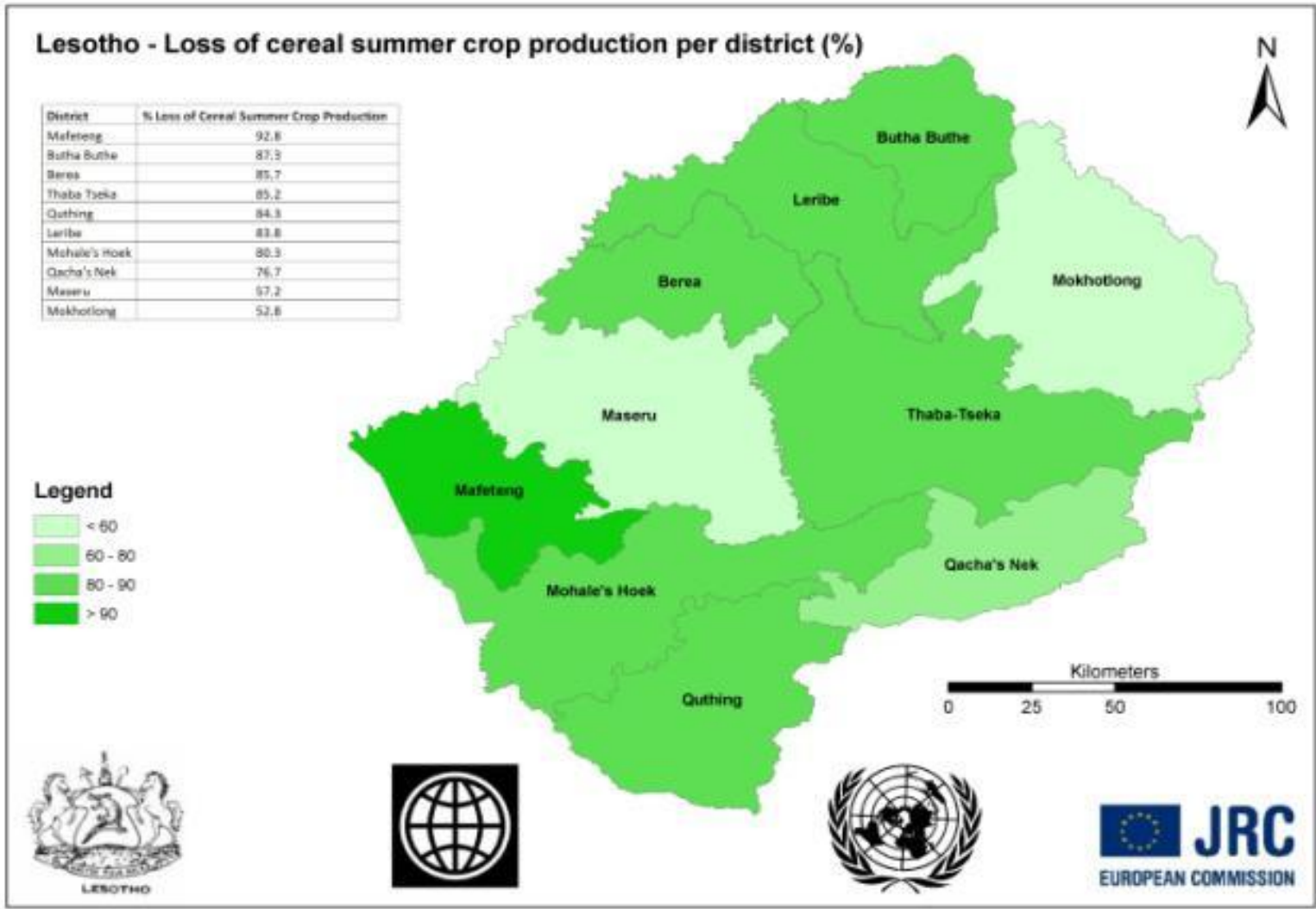


Figure 15: Map showing percentage of cereal production lost with respect to normal production in all affected districts (Source: Estimations by Assessment Team)

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Given the relative irregular (uncommon) occurrence of devastating rainfall of the magnitude experienced last year, most Basotho do not perceive floods as the most significant or prevalent shocks and stresses that negatively impact their livelihoods. Drought is more commonly perceived as a key livelihood threat. Nonetheless, the 2010 heavy rains did impact the livelihoods of those affected. The following impact on livelihoods in the key sectors affected by the flood (road transport and agriculture sectors) was discerned:

### **Road transportation**

The complete or partial destruction of sections of some roads and bridges, and the deterioration of road surface quality resulted in short-term traffic interruption (of up to about two days) between urban and suburban areas, which caused revenue losses for public and private transport operators. For example, in Botha-Bothe, 27 taxis lost revenues of about M30,000 in one day after the destruction of a key bridge. In general, there was little loss of jobs for taxi drivers as owners absorbed reductions in daily revenues to avoid retrenching drivers. Temporary structures were constructed to restore access across flooded rivers, which resulted in casual labour jobs for those employed by construction plant operators in both government and private sector.

### **Agriculture sector**

#### **Crop sub-sector**

The survey estimated that about 9% of the agricultural population of Lesotho was directly affected by the disaster. This corresponds to an estimated 34,053 households (170,265 people) (Lesotho Bureau of Statistics, 2010).

#### **Livestock sub-sector**

Apart from the effects on the wealth and income of livestock owners, the drowning of and other effects on livestock also impacted the livelihood of herd boys and other agents in the livestock value-chain, such as feed providers, those who rent out draught power and implements, and wool and mohair shearers.

### **Opportunities for livelihood enhancement**

There were positive effects as some businesses gained. For example, the PDNA survey found that in some areas foodstuff vendors realized an average 40% increase in sales turnover, as customers no longer had any choice between alternative locations to buy from. In the water sector, there was an increase in income for water sellers delivering potable water in tanks in urban areas. Furthermore, the reconstruction of assets in the housing sector would offer expanded livelihood opportunities for artisans and other operators in the construction sector.

### **4.3.2 Impact in the informal sector**

The small, medium and micro enterprise (SME) sector contributes to significant income and employment opportunities in Lesotho. Recent estimates are that:

- Small businesses comprise 85% of Lesotho's private sector;
- There are some 100,000 SMEs in the country;



- The vast majority are informal;
- The majority employ between 1 and 3 persons; and
- The formal and informal SME sectors jointly employ 200,000 people.

Anecdotal evidence suggested that this sector was significantly impacted by the heavy rains as many individuals who operate on the streets were unable to trade during the period. The DMA commissioned a rapid and very limited assessment of the impact of the floods on the sector, which targeted street vendors and informal traders in the capital city of Maseru, and in Mapoteng, a smaller and more rural town that had been considerably impacted due to damages to its main feeder road. 40 and 32 semi-structured interviews of street vendors were carried out in Maseru and Mapoteng respectively. The survey results were the following:

- Dependency rates (the number of people supported by one working household member) were higher in Mapoteng (1 to 4), as compared to Maseru (1 to 3). 13% of the respondents in Maseru and 14% in Mapoteng indicated that they were from sibling or grandparent-headed households. The dominant commercial activity of vendors was in retail, accounting for 47% and 44% of activities in Maseru and Mapoteng respectively, through which they sell cigarettes, airtime vouchers, soft drinks, sweets, cell phone accessories and the like. The second most dominant activity was in handy work and services, 23%, which was followed by the sale of fruit and vegetables (10%), and employment in various forms of casual labour.
- A wide disparity in earnings was found, both at individual and household levels. Individual incomes ranged from a low of M30 to M1,000 per week, with an average of M342 across both towns. The average individual income compares favorably with the current statutory minimum wage for workers in the wholesale and retail sub-sectors of M272 per week. Household incomes ranged from M50 to M2,000 per week, with an average of M477. Average household expenditure stood at M452 per week
- In Maseru, the major risk factor to vendors was the weather (63%), as the majority of them operates without shelter, followed by risks from raids against illegal trading by City Council officials (63%). In Mapoteng, the major challenge to individual vendors was the high degree of competition (47%), given the more limited size of the local market, followed by challenges as a result of the weather (20%).

### **Impacts of the disaster**

60% and 50% of vendors in Maseru and Mapoteng respectively reported damages to assets as a result of the floods. The majority of damages were to perishable goods including fruit and vegetables as they were not sold, whilst vendors of non-perishable goods also reported damages, mainly due to the inadequacy of storage facilities. The replacement costs of damaged assets averaged M825 across the survey towns, which is equivalent to a little more than half of the average monthly income of vendors.

Incomes were lost due to declines in customer numbers and limitations on opportunities to participate in trade, particularly for itinerant traders. The amount of weekly profit foregone ranged from M20 to a high of M2,500 in Mapoteng and from M50 to M900 in Maseru, with

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average losses of respectively M377 and M 328. Below is the frequency distribution of weekly turnover changes during the period.

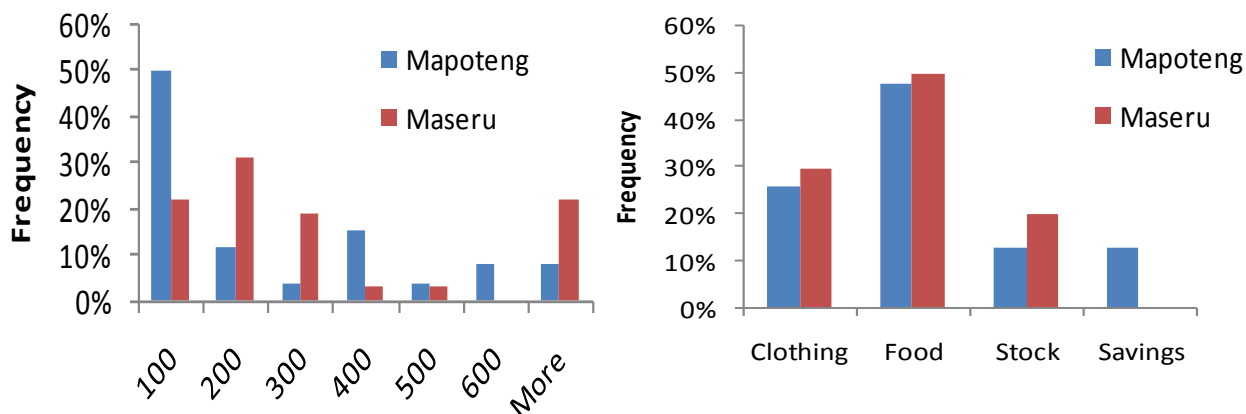


Figure 16: (left) Frequency distribution of weekly turnover changes during the period; (right) Reduced household expenditure on clothing, food stock and savings

In view of the impacts of the floods, vendors reported that their households responded by reducing expenditure on clothing, food stock and savings as indicated in the table below. The highest foregone expenditure was on food, which likely had an impact on the nutritional status of household members. The data above provide a clear if limited snapshot of the impact of the floods on the important informal commercial sector in Lesotho, which provides considerable employment opportunities to many individuals and contributes to the incomes of many mainly urban households. The limited nature of the survey, in the absence of comprehensive baseline data on the informal and micro enterprise sector, made it impossible to extrapolate survey findings. This shows the need for the compilation of baseline data, as a first step towards the development of longer term disaster risk reduction strategies for this important sector.

### 4.4 Impact on gender, HIV/AIDS, governance and protection

#### Protection and gender

There were delays in general service provision due to inconveniences caused by the flood, such as inaccessibility of offices, transport difficulties and shortages of water and electricity. The inaccessibility of social services or the absence of service providers, police and the justice system had a substantial impact on the protection of people in the country.

- The delivery of justice was delayed given the difficulties of witnesses and suspects attending court trials, which worsened the backlog of criminal cases;
- Security issues worsened during the flood, as the Police did not have suitable equipment and normal access to carry out their normal work. However, none of the interviewed Police authorities experienced an increase or significant drop in the number of cases reported;
- There were some delays in the reporting of sexual offences, and many Gender-Based Violence (GBV) incidents were not reported at all, since social facilities were inaccessible, particularly in

rural areas. The main reported GBV issues related to the sexual assault of young girls and elderly women while fetching uncontaminated water at odd places and times, or when using new routes to water sources;

- The Restorative Justice Program was affected, given the difficulties of members of the Correctional Services and the Probation Unit to reach the houses of victims of crime with the aim of victim-offender reconciliation;
- The condition of detention and child care facilities worsened, affecting the safety, health and well being of inmates and children in conflict with the law. Many were forced to sleep and live under appalling conditions because of leaking and damaged roofs and walls, wet floors and the lack of food and water;

### **HIV and AIDS**

Lesotho has one of the highest HIV / Aids rates in the world and even minor disruptions in the care and provision of anti retroviral drugs can have substantial impacts on lives and livelihoods. There was reduced access to basic HIV and AIDS services, due to:

- The disruption of Home Based Care (HBC) support services;
- The disruption of Prevention of Mother To Child Transmission (PMTCT) services;
- The inability of People Living with HIV and AIDS (PLWHA) to access Anti Retro-Virals (ARVs), as many were unable to travel to health centers, and because some health centers ran out of stock or were closed. All in all, it can be assumed that the vulnerability of People Living with HIV and AIDS increased, due to a lack of access to HIV and AIDS services, loss of income and lack of access to nutritious food.

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### SECTION 5 RECOVERY FRAMEWORK

#### 5.1 Summary of recovery and reconstruction needs

The total financial requirements to achieve post-disaster recovery and reconstruction have been determined at M666.7 million. The PDNA makes a distinction between recovery needs and reconstruction needs, with the former covering the restoration of livelihoods and governance systems and services, while the latter covers repair, rebuilding and the improvement of private and public infrastructure, as well as investments to mainstream disaster risk management.

Table 17: Total estimated post-disaster needs

Sector	Recovery (i)	Reconstruction (ii)	TOTAL
	Lesotho Maloti (thousand)	Lesotho Maloti (thousand)	Lesotho Maloti (thousand)
<b>Social Sectors</b>	<b>4,441</b>	<b>75,409</b>	<b>79,850</b>
Housing	643	46,829	47,472
Education	818	28,023	28,841
Health	2,980	557	3,537
<b>Productive Sectors</b>	<b>325,422</b>	<b>22,587</b>	<b>348,009</b>
Agriculture - Crops	234,014	413	234,427
Agriculture - Livestock	87,314	4,209	91,523
Commerce	4,094	17,965	22,059
<b>Infrastructure Sectors</b>	<b>16,808</b>	<b>204,573</b>	<b>219,554</b>
Transport	16,300	161,300	177,600
Communications	8	990	998
Water Supply	500	40,456	40,956
Electricity	TBD	1,827	1,827
<b>Cross- Sectoral</b>	<b>17,500</b>	-	<b>17,500</b>
Cash for Work Program	17,500	-	17,500
<b>Total</b>	<b>364,170</b>	<b>302,569</b>	<b>666,739</b>

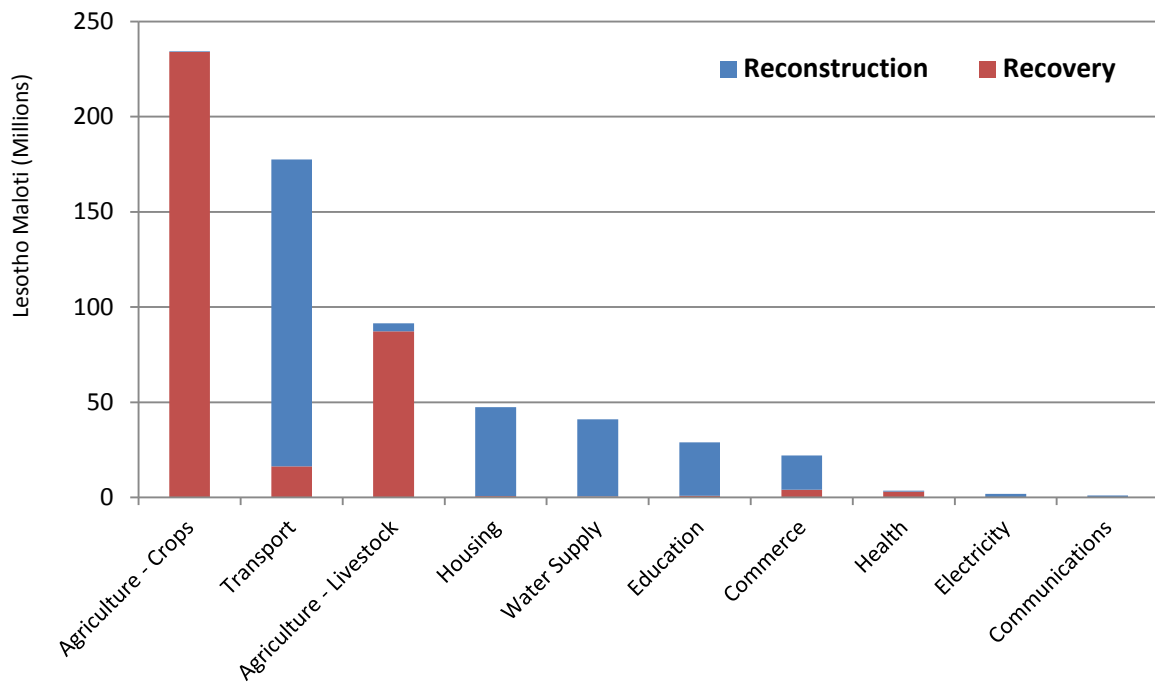


Figure 17: Reconstruction and recovery costs per sector

## 5.2 Guiding principles

To establish the foundations for longer-term recovery, reconstruction and risk reduction, the recovery recommendations were shaped by the following principles:

### **Augment on-going emergency assistance operations by building on humanitarian programmes**

As the focus moves to recovery operations, some relief efforts will still have to be maintained. Early recovery aims at addressing these on-going needs and gaps in the delivery of relief assistance and at revitalizing the capacity of communities to recover from disasters. However, emergency operations targeting these residual relief needs should be scaled down in tandem with implementing the recovery activities, be targeted at the most vulnerable and be shaped so as to hasten socio-economic recovery of affected communities. Early recovery should help move beyond and reduce dependencies on relief assistance by augmenting on-going emergency assistance operations through measures that foster the self-reliance of the affected population and meet the most critical needs to rebuild livelihoods.

### **Support spontaneous recovery initiatives by affected communities**

Communities began taking actions to minimize the impacts of the disaster and to lay the basis for recovering from it during and immediately after the event. Although they expected government assistance, they were not waiting for that support before initiating actions to ameliorate the situation. For example, several operators in the informal sector affected by the flood begun restoring their businesses even at the time of the PDNA without waiting for government assistance

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to do so. The recovery recommendations are programmed to support such spontaneous self-help recovery initiatives.

### **Lay the foundations for long-term recovery**

Lesotho is predominantly prone to weather-induced hazards. Floods, although relatively more infrequent than other hazards, often result in economic disruption as transport, communication, livestock, crops and other physical and environmental assets are destroyed, resulting in significant economic costs. In these circumstances, developing a resilient Lesotho is a progressive development undertaking which requires reconstructing the natural and built environment, livelihoods and socio-economic systems of affected communities to standards higher than those pre-disaster levels, so as to reduce exposure to and impact of prospective hazards. Transitions from disaster to development create windows of opportunity for such transformation in which the role of recovery is fundamental.

### **Leverage disaster recovery to prepare for future and multiple hazard events**

A key rationale for recovery is to reduce exposure to and impacts of future hazards, whether they occur as independent events or as cascading fallouts from the current hazard, which is the target of attention. At the time of the PDNA field visit the heavy rains had stopped, but communities expressed expectations of harsher frosting this winter due to the increased level of residual soil moisture. Given the likelihood of these related future hazards, it is essential that recovery interventions involve measures to reduce underlying vulnerabilities and exposure to multiple hazards. This requires that recommended recovery measures stimulate change and policy development to build back better to reduce future risks from major hazards (including drought). Therefore, recovery recommendations across all sectors were formulated with a view to capitalizing on early opportunities to build better services and infrastructure than existed before the flood and reduce inherent vulnerability. Building back better should not just be applied to infrastructure, but needs to be interpreted in the broadest sense to ensure that the social and economic fabric of the flood-affected areas is rebuilt stronger and better. Addressing multiple hazards requires integration of gender and other cross cutting issues such as environment, protection and HIV/AIDs.

### **Promoting disaster-resilient development by addressing vulnerability at the core of all programming**

Building resilience and reducing vulnerability underpin the whole package of recovery recommendations. All PDNA sectors recovery recommendations prioritize the most vulnerable of the affected communities and work needed to build the resilience of communities and local authorities, support recovery and reduce risk in the long-term. To help prepare for future disasters, the programmatic interventions recommended are also designed to be resilient to future shocks. Consequently, the recovery recommendations were also designed to provide a window of opportunity to bring attention to the importance of DRR and the need to integrate risk reduction at both policy and sector levels of national development management to reduce long-term vulnerability. They also help catalyze dialogue between government and development partners to link ex-ante disaster prevention and climate change.

**Be responsive to the development setting of the country**

To be effective, recovery should aim to support national and local capacities, strategies and policies required to promote sustainable solutions in long-term reconstruction by providing guidance for utilizing development plans and priorities of the country and in the affected regions as the take-off point for building back better. For example: given that the PDNA points to the need for immediate action to forestall projected potential worsening of food insecurity in the coming six-months, recovery recommendations in the food and agriculture sector are anchored in addressing this impending crisis.

**5.3 Recovery needs**

The PDNA reveals that Lesotho has been on the immediate verge of a food security crisis that will start during the second half of 2011. The impending food crisis will be partially mitigated by the harvesting of the 2011 summer crop. Unless it is met by some kind of intervention, the food deficit is likely to result in widespread hunger and increased malnutrition and disease.

The recovery recommendations were designed to be responsive to the development setting of the country. For example, the analyses point to the need for immediate action to forestall projected potential worsening of food insecurity in the coming six-months

The financial requirements to achieve post-disaster recovery have been determined on the basis of estimated value of production costs and the likely higher costs of living and are grouped into three categories for i) the restoration of personal and household incomes; ii) the rehabilitation of basic services; and iii) the restoration of productive activities and food security. The total estimated recovery needs are M364.2 million and are provided in detail in table on the following page.

It is proposed that the strategy of choice for restoration of personal and household incomes be carried out through a combination of social protection/cash-for-work program and a program to give the necessary impetus to agricultural production. The social protection/cash-for-work program should in particular target the most vulnerable population, namely women-headed households, widows and PLWHA and the food insecure, by providing them with a rapid source of cash to restore their livelihoods, while at the same time helping restore basic public services and degraded ecosystems under the principles of building back better. Part of this social protection strategy should therefore also address rehabilitation needs. The agricultural program will target vulnerable farming households who have the necessary assets (e.g. land and labor) to produce some of their food requirements, but need assistance to access production inputs. In this way, this can be considered a productive safety net for this category of rural households. Examples would include provision of quality seeds, tools and veterinary/livestock products through vouchers schemes using local trading channels. Furthermore, it is proposed to put in place mechanisms that will ensure that better-off rural households are able to purchase subsidized production inputs.

In order to reverse the trend of declining yields, the agricultural interventions would be to ensure that provision of inputs is coupled with promotion of improved cropping methods such as conservation agriculture and others.

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Table 18: Estimated recovery needs (activities per sector)

Sector	Recovery Activities	Lesotho Maloti (thousand)	
		Sub-Total	Total
<b>Housing</b>			<b>643</b>
	Provision of temporary housing and materials	643	
<b>Education</b>			<b>818</b>
	Cleanup and mud removal	305	
	Urgent replacement of education materials	513	
<b>Health</b>			<b>2,980</b>
	Treatment costs of higher incidence of disease	816	
	Psycho-social treatment of affected children	27	
	Outreach programs in most affected areas	2,097	
	Vector control program	41	
<b>Agriculture Crops</b>			<b>234,014</b>
	Provision of inputs for winter crops	31,138	
	Food imports (cereals) from abroad	202,876	
<b>Livestock</b>			<b>87,314</b>
	Veterinarian care of sick animals	12,413	
	Repairs to dip tanks	19	
	Food imports (livestock-related) from abroad	74,883	
<b>Commerce</b>			<b>4,094</b>
	Soft-term credit for working capital replacement	4,094	
<b>Transport</b>			<b>16,300</b>
	Acquisition of temporary Bailey-type bridges	1,000	
	Acquisition of boats/ferries for river crossing	300	
	Studies to update design/construction standards for drainage works	15,000	
<b>Communications</b>			<b>8</b>
	Rental of post office building	8	
<b>Water Supply</b>			<b>500</b>
	Temporary provision of drinking water	500	
<b>Cash for Work Program</b>			<b>17,500</b>
	Rehabilitation of community infrastructure and services	17,500	
<b>Total</b>			<b>364,170</b>

### 5.3.1 Social sector recovery

In this section, economic recovery needs for housing, education and health are included and briefly described.

**Housing sector.** In view of the approaching winter season and the anticipated very cold temperatures and snowfalls, it is essential that affected families whose housing units were totally or partially destroyed be given urgent recovery assistance to have a minimum of shelter conditions. The amount required for these activities is estimated at M0.6 million, and should be



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provided in cash or in kind within the four to six weeks before end of June 2011. The Red Cross and other institutions are already partially providing these requirements in kind.

**Education sector.** In order to provide a safe environment to primary school children attending partially damaged school premises, the urgent replacement of education materials and the cleaning and mud removal of affected schools are to be financed, to an estimated amount of M0.8 million. Efforts made in this regard by the Ministry of Education are to be supplemented by other parties – NGOs and development partners – to finalize these activities before the arrival of the cold season and snow.

**Health sector.** Additional funding, over and above the regular budget appropriations of the Ministry of Health, is required to meet the changed health conditions arising from the floods disaster. The consumption of unsafe water by the population – arising from the destruction and damage to collective water distribution systems in the rural areas – has caused an increase in the occurrence of acute diarrheal disease, as well as higher morbidity rates of other disease, and an estimated amount of M816,000 are required for this purpose. An additional amount of about M27,000 is required to provide psychological attention to children affected by the floods. Outreach health programs and vector control activities are also required to prevent additional health problems, at a cost exceeding M2.1 million.

### 5.3.2 Productive sector recovery

As indicated before, most of the recovery activities are to be centered around solving the forthcoming food security problems caused by the disaster, which will become evident in the second half of the present year.

The most urgent economic recovery needs include the immediate reactivation of agriculture and livestock production activities, involving the provision of financing and in-kind contribution of inputs for the Winter crop season at a cost of M31.1 million;<sup>7</sup> the provision of veterinarian services and supplies to restore sick animals health at an estimated cost of M12.4 million; the cost of repairs of dip tanks for livestock bathing; and the provision of cash grants for micro-traders and soft-term credit lines for small to medium traders in the commerce sector that need working capital after losing their goods stock to the action of the floods, to an amount of M4.1 million.

### 5.3.3 Infrastructure sector recovery

Recovery activities are required in the road transport, communications and water supply and sanitation sectors.

**Transport sector.** In order to reduce transport costs ahead of time, and their correspondent negative impact on people's already low income after the floods, recovery needs include the urgent acquisition of a stock of Bailey-type, temporary bridges for placement in some of the

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<sup>7</sup> In this connection, the Government of Lesotho has already started a subsidy program for farmers to acquire improved seeds for use in the winter crop season. However, agriculture subsistence farmers would also be in need of a combination of cash grants and soft terms credit for acquiring fertilizer and pesticides to fully ensure the crop.

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selected cut roads and facilitate traffic (M1 million, although it is possible to obtain an in-kind donation from donors abroad), as well as the urgent acquisition of boats and ferries (M300,000) for the same purpose and use in selected river crossings where bridges or culverts have been cut by the floods. After the bridges and culverts are repaired permanently, the temporary bridges would be removed and stocked for future use.

Before some bridges and culverts are rebuilt after the floods, several studies leading to the revision and updating of hydraulic design standards are to be conducted. These urgent studies would have an estimated cost of M15 million altogether, would allow the correct design of the new structures, and provide revised standards for disaster-resilient design of future works in the near future.

**Water and sanitation sector.** Since there are many hundreds of consumers in rural areas without adequate drinking water supply, to avoid further occurrence of acute diarrhea and to reduce women's reproductive time used to fetch water from farther away and unsafe sources, use of tanker truck distribution of minimum water quantities is to be financed in the coming months to an estimated amount of M500,000.

### 5.4 Restoring food security

As mentioned before in this section of the report, the costlier recovery issue is that of foodstuff imports to an estimated amount of M287.8 million. There are several options to meet these needs: (i) let the market take care of the problem and have private entities make the required food imports, as part of the normal scheme of things; (ii) have the Government of Lesotho, with financial or in-kind support from development partners such as WFP and country donors, import the required foodstuffs; (iii) establish a temporary program of cash-for-work and food-for-work to assist the population meet the food deficit.

Private food importers, including the major millers in the country, have the financial capacity to increase the volume and value of imports to possibly meet the increased food needs arising after the disaster. However, the affected consumers – especially the subsistence farming families – would not have the full necessary cash flow required to acquire the necessary food in the market, and the spectre of widespread malnutrition and disease thus arises in full, especially for the more vulnerable groups located in the northern districts.

On the other hand, the Government does not seem to have the financial resources and the required substantive capacity to deal effectively with the food distribution required. True enough, development partners might be keen to assist the government in this endeavour, and it may be possible for the development banks to provide at least partial financing, in the softest possible terms, through budget support or balance of payment support.

If no food assistance is forthcoming, many poor families in the affected districts would adopt coping strategies that involve reductions in food intake and in the frequency of meals per day, search for income by accepting temporary wage occupation in other non-agriculture activities,

selling and/or directly consuming part of their already limited animal stock with the resulting further reduction of their limited assets and future production of meat and milk, utilization of increased family remittances from abroad, and other strategies within their very limited capacities.

The third alternative does not seem to be acceptable from a humanitarian perspective. A combination of the three alternatives is probably most desirable. Increased food assistance from abroad – through the combined action of the Government and development partners under the leadership of the World Food Program (WFP) – combined with increased higher import volumes by the local private sector entities, and adding a limited-scope program of cash-for-work and food-for-work in reconstruction and repair of community infrastructure, may achieve the desired results which would have to last through the time of harvesting of the next summer crop in May/June 2012, provided it reaches normal production levels.

A plan for food sufficiency for the years 2011 and 2012 must be derived for immediate initiation and execution. Adequate coordination between public and private entities must be ensured for the import of foodstuffs. The action program may include differentiated types of activities, for instance through in-kind provision of food in the northern districts using already-existing assistance channels, and providing cash grants and/or cash-for-work and food-for-work schemes in the rest of the affected districts so that the beneficiaries may acquire privately imported food at the local markets.

### **5.5 Cash for work program**

In the same areas, cash-for-works programs should be promoted, targeting the most vulnerable – women-headed households, widows, HIV-positive and the food insecure. The aim of these labor-intensive public works should be to provide a rapid source of cash for the poor, but at the same time target directly the works and ecosystems in need of rehabilitation, and help “build them back better”. They might include drainage works, village roads rehabilitation and maintenance, rehabilitation and/or retrofitting of village schools or health centers according to safety standards, rehabilitation of fragile ecosystems, reforestation, and erosion control works.

Such cash for work program would need to be carried out to bridge the most critical period of food insecurity of 3 months. The estimated costs to pay minimum manual labor wages for 125,000 people would result in an estimated M17.25 million.

## **SECTION 6 MEDIUM TO LONG TERM RECONSTRUCTION**

### **6.1 Guiding principles for reconstruction**

The medium to long term reconstruction focuses on reconstruction of damaged assets that facilitate economic recovery in sectors whose production has been stopped during the disaster. The most important sector for the medium to long term reconstruction is transport, housing, water and sanitation as well as education and agriculture.

Following the immediate phase of humanitarian recovery, damaged roads, bridges and culverts have been repaired on an emergency basis, water supply has been restored, commercial activities assisted to resume and agricultural productivity rehabilitated, and livelihood restored through income generation activities. From the infrastructure point of view, the function is rebuilt so that the vehicles can circulate and the people can have access to water and shelter. In that immediate phase, there is no time to think and plan differently. The long-term needs look at reconstructing infrastructure differently (or “better”) to make them less vulnerable to future disaster and at improving the resilience to disaster of important economic sector. Reconstruction after a flood often sowed the seeds for destruction from disasters in the future, when vulnerabilities are reconstructed. Therefore, the aftermath of a disaster provides opportunities to address historical vulnerabilities, such as widening drains and improving bridge and road construction, re-building houses upgraded school and health care facilities with better foundations and roofing, improving land use and spatial planning and possibly voluntary resettlement away from flood plains.

### **6.2 Reconstruction needs**

Financial requirements for reconstruction with disaster-reduction features are determined on the basis of the estimated value of damages, plus the costs of ‘building-back-better’. Total reconstruction costs are estimated at M302.6 million. Reconstruction must take into consideration the effects of inflation due to higher post-disaster costs and will include the improvement of quality in housing and other sectors and improved design and construction standards, involving risk reduction measures. The sector requiring the most comprehensive and costly reconstruction is the transport sector with M161,3 million due to high costs for reconstructing bridges, culverts and climate proving road constructions. This is followed by the housing sector with reconstruction needs of M46.8 million and the water and sanitation sector with M40.5 million. The agricultural sector (crops and livestock) has the biggest recovery needs, but only small needs for reconstruction mainly related to reconstruction of irrigation and livestock handling infrastructure.

#### **6.2.1 Social sector reconstruction**

In this section, economic reconstruction needs mainly for the housing, but also for education and health are included and briefly described.

**Housing sector.** The housing sector is nearly completely privately owned and organized. Damages and losses in the housing sector are thus nearly entirely covered by the homeowners themselves.

With regard to the reconstruction itself medium term assistance needs to focus on redesigning and retro-fitting of houses, which were partly damaged (particularly through seepage of water through walls and the floor) to avoid further ongoing damages on these structures. The reconstruction of houses, which were damaged during the heavy rains, plus additional costs for redesigning foundations, roofs and walls will sum up to M33.4 million. Additionally, existing houses, which had water seeping through the walls and floor can and should be retrofitted through the raising of floors with concrete and incorporation of damp proof membranes in the floor, with additional costs of M10 million.

For the medium to long term reconstruction efforts the sustainable planning of land and housing resources further remains one of the most promising areas of the government to mainstream disaster risk reduction efforts. To identify areas at risk of rock and mud slides, storms, and river floods and thus areas, which are well suited for further housing developments a thorough risk assessment should be initiated. Other long term risk reduction issues, such as the relocation of houses to less vulnerable areas as well as housing policy of Lesotho need to be addressed on the medium to long term promoting disaster resilient planning.

**Education sector.** In order to repair and reconstruct damaged school facilities an estimated amount of M28 million is required. The poor conditions of many school buildings, whose deterioration was speeded up by the adverse weather, suggests that another disaster would result in even more damage unless steps are taken to improve the quality of the buildings, in terms of design and materials, in order to provide a better learning environment that is safe and secure. Risk adverse reconstruction of schools is thus an urgent reconstruction priority.

**Health sector.** Since the physical impacts on the health infrastructure was limited reconstruction needs with less than M0.6 million fairly limited. It is largely related to smaller repairs of health posts and centres, including replacing some of the critical infrastructure.

### **6.2.2 Productive sector reconstruction**

The productive sector, including agriculture (crops and livestock), as well as commerce and industry, has observed only limited immediate physical damages and thus needs for reconstruction are fairly limited. In the agricultural sector reconstruction needs are mainly related to the reconstruction of livestock handling infrastructure as well as to repairing some of the affected irrigation infrastructure, such as channels and water intakes. All in all reconstruction costs for the livestock sector account for M4.6 million. The commerce sector requires nearly M18 Million to cover repair and reconstruction of commerce premises. As expected the recovery needs for the productive sector is much higher than the reconstruction needs.

### **6.2.3 Infrastructure sector reconstruction**

Through high physical damages to the infrastructure sector and substantial needs for climate proofing and building back better more than two-third of the overall reconstruction envelope is

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required for this sector. The vast majority of it goes to the transport sector, which makes up to M161.3 million.

**Transport sector.** Using the estimated values of destruction of bridges, culverts and road sections, the needs for reconstruction using design criteria appropriate to the post-flood conditions – i.e. in some cases, longer bridge span lengths, larger design capacity for culverts and other drainage structures, etc. – in the road transport sector have been estimated for each affected road section. The reconstruction of destroyed bridges, culverts and roads in rural areas sum up to M88.8 million, while the reconstruction and climate proofing of roads in the capital Maseru would sum up to M72.5 million. Beyond this needs for improving designs and thus mainstreaming disaster risk reduction in the planning and design of transport infrastructure needs to be considered.

**Water and sanitation sector.** M37.1 million will be required for the reconstruction of the water supply system, which services the capital Maseru. An additional M3.1 million are needed locally to reconstruct rural water supply systems and enforce them with respect to future disasters. Additionally, minor resources are needed to reconstruct latrines, which were damaged during the heavy rains.

**Electricity sector and communication sector.** The reconstruction needs for the other infrastructure sectors remain fairly limited and include M1.8 million for replacement of some of the electricity infrastructure, which was affected by the heavy rains and some repairs on the post office.

Table 19: Reconstruction needs per sector

Sector	Reconstruction Activities	Reconstruction Needs Lesotho Maloti (thousand)	
		Sub-Total	Total
<b>Housing</b>			<b>46,829</b>
	Housing reconstruction with disaster risk reduction	33,379	
	Identification of high risk areas for sector	3,450	
	Study for development of construction standards	10,000	
	Retrofitting houses to avoid foundation problems	10,011	
<b>Education</b>			<b>28,023</b>
	Reconstruction of schools with disaster risk reduction	1,832	
	Repairs of partially damaged schools	26,192	
<b>Health</b>			<b>557</b>
	Reconstruction of health post with disaster risk reduct.	194	
	Repairs to health centres	108	
	Repairs to health posts	36	
	Replacement of equipment and supplies	219	
<b>Agriculture and Livestock</b>			<b>4,622</b>
	Reconstruction of irrigation system with risk reduction	413	
	Reconstruction of livestock assets and facilities	4,209	
<b>Commerce</b>			<b>17,965</b>
	Reconstruction/repair to commerce premises	17,965	
<b>Road Transport</b>			<b>161,300</b>
	Road, bridge and culvert reconstruction with risk reduction	161,300	
<b>Communications</b>			<b>990</b>
	Reconstruction of post office building	490	
	Replacement of telecommunications equipment	500	
<b>Water Supply and Sanitation</b>			<b>40,456</b>
	Reconstruction of urban water system	37,174	
	Reconstruction of rural water systems with risk reduction	3,144	
	Reconstruction of latrines with disaster risk reduction	138	
<b>Electricity</b>			<b>1,827</b>
	Replacement of equipment stock used after floods	1,827	
<b>Total</b>			<b>302,569</b>

**SECTION 7 DISASTER RISK REDUCTION**

**7.1 Guiding principles for disaster risk reduction programs in Lesotho**

The results of the PDNA indicate that the 2011 disaster happened due to a combination of erratic climate variability and Lesotho's intrinsic natural vulnerability, which worsen due to weak spatial planning, exposure to economic shocks, and behavioral patterns. Climate change will possibly further aggravate the prevalence of extreme events. New disasters are likely to recur unless there is a fundamental shift in development and economic planning. This shift should take into consideration the following key principles:

1. Effective prevention pays. It is much cheaper to prevent than to reconstruct. It may cost 1.5-2.0 times more to construct with reinforced safety codes, but the costs will be much higher, if one has to reconstruct after each disaster. Small investments in early warning can also help save lives and avoid costly disaster impacts.
2. Livelihood options determine vulnerability to disasters. As the 2011 disaster has demonstrated, the most impacted people were the poorest and most vulnerable. This means that reinforcing livelihood options, particularly in the most vulnerable districts, will also be one of the most effective strategies against future disasters.
3. The next disaster may well be different. The 2011 disaster was due to heavy rains, but the next disaster may well be a drought. Given its high vulnerability to climate variability, Lesotho needs to prepare for a range of potential climate effects; in effect, a range of multiple hazards compounded by a changing climate. This is best done by developing multi-hazard maps based on historical exposure, and promoting "no regrets" adaptation, activities such as multi-cropping that reduce risks independently of the precise disaster that may happen in the future.
4. National development planning should promote risk reduction. People follow roads, as well as schools and health centers. The planning for these key sectors should take into consideration their potential impact on future settlements and should seek to attract populations to lower vulnerability areas. At the district level, participatory spatial plans that take climate risk into account could play vital roles in informing communities and helping to shape their future resilience. The adoption of risk reduction as a key national development paradigm signifies a shift from disaster response to a much more proactive prevention and mitigation strategy, and integration of disaster risk reduction principles into key sector programs.
5. Enabling policies can be as important as physical investments. Subtle shifts in Government policy can have major impacts on disaster risk reduction. Of particular importance will be the extent to which future land-use policies will take hazard mapping into account; the adoption of safer public works safety codes such as safer schools, and stronger roads; the promotion of biomass alternatives under the energy policy; the promotion of climate-resistant practices under the agriculture policy; and the extent to which decentralization policy will allow districts to use decentralized budgeting for contingency planning. These policies, along with the



national development plan, will play a major role on Lesotho's future ability to manage disaster risks.

6. Donor programs should be guided to promote a climate resilient Lesotho. It will be critically important to promote reinforced safety codes and enabling policies under major donor programs. Donor support to a climate resilient strategy should start with their respective assistance strategies, followed by their mainstreaming into key donor programs, particularly in the areas of transport, agriculture, health, water and sanitation, land administration, decentralization and disaster risk management/ climate change adaptation.
7. Disaster Risk Reduction needs to be supported by strong institutions. This should start with the adoption of the revised Disaster Risk Management Act and Disaster Risk Management Policy, and strengthened institutional linkages between disaster risk management and climate change adaptation.

## 7.2 Needs for disaster risk reduction and preparedness

The following are estimates of disaster risk reduction needs based on comparisons from countries with similar hazard profiles and best practices from around the globe. Following the guiding principles and policy priorities four main groups of activities for disaster risk reduction can be identified:

1. Mainstream disaster risk reduction and climate resilience into policies and planning:
  - Mainstream into the National Development Plan;
  - Target key policies likely to make a difference;
  - Strengthen and update building and construction codes and guidelines for the housing and public infrastructure sector.
2. Strengthen risk assessments and early warning systems:
  - Reinforce early warning systems;
  - Develop multi-hazard risk maps to guide planning of key infrastructure.
3. Reduce underlying risks and integrate disaster risk management into major investment programs:
  - Introduce participatory planning processes for risk reduction and climate resilience;
  - Support conservation agriculture and sustainable land management;
  - Disaster resilient low cost housing.
4. Facilitate institutional strengthening and capacity development for disaster risk management and preparedness:
  - Strengthen mandate, capacities and financing mechanism for disaster risk management;
  - Strengthen coordination between disaster risk management and climate change adaptation.

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Table 20: Needs for disaster risk reduction

Activity	DRR Needs Lesotho Maloti (thousand)
1) Mainstream disaster risk reduction and climate resilience into policies and planning - Mainstreaming DRR into the National Development Plan - Mainstreaming DRR into key policies: Policy review - Reinforcing safety codes	  350 700 1,750
- Enforcement of housing construction norms and training program for local craftsmen	10,000
- Transport: Strengthening building guidelines - Study to revise rainfall-runoff relation after recent land-use changes - Updating of drainage design parameters based on above - Revision of drainage flow capacity of existing bridges and culverts in road network	 2,500 5,000 7,500
2) Strengthen risk assessments and early warning systems - Multi hazard risk assessment - Reinforce early warning - main system - install anemometers	 3,500  5,600 2,450
3) Reduce underlying risks and integrate disaster risk management into major investment programs - Agriculture: Promote conservation agriculture - Participatory climate resilient / risk management planning - Disaster resilient low-cost housing for 5% most vulnerable households	 22,050 2,100 14,000
4) Facilitate institutional strengthening and capacity development for disaster risk management and preparedness - DRR institutional strengthening	 1,750
<b>Total</b>	<b>69,250</b>

### 7.2.1 Mainstream disaster risk reduction and climate resilience into policies and planning

Mainstreaming disaster risk reduction in policies and planning instruments has proven to be a powerful instrument to ensure that future developments are more resilient towards natural hazards. The fact that many policies are being reviewed in the near future provides a unique opportunity to ensure that risk reduction measures can become obligatory for many sectors, such as e.g. safer schools and hospitals. Since housing and infrastructure sectors were most severely affected a thorough review and update of the construction and engineering norms should be considered. This should go hand in hand with creating the enabling environment to ensure that

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new norms and guidelines are taken up, such as performance based maintenance contracts, particular housing schemes and others. All in all, resources of up to M22.2 million will be required.

### **Mainstream disaster risk reduction into the National Development Plan**

The Ministry of Finance and Development Planning is scheduled to prepare a new National Development Plan starting from about June 2011. This provides a unique opportunity to mainstream disaster risk reduction into the most vulnerable sectors of Lesotho's economy.

Kenya and Zambia have recently completed similar processes of mainstreaming led by, respectively, the Ministry of Environment and the Ministry of Finance and National Planning. In Zambia, the MFNP convened a panel of highly respected national experts who were embedded into working groups charged with the preparation of the Plan. This ensured that their input was directly incorporated – and relevant – to the preparation of the plan.

### **Mainstream disaster risk reduction into key policies**

Policy review should focus on a few policy and regulatory reforms which, if implemented correctly, would make a real difference in Lesotho's future resilience against disasters. The following policies are currently under development, review or play for other reasons a key role in disaster risk reduction:

1. Land Use Planning Policy: The upcoming policy requiring all relevant sector investments to conform to the National Land Use Plan. It would be critically important for the National Land Use Plan to take hazard mapping into account. In addition, to be effective, the Land Use Plan should be closely linked to the National Development Plan and to the national budget.
2. Energy Policy: This policy is particularly important as it will condition the continued use of biomass for cooking and heating. Alternative sources of energy should be actively promoted.
3. Agriculture Policy: The agricultural policy should be carefully review the sensitivity of key crops and livestock to climate variability and seek to promote climate-resistant varieties, as well as review the potential distortional effect of chronic food aid on agricultural production (as opposed to other social protection alternatives such as conditional cash transfers).
4. Decentralization Policy: At present, the Government allocates a mere 0.005% of the budget for disaster risk reduction.<sup>8</sup> Based on international experience, it would be particularly important for District DMA offices to have access to a readily available contingency budget – even if only a small amount - to enable them to properly prepare for the season, and respond to eventual emergencies. This allocation, which should not be earmarked for any particular sector, should be envisaged as part of a decentralized budget to the Districts and potentially even the Councils.
5. Public works safety codes and regulations: Based on the impact of this disaster and the expected future climate patterns, it would be advisable to reinforce public works safety codes to take into consideration stronger winds, snow, and flood conditions (and possibly fire). This is particularly important for schools, health centers, and transport infrastructure. Infrastructure

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<sup>8</sup> Lesotho – National Progress Report on the Implementation of the Hyogo Framework for Action (2009-2011) Interim Report.

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safety codes – particularly for roads and bridges – should be reviewed, as flood retention capacity and/or river sedimentation may have changed since the original design. In addition, prototype non-mandatory guidelines should be developed for traditional housing structures.

6. Education Act: The new act already reportedly requires all licensed public schools to follow strict safety codes. A similar legislation should be adopted for public health centers, in particular for village health posts which seem to have been particularly affected by the 2011 flood. Some countries have adopted legislation whereby health workers and teachers are only posted in buildings certified as “safe.” Beyond guidelines for safe schools, introducing and mainstreaming disaster awareness in primary and secondary school curricula with regular simulation exercises should become an important element for the new Education Act.

### **Up-dating and strengthening the design standards for the transport and housing sector**

Improving building and construction guidelines have proven to be one of the most successful policy interventions. In Madagascar, for example, construction guidelines for cyclone resilient housing combined with training programs for local contractors and credit facilities have substantially reduced the vulnerability of many houses towards regularly occurring storms. In Lesotho, strengthened design standards to include safety codes should also be promoted in major public and private infrastructure, particularly transport and housing and should go hand in hand with enabling capacity building.

- Retrofitting and/or rehabilitation of major roads and bridges using strengthened flood return period standards.
- Introduction of procurement practices that promote long-term infrastructure maintenance
- Construction of hospitals or major schools
- Promotion of strengthened safety codes for traditional (private) housing

**Transport infrastructure.** For transport infrastructure, the modeling of the correct flood return period may need to be done at the basin or sub-basin level. This study needs to re-calculate design floods in major watersheds, taking into consideration the land-use changes that have occurred in recent years (i.e. fast urbanization of previously unused watershed areas) as well as possible climate changes in the occurrence and intensity of rainfall is to be made. From it, a new flood frequency analysis is to be made in order to re-define and update drainage design standards for bridges, culverts and similar structures. On that basis, a revision of the drainage capacity of bridges, culverts and other structures in the main roads of the country is to be made, to define possible expansion of drainage works capacity in the near future.

**Infrastructure maintenance.** Improved procurement practices include Output and Performance-based Road Contracts (OPRC) or simply performance-based contracts which are paid upon rehabilitation, but on satisfactory proof of maintenance. This ensures that roads and culverts are correctly maintained (a major source of vulnerability during floods).

**Housing sector.** As a first step towards mainstreaming risk reduction into the housing sector a multi hazard risk assessment will assist to identify areas exposed to natural hazards especially to rock-slides, storms, hill side run- off, flooding from river beds. The housing sector needs to develop and promote low cost housing techniques, resilient to natural hazards and suitable for the environment and culture of the Basotho. Examples are the use of hydro foam concrete used for low cost housing in South Africa. Introduction of strengthened safety codes for the housing sector requires long-term behavioral change. International experience suggests that: (a) it needs to be accompanied by intensive training of masons and builders, as well as community awareness campaigns; (b) it is often useful for communities to have a highly visible communal project that serves as a catalyst to demonstrate the new codes and (c) and a careful selection of potential beneficiaries, in case subsidized housing schemes are envisioned. Capacity building and community outreach should thus be initiated to improve construction standards and skills of local craftsmen, and create awareness for construction in areas exposed to natural hazards.

### **7.2.2 Strengthen risk assessments and early warning systems**

As mentioned above risk assessments are an important instrument to inform about risk adverse spatial planning and infrastructure development. It can help to guide developments to areas, which are less vulnerable to natural hazards. Introducing risk assessments and early warning systems have proven to be in many cases cost efficient non-structural measures. All in all M11.55 million are estimated for risk assessments and early warning systems.

#### **Multi hazard risk assessment**

The Department of Lands, Survey and Physical Planning and the GIS section of the Ministry of Transport are already developing GIS-based systems of land use planning – however, they lack multi-hazard risk mapping to assist with decision making. The following risk assessment maps would need to be established:

- Updated population/settlement maps
- Digital elevation maps
- Drought hazard maps based on multiple exposure analysis from LVAC data
- Wind strength maps
- Land slide and rock fall hazard maps
- Flood hazard maps
- Snow and hail hazard maps
- Prevalence and areas of risk for particular diseases

Once these multi-hazard maps are incorporated into the broader National Land Use Plan, they should form a basis whereby planners from key ministries – specifically Local Government, Transport, Health, Education and Natural Resources – should assemble to plan the location of their respective infrastructure in order to correctly orient the expansion of future settlements. The location of key infrastructure - roads, schools, health centers, electricity grids – should be dictated by traditional socio-economic factors, but also by the need to reduce future vulnerability. For example, if a settlement was expanding close to a marginal area, public infrastructure should be

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sited in a less hazardous area so that, over time, it would act as a “pull factor” for the community to expand away from the hazardous area.

### **Reinforce early warning systems**

The reinforcement of the early warning system is already being planned through UNEP Least Developed Country Fund. This includes (a) refurbishment of weather stations and data analysis equipment; (b) integration of climate data (including hazard mapping) into sector policy making; and (c) provision of climate information adapted to local stakeholder needs in three pilot areas (Outhing, Thaba Tseka, and Mafeteng). With the building blocks for an early warning system established it is now important to scale up and operationalize the system in all ten districts of the country.

Early warning systems can only be as accurate as the information, which is provided in (near) real time. A particular weakness of existing weather stations is the lack of anemometers or instruments to measure wind speed. These are essential to produce wind hazard maps and should be included in the reinforced early warning system. In addition, further river gauges may need to be added for areas particularly vulnerable to flooding.

### **7.2.3 Reduce underlying risks and integrate risk reduction into major investment programs**

Key areas and sectors highly vulnerable to natural hazards in Lesotho such as agriculture and housing in highly vulnerable areas need to be addressed to reduce the impact of potential future disasters. This should include measures supporting sustainable land management or conservation agriculture, as well as upgrading houses in the most vulnerable areas or stimulating disaster resilient low cost housing in appropriate areas. Investments in sustainable agriculture, low costs housing and disaster resilient planning will require resources of M38.15 million.

#### **Disaster resilient low cost housing program**

A low cost housing programme should be established, which can provide access to affordable housing to all Basotho and particularly low income groups. This low cost housing scheme should be particularly designed to be resilient to natural hazards in Lesotho. Upgrading all mud brick houses to sustainable and resilient low cost housing schemes (concrete or sand stone) could be very costly (estimated M1.9 billion). Additionally the costs for land development need to be included. This should ideally build upon the experiences from the Lesotho Housing and Land Development Corporation and similar efforts in neighbouring countries (South Africa). Institutions (e.g. Ministry of Local Government, Directorate of Lands, Survey and Physical Planning) need to be enabled and strengthened to enforce building and construction guidelines. An alternative would be to provide low income groups with access to finance, e.g. micro credit schemes to gain credits for low cost housing and upgrading and improving their houses. This could also be an alternative means for enforcing building standards and promote risk averse spatial planning. Cost estimates are based upon an upgrading, relocation or low cost housing scheme for those 5% of houses, which are located in the most vulnerable areas.

**Promote sustainable land management as a strategy towards climate resilience**

Support to sustainable land management – whether direct implementation support to farmers or through extension services – would be an important element of an investment strategy in highly vulnerable areas. This should be closely tied to promotion of agricultural intensification and diversification, with particular emphasis on vegetables and fruits. Amongst the priority to promote would be pasture rotation, improved terracing, zero tillage systems, and investments drainage to prevent water logging.

**7.2.4 Facilitate institutional strengthening and capacity development for disaster risk management and preparedness**

With the recent adoption of the new *Disaster Management Act* and new *Disaster Risk Management Policy* in 2011, Lesotho has now elevated the legal mandate of the disaster management authority and provided the level playing field for mainstreaming disaster risk reduction and enhancing disaster preparedness at all levels. This process has substantially been supported in the recent years by UNDP. Nevertheless, following the heavy rains and response by the government unveiled a number of challenges to be addressed in future, such as lack of capacities at district and local level, coordination between climate change and disaster risk management platforms or sustainable financing mechanisms for early recovery funds. To better understand challenges and options initial support worth of M1.75 million will be needed.

**National platform for disaster risk management and climate change adaptation:** DMA – under the Office of the Prime Minister – coordinates a multi-stakeholder platform organized along UN cluster lines. This platform consists of 74 sector and academic institutions, UN Agencies, as well as NGOs and the private sector. At the same time, the Ministry of Natural Resources has established a national steering committee which oversees the implementation of the *Africa Adaptation Project* and the upcoming *Least Developed Country Fund*. To avoid fragmentation of national capacity, it would be critically important to encourage a harmonization of the national institutional framework for climate change adaptation and disaster risk management since their mandates overlap. One option would be to have a single consolidated program, but with different sub-platforms which would meet on relevant topic such as mitigation, response, adaptation.

**Sustainable financing mechanism for rapid recovery and response:** The Disaster Management Act of 1997 established a *Disaster Management Fund* “from any source for the purpose of disaster management” (Government of Lesotho, 1997). However, so far the Disaster Management Fund might have not yet fully achieved its objectives and sufficient, but could in future play an important role in providing fast disbursing resources for recovery and reconstruction in times of national disasters. Funds can then be provided rapidly to reconstruct schools, hospitals, infrastructure, individual houses and provide relief and recovery material according to predefined criteria.

**Strengthen presence at district and village level:** District and Village Disaster Management Teams play an important role in working closely with the communities and provide immediate response in times of disasters. However, technical, financial and human resources at district and village level

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remain very limited. Sustainable mechanisms need to be developed to strengthen the presence of professional staff at district level and improve communication facilities from the ten districts to Maseru.



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**SECTION 8 REFERENCES**

Bureau of Statistics, 2010: "2006 Lesotho Population and Housing Census". Analytical Report, *Vol. III B Socio-Economic Characteristics*. Economic Evaluation Oxbow - Mokhotlong Road, Roughton International, October 2010

Bureau of Statistics, 2008: "2008 Education Statistics Report" National Statistical System of Lesotho Statistical Reports NO 20:2010. Maseru, Lesotho Africon Consultants, 2010a: "Feasibility of tolling certain corridors in Lesotho". Africon Consultant's Report, December 2010

Africon Consultants, 2010b: "Review of the Projected Road Maintenance Needs and the Generation of Road Fund Revenue" Final report. Maseru, Lesotho

Global Facility for Disaster Recovery and Reduction, 2011: *Guidance Notes for Estimation of Damage and Losses after Disasters*, The World Bank, Washington, D.C., 2011.

Government of Lesotho, 1997: Disaster Management Act 1997. Lesotho Government Gazette extraordinary Vol. XLII Tuesday 13<sup>th</sup> May, 1997 No 26. Maseru, Lesotho

Government of Lesotho, 2004: "Poverty Reduction Strategy 2004/2005-2005/2007". Ministry of Finance and Development Planning. Maseru, Lesotho

Government of Lesotho, 2007: "Lesotho Water and Sanitation Policy". Ministry of Natural Resources. January 2007. Maseru, Lesotho. Available at: <http://www.orangesenqurak.org/UserFiles/File/National%20Water%20Departments/Lesotho/Water%20and%20Sanitation%20Policy%202007.pdf>

Government of Lesotho, 2011: "National Progress Report on the Implementation of the Hyogo Framework for Action (2009-2011)" Interim Report

International Development Association, 2010: Country Assistance Strategy for the Kingdom of Lesotho, May 17, 2010. Southern Africa Country Department

Lesotho Renewable Energy-Based Rural Electrification (LREBR), 2010: Annual Newsletter. Maseru, Lesotho.

Lesotho Vulnerability Assessment Committee (LVAC), 2010: Lesotho Livelihoods Profile Report. . Maseru, Lesotho; Available at: <http://www.sadc.int/fanr/aims/rvaa/Documents/Lesotho/2006%20Lesotho%20Livelihood%20Profiles.pdf>

Lesotho Vulnerability Assessment Committee (LVAC), 2010: "Annual Vulnerability Monitoring Report". May-June 2010. *201/11 LVAC*. Maseru, Lesotho

Mwase, Takondwa, Eddie Kariisa, et al, 2010: "Lesotho Health Systems Assessment". Health Systems 20/20, Abt Associates Inc. Bethesda, MD. June 2010.

Ministry of Education & Training, 2005: "Kingdom of Lesotho Education Strategic Plan 2005-2015". Government of Lesotho. Maseru, Lesotho. March 2005

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Ministry of Environment, Gender, and Youth Affairs, 1997: State of the Environment Report in Lesotho (SoER). National Environment Secretariat, Ministry of Environment, Gender, and Youth Affairs. Maseru, Lesotho

Ministry of Health and Social Welfare, 2004: Monitoring and Evaluation – Strategic Plan, Maseru, Lesotho

Ministry of Health and Social Welfare, 2009: “Lesotho Demographic and Health Survey (LDHS)”. Maseru, Lesotho

Ministry of Health and Social Welfare, 2010: Annual Joint Review Report 2009/10. Maseru, Lesotho

Ministry of Tourism, Environment and Culture, 2005: “Maseru City Environment Outlook Report”. National Environment Secretariat. Government of Lesotho. Maseru, Lesotho.

National AIDS Commission, 2008: “Lesotho UNGASS Country Report” Status of the national Response to the 2001 declaration of Commitment on HIV/AIDS January 2006 - December 2007. Maseru, Lesotho; available at: [http://data.unaids.org/pub/Report/2008/lesotho\\_2008\\_country\\_progress\\_report\\_en.pdf](http://data.unaids.org/pub/Report/2008/lesotho_2008_country_progress_report_en.pdf)

UNAIDS, 2009. Lesotho: Country Situation.  
available at: [http://www.unaids.org/ctrysa/AFRLSO\\_en.pdf](http://www.unaids.org/ctrysa/AFRLSO_en.pdf) and <http://www.unaids.org/en/regionscountries/countries/lesotho/>

United Nations, 1992: Agenda 21: The United Nations Programme of Action from Rio. United Nations, New York.

United Nations, 2009: General Assembly Special Session (UNGASS) Report “Lesotho: Status of the National Response of the 2001 Declaration of Commitment on HIV and AIDS”. January 2008 – December 2009

United Nations, 2011: UN Data Country Profile; Lesotho.  
available at <http://data.un.org/CountryProfile.aspx?crName=Lesotho>

United Nations Development Program (UNDP), 2006: “National Human Development Report, Lesotho”. UNDP.

United Nations Development Program (UNDP), 2010: Human Development Report 2010, 20th Anniversary Edition The Real Wealth of Nations: Pathways to Human Development. UNDP, New York, USA

United Nations Development Program (UNDP), 2011: International Human Development Index.  
available at: <http://hdrstats.undp.org/en/countries/profiles/LSO.html>

WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation, 2010: “Progress on Sanitation and Drinking-Water”. 2010-Update. WHO Library Cataloguing-in-Publication Data

World Bank, 2010: “Second Poverty Reduction Support Credit and Grant”. Program Document”, Report No. 52466-LS. The World Bank Washington DC

World Bank, 2010.: World Development Indicators- Lesotho.  
available at: <http://data.worldbank.org/country/lesotho>

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## ANNEX 1: NATIONAL ACCOUNTS

2006/07 – 2013/14 (Projected), Percentage Contribution to GDP

	FY06/07	FY07/08	FY08/09	FY09/10	FY10/11	FY11/12	FY12/13	FY13/14
<b>Industry Constant Prices</b>								
Agriculture	-8.1%	2.3%	10.5%	6.5%	0.2%	0.2%	0.2%	0.2%
Crops	-7.4%	-9.4%	-0.6%	3.6%	0.2%	0.2%	0.2%	0.2%
Livestock	-11.2%	10.2%	15.7%	10.5%	0.2%	0.2%	0.2%	0.2%
Services	2.2%	-11.1%	25.7%	-20.3%	0.0%	0.0%	0.0%	0.0%
Forestry	0.7%	2.3%	1.2%	6.2%	0.2%	0.2%	0.2%	0.2%
Mining and quarrying	28.2%	33.6%	0.6%	0.0%	14.1%	11.6%	49.6%	12.0%
<b>Primary industries</b>	<b>0.4%</b>	<b>11.7%</b>	<b>7.0%</b>	<b>4.3%</b>	<b>4.6%</b>	<b>4.2%</b>	<b>18.7%</b>	<b>5.8%</b>
Manufacturing	6.7%	1.9%	1.0%	-5.1%	6.0%	4.2%	4.1%	4.1%
Food products and beverages	2.7%	6.6%	2.8%	3.4%	0.7%	3.9%	0.5%	-0.9%
Textiles, clothing, footwear and leather	6.7%	-2.2%	-3.6%	-9.7%	6.3%	3.2%	3.6%	4.0%
Other manufacturing	12.2%	20.3%	21.0%	4.7%	10.2%	8.0%	8.6%	8.4%
Electricity and water	4.7%	3.0%	2.1%	3.2%	2.8%	3.2%	3.0%	2.7%
Electricity	11.7%	6.5%	1.7%	3.8%	7.3%	7.4%	7.2%	6.9%
Water	1.9%	1.5%	2.2%	2.9%	0.7%	1.2%	0.8%	0.4%
Construction	-0.3%	4.2%	8.3%	10.0%	3.5%	12.2%	4.9%	4.6%
<b>Secondary industries</b>	<b>5.1%</b>	<b>2.5%</b>	<b>2.4%</b>	<b>-1.0%</b>	<b>4.9%</b>	<b>5.6%</b>	<b>4.1%</b>	<b>4.0%</b>
Wholesale and retail trade, repairs	4.3%	4.1%	2.4%	-3.0%	0.7%	3.9%	0.5%	-0.9%
Hotels and restaurants	3.7%	-2.4%	2.5%	2.5%	0.7%	3.9%	0.5%	-0.9%
Transport, and communication	11.1%	11.3%	11.0%	11.5%	0.7%	3.9%	0.5%	-0.9%
Transport and storage	0.9%	2.5%	3.7%	0.7%	0.7%	3.9%	0.5%	-0.9%
Post and telecommunications	21.4%	18.8%	16.3%	18.5%	0.7%	3.9%	0.5%	-0.9%
Financial intermediation	20.1%	14.6%	13.8%	15.6%	0.7%	3.9%	0.5%	-0.9%
Real estate and business services	1.5%	1.6%	1.9%	3.2%	1.5%	2.8%	1.4%	0.8%
Owner-occupied dwellings	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Other real estate and business services	0.9%	1.1%	1.7%	5.1%	0.7%	3.9%	0.5%	-0.9%
Public administration	4.4%	3.2%	3.2%	4.2%	-0.5%	-0.2%	1.1%	1.1%
Education	1.8%	-2.8%	-1.5%	-1.4%	-0.5%	-0.2%	1.1%	1.1%
Health and social work	1.8%	-0.8%	1.5%	6.6%	-0.5%	-0.2%	1.1%	1.1%
Community, social and personal services	2.4%	1.7%	1.7%	0.7%	0.7%	3.9%	0.5%	-0.9%
<b>Tertiary industries</b>	<b>5.1%</b>	<b>3.7%</b>	<b>4.1%</b>	<b>4.5%</b>	<b>0.5%</b>	<b>2.3%</b>	<b>0.9%</b>	<b>0.2%</b>
Financial services indirectly measured	38.4%	33.7%	25.4%	18.5%	0.7%	3.9%	0.5%	-0.9%
<b>All industries at producers' prices</b>	<b>4.2%</b>	<b>4.0%</b>	<b>3.6%</b>	<b>2.7%</b>	<b>2.3%</b>	<b>3.4%</b>	<b>4.3%</b>	<b>2.2%</b>
Net taxes on products	7.9%	7.3%	7.2%	3.9%	2.3%	3.4%	4.3%	2.2%
Subsidies on products	3.8%	-5.6%	-8.4%	-19.5%	6.3%	3.2%	3.6%	4.0%
<b>GDP at purchasers' prices</b>	<b>4.7%</b>	<b>4.5%</b>	<b>4.2%</b>	<b>3.1%</b>	<b>2.2%</b>	<b>3.4%</b>	<b>4.3%</b>	<b>2.1%</b>

**ANNEX 2: EDUCATION****Pre disaster situation**

In Lesotho, the majority of educational institutions provide services for Early Childhood and Development (45.9%) and Primary Education (46.3%), followed by Secondary Education (7.3%). In contrast, in Post Secondary Education there are only eight technical/vocational institutes and the Lesotho College of Education (0.22%), and there are only two institutions at University level (0.02%).

Table: Number of institutions and enrolment

Institution	No. of institutions	Enrolment
Care Centres	1.840	41.469
Primary Schools	1.856	380.681
Secondary Schools	296	123.267

According to data from 2002, school ownership in Lesotho reveals a clear dominance of religious ownership, as is shown in the table below.

Table: Ownership percentages of primary and secondary schools

Owner	Primary	Secondary
Lesotho Evangelical Church	35,9%	31,9%
Roman Catholic Church	38%	35,4%
Anglican Church of Lesotho	13,2%	14,2%
Government	5,3%	3,3%

Source: Ministry of Education & Training, 2005

Despite this ownership pattern, the Government of Lesotho pays almost all educational personnel. Since the introduction of Free Primary Education policy in 2000, Lesotho has reached an exceptional position within the Sub-Saharan countries regarding high rates of enrolment (80%) (World Bank Document, 2010a) and literacy (86%) (UNICEF-Lesotho, 2011). Historically, Lesotho has shown a higher participation of women at all levels of the education system, especially in the mountain regions, due to the role of boys as herders and mine workers<sup>9</sup>.

Enrolment rates for boys and girls are: 199,990 boys and 195,099 girls in Primary School and 42,137 boys and 56,443 girls in Secondary schools.

<sup>9</sup> According to the World Bank, in 2004 net enrolment ratio for men was 81% whereas for women it was 87%.

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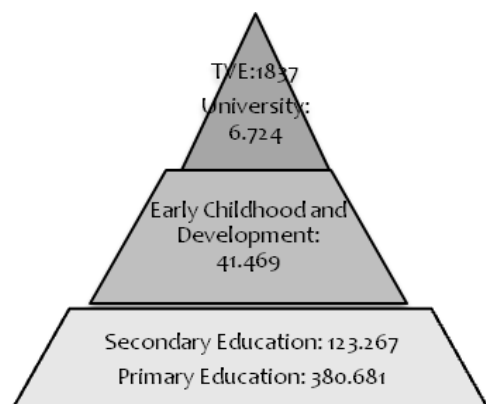


Figure: Enrolment pyramid-number of students per level of education<sup>10</sup>; *Source:* Bureau of Statistics, 2008

Nevertheless, enrolment rates show a disparity among the regions and across the different levels of the education system. Generally, children from urban and lowland areas have more access to education than children from the rural and highland areas. Repetition and dropouts rates remain high in the country, hitting poor students the hardest (World Bank Document, 2010b).

Even though the number of teachers has increased considerably during the past 10 years, the number of qualified teachers has not increased proportionately, and an inequitable distribution of teachers remains between and within regions and levels of education. Generally, more qualified teachers are allocated in the cities and in the higher levels of education (Kingdom of Lesotho Education Strategic Plan, 2005-2015).

With regard to infrastructure provision, despite the efforts of the Ministry of Education and Training, many schools, especially at the primary level, still go without adequate facilities such as toilets, classrooms, furniture and equipment, especially in the high lands (Kingdom of Lesotho Education Strategic Plan, 2005-2015 and Poverty Reduction Strategy 2004/2005-2005/2007).

Table: Classroom stock in primary schools in Lesotho; *Source:* EMIS, 2008

Classification as used in EMIS	Description	Total	%
Standard classroom	Classrooms meeting design standards	4,126	48.3
Op-Tak	Non-standard classrooms with sloping roof	2,272	26.6
Plat	Non-standard classrooms with almost flat roof	557	6.5
Heisi	Non-standard classrooms with grass-thatch roof	32	0.4
Rondavel	Traditional circular hut	35	0.4
Church Hall	Often multiple classes in one hall	798	9.3
Tent	Frame tents	254	3.0
Open Air	No building	87	1.0
Other (Specify)	Varied	389	4.5
<b>Total</b>		<b>8,550</b>	<b>100.0</b>

<sup>10</sup> The number of University students includes the students enrolled in the University of Lesotho. It does not include students abroad with scholarships paid by the Government of Lesotho.

In relation with Government investment, the Education Sector claims 29.9% of the Government budget, according to data from 2004/2005. Lesotho's expenditure on education is higher than the average for comparable Sub-Saharan countries. Budget allocation shows that Primary Schools benefit from the largest share. However, expenditure per student reveals that allocations per primary schools pupil are 84 times lower than per University student (Kingdom of Lesotho Education Strategic Plan, 2005-2015).

**Post disaster situation. Damages and losses**

**Physical damages**

Reported damages for the Education Sector, caused by the floods, show a total of 45 Primary Schools<sup>11</sup>, 44 partially damaged and 1 totally destroyed, as figure 3 shows:

Table: Primary schools damages per district

District	Partially destroyed	Totally destroyed	Estimated damages in Lesotho Maloti (thousand)
Maseru	21		13048.9
Berea	3		932.8
Leribe	3	1	2366.9 1665.0
Butha Buthe			
Thaba Tseka	5		3570.9
Mafeteng	7		1477.2
Mohale's Hoek			
Qachas Nek	2		62.8
Mokhotong			
Quiting	6		3041.2

According to the information gathered, the floods mainly affected non-standard classrooms (Op-tak) and Church halls of Primary Schools. In the majority of the cases, they were reported as totally destroyed. In some other cases, Op-tak and Church halls presented problems with the roof (roofs blown off and leaking). Only one rondavel was reported damaged, as were two flat houses. In four cases, toilets blocks were destroyed and leaking.

<sup>11</sup> No damages in Secondary Schools were reported to the Ministry of Education and Training. There are two explanations for this difference. On one hand, Secondary Schools are better built than Primary Schools and the majority of them are located in the more central/urban areas of the low lands. On the other hand, the system of information for Primary Schools seems to be better organized. However, some anecdotal information suggests that a number of Secondary Schools did sustain both damages and losses.

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Table: Damages reported in primary school classrooms stock; (Source: PDNA Education Team)

Classification of construction as used by EMIS	Totally destroyed	Partially destroyed
Standard classroom	0	0
Op-Tak	31	21
Plat	2	
Heisi	0	0
Rondavel	2	0
Church Hall	10	2
Tent	1	0
Open Air	NA	NA
Other/Toilets Blocks	3	1
<b>Total</b>	<b>49</b>	<b>24</b>

The supremacy in numbers of damaged Op-Tak and Church halls is explained by the fact that in some cases the communities who usually build them lack the proper technological expertise – although in other cases they have withstood the extreme weather.

Table: Damages and losses - Education sector; (Source: PDNA Education Team)

Items	District										Country
	Maseru	Berea	Leribe	Butha Buthe	Thaba Tseka	Mafeteng	Mohale's Hoek	Qachas Nek	Mokhotlong	Quthing	Total
	Lesotho Maloti (thousand)										
Destruction of schools			1,665.0	-					-		1,665.0
Partial destruction of schools	13,048.9	932.8	2,366.9	-	3,570.9	1,477.2	1,690.9	62.8	-	3,041.2	26,191.7
Cost of cleaning and mud removal	155.0	12.5	3.6	-	7.5	25.0	2.3	2.3	-	4.7	305.0
Compensating for education lost	28.1	12.5	32.6	-	54.4	2.6	16.4	4.5	-	30.9	63.7
Furniture/ education materials	263.1	14.0	32.6	-	7.6	11.2	-	-	-	-	427.1
Food not provided to children	1.9	12.6	14.4	-	7.6	11.2	-	-	-	-	47.8
Food not provided to children by WFP	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7	176.9
<b>Total</b>											<b>28,877.2</b>



**Economic damages and loss valuation**

The calculation of damages of the physical assets of Primary Schools was made according to the information that was gathered during the field visits and was reported by the District Offices of Education to the Ministry of Education and Training. With regard to education materials, furniture and equipment, the calculation for all the districts was based on the information gathered during the field visits and projected to the not visited districts and schools, according to the magnitude of the reported damages in the physical assets. Additionally, information regarding the costs of physical assets was provided by the Education Facilities Unit.

Of the schools who reported damages to the Ministry of Education and Training, there were five primary schools in Thaba-Tseka, three in Leibre, four in Mochlae's Hoek, two in Mafeteng, 21 in Maseru, three in Berea, two in Qacha's Nek, and six in Quthing, affecting a total of around 9,974 children (5,064 boys and 4,910 girls). This does not include children affected by schools that did not report damages, or the children affected by the many other issues caused by the extreme weather, including problems of access, time lost, meals missed and other issues outlined below and later in the report.

The losses were calculated according to two types of losses: a) time of learning interruption; and b) food that could not be provided to children due to the floods. The time of interruption to learning was estimated based on the information teachers provided about the days that they had to interrupt classes because of the bad weather. According to them, most of the schools were not formally closed, but children had to be sent home an average of three hours earlier when clouds gathered. Thus, for every district, time estimates were made based on the average of rainfall during February, provided by the

Lesotho Meteorological Services. Food not provided was calculated based on the days that schools were closed by the price of meal per child (3.5 M), according to the Education Supplies Unit. In addition, the World Food Program provided information regarding the food that they were not able to supply during 53 days. The total cost of reconstructing and repairing the physical assets is 11.63% of the total budget projected for the infrastructure of Basic Education for the period 2009/2010. But, at the same time, this cost is ten times higher than the budget allocated for the maintenance of classrooms for Free Primary Education.

The losses regarding the school feeding program, both from the Government and the World Food Program are only 0.09% of the total cost of the projections made for school feeding for the period 2009/2010. When schools were formally closed, catering was cancelled but the cost was transferred to families who often could not afford it. The cost of compensating time lost is barely 0.02% of the amount allocated for the payment of teachers in 2009/2010 (Kingdom of Lesotho Education Strategic Plan, 2005-2015). This figure is based on teachers being paid overtime.

Even though the losses do not represent a high amount in relation to the budget allocated for Primary and Basic Education, it is important to highlight that the interruption of classes leads to a potentially less educated workforce with the related impact on the country's economy. However, it is not possible to calculate the exact cost of this loss within this assessment.

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### **Communal, cultural and institutional damage, loss and needs evaluation**

Education is not only a right but in situations of emergency, such as the extreme weather suffered by Lesotho at the end of 2010 and the beginning of 2011, it also provides physical, psychological and cognitive protection that can be both life-saving and life-sustaining, so its importance cannot be undervalued (INEE Minimum Standards for Education in Emergencies, Chronic Crisis and Early Reconstruction).

The impact of the floods on the sector impedes the education sector's ability to deliver on its sector objectives, especially those relating to access, quality and the equity of education (Kingdom of Lesotho Education Strategic Plan, 2005-2015). Beyond this, the disaster has also had a large impact on aspects of children's and teachers' lives, and on local communities.

The human impact of the disaster in relation to the education sector covers a wide range of issues detailed below:

**Access:** Most of the 13 schools visited in the districts of Leribe (2), Berea (2), Thaba-Tseka (5), Maseru (2), and Mafeteng (2) saw cases where up to the whole school population was unable to access the school for a few days due to flooded streams and rivers, while more commonly a smaller percentage (in one case 75% but more commonly 25% and below) of the pupils was unable to attend due to their inability to cross flooded rivers and streams. Attempting to do so could be dangerous, with one principal describing how children had been washed downstream while attempting to cross. The issues of access feed into the days lost in the DaLa table, and have little monetary value but a huge impact on the quality of education<sup>12</sup>.

A deterioration of access, and related to it, the quality of education, has a long term detrimental impact on this generation of children and the future of Lesotho as it results in the loss of the children's fundamental right to education. Access to school was further hindered as children were unable to attend because their clothes were not dry enough for them to make the journey to school or because they were held back as parents did not want them to be exposed to the elements in the destroyed or partially destroyed schools.

**Teaching time lost:** The adverse weather also impacted on the quality of education by resulting in a large amount of teaching time lost amongst schools all across the districts of Lesotho (roughly 25 - 30 days in total per school from November to March). As well as a certain amount of time being lost due to school closure as the result of impeded access, the extent of the physical damage, and for about 20 schools around Maseru city because there was no water; time was lost in the mornings due to the extra time it took some teachers to get to school due to flooded waterways. During this time their students were not receiving the same level of education.

A lot of time (an average of seven days in total per month) has also been lost across schools in all the districts due to the need to dismiss school early when clouds gathered, either because of the risk that

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<sup>12</sup> In terms of children and teachers not accessing school, and classes being held back from moving on with the syllabus due to absenteeism.

the rivers and streams to cross would flood and prevent children and teachers returning home, or because school buildings were so damaged that the rain would get in. In such conditions the quality of education deteriorated during the disaster.. Some schools even lost time in good weather due to the damage done to the tents, which meant they had to wait for the sun to reach a position where it would not glare too much, impeding teaching and learning.

**Food and nutrition:** The meal primary school's children receive improves their nutritional levels, and their ability to learn. Some teachers pointed out this was the only real meal for many children, while others stressed that many of the children attending their school were starving, making this meal extremely important to both the well being of the children and the education sector. One principal in Berea even reported that some children made their way to school despite the dangers of the bad weather in order to receive this meal, so great is their need.

In a number of schools, the feeding program was disrupted due to the adverse weather (mainly as a result of access to schools – for example the WFP was unable to access 2 225 children for 53 days), and the lack of access to school had a very negative impact for those children who were unable to attend as there was no mechanism in place to provide them with a substitute meal. All the children who were unable to receive meals, either because these were not provided, or because the children were not in school, are children, whose nutrition and learning were adversely affected by the disaster.

**Health:** The adverse weather also had a detrimental effect on general health for many children and teachers, as they suffered from increased instances of the common cold due to their exposure to the elements. This was either a result of their journey to school wearing inadequate clothing, or their time at school, due to the damaged buildings in which they were learning. Many children, especially girls, do not possess adequate rain gear, or fear being laughed at by their peers if they wear them. Additionally, school buildings often provided no protection from the elements.

While no schools visited reported that their drinking water was affected (although a number did not have their own water source and the local water source had been polluted), 20 schools in Maseru had to be closed because their drinking water supply was interrupted for two weeks (see WASH sector chapter for more details on WASH in schools).

**School conditions:** As mentioned above, the conditions of the infrastructure of the schools, was so damaged, both partially and fully, that the buildings or tents in which children were supposed to learn did not provide a conducive environment for learning, due to the resulting damp or flooded floors, breezes within the classrooms and glares of the sun, which challenges the government's aim of establishing better learning environments. In addition, the weather resulted in some of the structures posing a greater hazard to children's safety and these do not qualify as safe and secure learning environments. In one school, in which a classroom had collapsed, the principal had observed children looking worried and distractedly at the cracks in the walls instead of paying attention to the lesson.

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Figure: (left) School feeding; (right) Provisional school in tents

Most of the schools visited had no toilets, while in the other cases the toilets now leaked, or were so badly damaged (partly due to initial poor construction) that they posed a safety hazard. Additionally two schools that were not visited, reported that their toilets had been destroyed. The loss of school equipment and books also impacts negatively on children's ability to learn and the quality of education that is able to be delivered.

**Indirect impacts to the education sector on children's ability to learn arising out of their situation at home:** Children's ability to learn was also affected by a number of other problems arising from the disaster. A number of children talked to (an average of one per group) had had their homes destroyed by the floods and they were forced to live in cramped conditions with other relatives, which meant they had no proper resting place. Additionally the destruction of crops is likely to make life even harder for children who already often go hungry and rely on the meal provided in school.

**Psychological impacts – children and teachers:** While some schools reported no signs of a psychological impact on children, others saw clear signs of it, either through changed behaviour or children talking about it. For instance, some teachers observed that children had become more afraid and anxious about bad weather and the appearance of clouds, to the extent that some even ran away from school because they were afraid they would not make it home, or that they would start screaming in fear. Other teachers observed that children had started lying to their parents to get out of school when they noticed that the weather might become bad. Many children mentioned that they did not want to see the return of such rains because of the damage it had caused to their schools and homes, which is still upsetting them.

Teachers were also affected by the disaster. Some of their homes were destroyed or damaged and they were unable to access school, which caused them distress. Some teachers, especially the female ones, were also upset by the response of the children and their feeling of helplessness at their inability to help them. Additionally, teachers were also stressed out about the lost time and the impact this has on their ability to cover the syllabus.

**Gender differences:** The gender differences that were observed by teachers were that boys seemed to cope with the adverse weather conditions better than the girls. This was attributed to their prior experience of similar weather conditions while herding for those boys who had herding experience, which gave them the confidence that girls did not have in dealing with the conditions. Another observation made by teachers was that while both sexes suffered from the common cold, there were higher instances amongst girls as they did not possess the gum boots boys did from herding.

**Disability differences:** Some teachers observed that the children in their school with disabilities (there was around one per school we visited with a variety of disabilities including physical, mental and visually impaired) were even more affected by the weather than other children, while others felt that there was no real difference in the response. The differences noted included children with disabilities being more fearful than others, losing their possessions while running home scared, having a harder time getting to school, missing school altogether and not returning, also impacting on the equality of education.

**Age differences:** From research in the field it appears that the issues of access affected the younger and smaller children (around 4 - 9 years old – making up around 49% of the total pupil population) the most, as they struggled more in crossing the flooded streams and rivers, which posed greater dangers to them. They made up the majority of the children who missed school and one principal pointed out that small children were being enrolled in second choice schools because parents didn't want to risk sending them to schools where they would have to cross water. Therefore the impact of the adverse weather greatly affected their access and right to education.

**Community activities:** A limited number of schools were used by the community for a number of different uses, including as a theatre or to hold adult education classes, while other classrooms were in church halls. The damage to these buildings meant that these community activities were also affected, with a resulting social impact for the community as they lost a shared community space. None of the schools was used as a shelter.

### **Responses**

While a certain level of capacity already exists, there are a number of gaps that need to be closed through the recovery strategy.

### **Risk and vulnerability**

**Access:** Lesotho's abundance of streams and rivers, combined with poor bridge infrastructure (either there are no bridges or they were washed away by the floods), poses a great challenge to children and teachers in accessing schools, as these waterways become dangerous to cross after heavy rains. Additionally, access is challenged by the layout of the land, especially in rural areas where schools tend to be remote, requiring a lot of time to overcome the natural obstacles and reach schools. Heavy rains are not the only factor combining with geography to hinder access. In winter, snowfall can also greatly hinder movement.

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Table: Impacts, capacity, responses and needs; (*Source: PDNA Education Team*)

Impacts	Responses	Capacities	Needs
Physical Assets	-Volunteers from the communities repairing and rebuilding classrooms -Temporary tents provided by the MoET	-Lifelong Learning and Non Formal Education -Use of indigenous materials -Indigenous knowledge	-Technical knowledge -Technical materials -Technical Assistance -Infrastructure reinforcement -Healthy and friendly learning environments -System of information
Time lost	-Time added after classes and/or during the weekends	-Teachers stay after hours without being paid	-Extra hours for teachers to compensate lost time
Access	-Walk longer paths to reach the school	-Community work for recovering and reconstructing roads and bridges	-Coordinated actions between the Ministry of Public Works and Transport
Food		- Community initiatives lead by schools	-Access to schools -Alternative strategy for children who can not receive the meal -Strength local initiatives to provide food and clothing for children (OVC)
Health			-Fully stocked First Aid Kit -Strength local initiatives to provide food and clothing for children (OVC)
Psychological impacts		-Teachers trained for counselling mainly on HIV issues -Lifelong Learning and Non Formal Education	-Training teachers in other subjects, such as Risk Reduction Management and means of coping with disaster and loss
Children with disabilities		-Special Programs/Crosscutting Issues	-Inclusive Education
Age			-Differential policies
Gender		Special Programs/Crosscutting Issues	-Reinforce equality
Community activities		-Strong social ties and solidarity	-Training communities in Disaster Risk Prevention and Management
Disaster Risk Management		-Local Offices of the DMA -Lifelong Learning and Non Formal Education	-Developing Disaster Risk Management element of the Curriculum -Chief's/Councillor's training

Unless infrastructure, especially relating to bridges, at the least footbridges, is improved in both the design and prevalence, the country's geography and weather will continue to pose a risk to the education sector and make it vulnerable to problems of access and time lost.

**Schools' physical infrastructure:** Much of Lesotho's school infrastructure needs improvement, due to poor design, inadequate materials and shoddy workmanship, especially at those schools not built to the government's requirements. Schools that were completely or partially destroyed were often already weak due to their prior condition and thus could not withstand the weather. In addition, many buildings have retained a lot of water, which will adversely affect them when winter arrives. The poor quality of

the buildings presents a health and safety hazard and is a major factor in the time lost. Tents provided as substitute class rooms have proved to be unable to withstand Lesotho's weather conditions.

The poor conditions of many school buildings, whose deterioration was speeded up by the adverse weather, suggests that another disaster would result in even more damage unless steps are taken to improve the quality of the buildings, in terms of design and materials, in order to provide a better learning environment that is safe and secure. This may involve partial or complete rebuilding of schools. If tents are to be a realistic temporary substitute to classrooms, the tents must be weather-proof and able to withstand Lesotho's climate.

**Food and Nutrition:** Especially in rural areas, many of the families are poor, or the children vulnerable, and they struggle to feed themselves adequately. The destruction of the crops due to the severe weather makes it even harder for children to receive the necessary nutrition for their general wellbeing, health and ability to learn.

If action is not taken to provide children with adequate nutrition, either through the provision of school meals to children who have been unable to access school, or poverty reduction and agricultural improvement projects, there is an increased risk that children will be malnourished and their learning will be impeded.

**Health:** The weather and school buildings that do not provide adequate protection against it, combined with the lack of adequate clothing and attitudes amongst peers that do not encourage the wearing of such clothing, greatly increase children's vulnerability to a common cold and other more severe related illnesses such as pneumonia. The lack of a fully stocked first aid kit in schools also increases the risk of worse illnesses for children as they are not receiving proper treatment.

Adequate school buildings that protect against the elements, a positive change in attitude towards the wearing of rain gear, the wider ownership amongst children of rain gear, and properly stocked first aid kits would help mitigate the risks to their health. If this does not occur, the weather in Lesotho will continue to pose risks to children's and teacher's health.

**Children's home conditions:** Children's ability to learn is also affected by the conditions at home. A number of houses were unable to withstand the weather and collapsed, while others had springs appear in the floor, which creates an environment that is not conducive to the physical and mental needs of the child. Just as with school buildings, the weather in Lesotho continues to pose a risk to children's homes. Additionally, the time needed to get home means children do not have time to study once they get there, especially if they lack electricity in the house.

Greater care needs to be taken in the building and locating of houses, so that they are less vulnerable to hazardous weather conditions and the eruption of springs. It should be made easier for children to get to school quicker (closer schools, better infrastructure), as well as to provide homes with services such as electricity and water, so the risks to children's ability to learn would be mitigated.

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**Psychological issues:** The disaster has had psychological impacts on both children and teachers. The unexpected nature of the event and lack of knowledge about the appropriate response increased people's vulnerability to being affected by the disaster. Since it occurred there has not really been an adequate response to the psychological issues, which means they continue to have an impact on children's and teachers' lives. A little counselling for some children has occurred but the system is not set up to deal with the psychological issues that have emerged, especially those of the teachers.

Children and teachers will remain vulnerable unless there is acknowledgement of the psychological impact the disaster has had, and counselling and risk management strategies are developed that build people's resilience to the effects of the disaster. An early response mechanism, including counselling, would also help reduce vulnerabilities.

**Gender:** Girls (who make up 49% of the pupils) were at greater risk from the recent disaster due to their inexperience in relation to the extreme weather. Additionally, the long and unaccompanied distances children have to travel, put them at risk of attack on the journey, with girls being especially at risk.

Making rivers and streams accessible through the provision of foot bridges and other solutions would go some way to mitigating the risk of female access to schools. Shorter distances to travel or some form of accompaniment for children would also lessen the risks they face during their journeys.

**Disability:** Children with disabilities already face problems of access to schools. Most children with disabilities currently stay at home. The weather compounded these problems by making access for those who were able to attend before increasingly difficult, especially for the children with mobility problems.

The risks to children with disabilities could be mitigated by further promotion of the policy of inclusive education, increased support for them to help them overcome the challenges to their mobility and mental health posed by the weather, and as before, a general improvement in children's ability to access school through better infrastructure.

**Age:** Small children, due to their stature, physical strength and inexperience, also faced the greatest risks in relation to access as they struggled more than most when it came to crossing rivers and streams that were flooded or fuller than normal due to the heavy rains. Additionally, some of the older children are at risk of being taken out of school to do work, such as herding or looking after younger children. Some of these children were reluctant to return after the rains stopped. Additionally older children who are double orphans due to HIV/AIDs are often also responsible for their younger siblings and therefore work or care for them at home.

As above, improved infrastructure would help mitigate the risk to younger children's access, as would the assistance of someone older to help them cross. Schemes to encourage parents and children to see the value of education could help mitigate the risks of dropouts, while providing support for vulnerable children and orphans could help keep them in school.



## Recovery strategy

### Recovery considerations

A recovery strategy for the Education Sector requires combining the Strategic Focal Areas proposed in the Education Sector Strategic Plan 2005-2015 with the responses, capacities and needs (**table 4**) that already exist within the sector. It is important to strengthen the activities that follow the strategic objectives at the core of the policy, especially in the fields of infrastructure, curricula development, teachers' training and sector's administration. Additionally, there is a need to coordinate work among different actors and sectors on crosscutting issues such as access, health, food security, housing and strategies to cope with an emergency such as the floods.

With regard to the improvement of infrastructure, it is crucial that the Ministry of Education and Training continues to strengthen the capacity to build new schools and classrooms across all the districts, especially in the highlands. In order to achieve a "child friendly school environment that is healthy, tolerant, gender sensitive and respects children's rights" (Kingdom of Lesotho Education Strategic Plan, 2005-2015, p. 43), there is an imperative need to further improve the quality of the construction of classrooms and provide basic furniture and equipment, especially in relation to the existing stock.

In doing so, the Education Facilities Unit can take advantage of the social and solidarity ties that volunteers from the communities have shown in the aftermath of the floods. Training community members in technical knowledge about building education facilities that meet the minimal safety standards, will enable the sector to face hazards such as bad weather. Increasing the number of classrooms and schools (Kingdom of Lesotho Education Strategic Plan, 2005-2015, p. 48), through community work, will increase not only the right of children to access education, but also the awareness of communities regarding Risk Prevention and Management.

To cope with the absenteeism of children due to the bad weather, the improvement in number and quality of education facilities is a work that should be coordinated between the Ministry of Education and Training, the Ministry of Public Works and Transport, and the Housing Department.

Additionally, it is crucial that the immediate responses to disasters, such as providing tents to the damaged schools, are taken a step further. As tents are useful for a limited period of time, the recovery and reconstruction of classrooms is an urgent need.

In the short term, national and local authorities responsible for the education sector, might establish a strategy for mobilising funds and resources that allow building back better of educational facilities. Additionally, it is necessary to coordinate technical and financial assistance with different national and international donors, according to the recovery needs.

Organizing long-term sustainable responses might include the promotion of "a culture of research and information capturing, analysis and sharing to influence decision-making and policy formulation" (Kingdom of Lesotho Education Strategic Plan, 2005-2015, p. 43). This is important not only for the

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general quality of education, but also for the maintenance of the sector's infrastructure. This work could be done in coordination with the Disaster Management Authority and its local offices.

For mitigating the inaccessibility of children to the meals offered by the school, existing community initiatives for feeding and clothing orphan and vulnerable children should be strengthened and supported (World Bank Document, 2010a) by the Ministry of Education and Training in cooperation with the Ministry of Agriculture and Food Security.

At the same time, it is important that these initiatives pay special attention to the different roles that boys and girls play within the social web. Doing so will make it possible to "eliminate gender disparities in primary and secondary education and achieve gender equality in basic education" (Kingdom of Lesotho Education Strategic Plan, 2005-2015, p. 43). It is important to have in mind that achieving gender equality has to do not only with the enrolment parity, but also with the redefinition of socially accepted gender roles.

It is important to include in the curricula practical, useful and relevant knowledge regarding Disaster Risk Prevention and Management that enables children and youth to actively partake in the activities towards mitigating hazards within their communities. The process already initiated by the Ministry of Education and Training of curricula contents revision should include this subject as a key issue for the development of the country and its economy.

The development of such curricula might include an important aspect of teacher's training, enabling teachers to provide counselling in other subjects than HIV. At the same time, this training should include instructions on the use of and provision of equipment, such as First Aid Kit, in order to have the basic materials needed to face disasters and abnormal situations generated by the environmental hazards.

In the short term, teachers can start developing some lessons in which they can include discussions about how to cope with the hazardous environmental conditions, including local and indigenous knowledge. This reinforces not only the capabilities to respond to emergencies and disasters but also the recognition of national identity and particularities.

An important consideration for recovery is to improve and expand counselling capacity as well as making it relevant to the issues arising from the recent disaster and other possible similar events.

### **Education sector outcome and recovery strategy**

The long-term recovery vision of the Education Sector is a return to the Kingdom of Lesotho's Education Sector Strategic Plan for 2005-2015, in which the government is committed to providing universal free and compulsory primary education, with the ultimate vision of a country wherein "Basotho shall be a functionally literate society with well-grounded moral and ethical values; adequate social, scientific and technical knowledge and skills by the year 2020" (Kingdom of Lesotho Education Strategic Plan, 2005-2015, p. 1).

The sector objectives to attain this vision shall focus on improving access, efficiency and equity of education and training at all levels and improving the quality of education and training. There is also a

commitment to the establishment of better learning environments, and the development and establishment of a common system of regular collection and reporting of information within the sector (Kingdom of Lesotho Education Strategic Plan, 2005-2015).

The impact of the disaster has impeded and continues to impede the education sector's ability to deliver on its sector objectives, especially those relating to access, quality and the equity of education (Kingdom of Lesotho Education Strategic Plan, 2005-2015). With this in mind the sector should aim to direct its recovery towards a return to the strategic plan and the achievement of its objectives.

There are a number of commitments that can be made in the aftermath of a disaster to ensure that progress is made towards universal access to quality education in Lesotho, and to fulfil all children's fundamental right to education. These include effective co-ordination (within the sector and with other sectors), access to quality education, a safe and secure learning environment, psychological and health services for children and teachers integrated in educational response, and life skills and information relating to the disaster (UNICEF, Core Commitments for Children in Humanitarian Action).

The government of Lesotho, the Ministry of Education and Training, and various other agencies and institutions engaged with the education sector, such as churches, other public institutions, NGOs and UN Agencies, should work together within the common system of regular collection and reporting of information. They should prioritize finding out more detailed information on which schools were affected by the adverse weather and how, considering issues of access, quality and a safe learning environment. It is important that information is not only gathered on primary schools, but that the impact on secondary schools is also covered, as currently this information is lacking. Equally important is the strengthening of information gathering in districts other than Maseru, which currently have weaker reporting mechanisms through the decentralisation of the education sector's administration. Work should also begin on:

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Table: Recovery Strategies; (Source: PDNA Education Team)

Work to be done:	Lesotho Maloti (thousand)
Coordination with the transport sector on improving access to schools over the country's waterways for children and teachers	3600.0
Improvements to destroyed and damaged building in order to ensure that learning environments are safe and secure and places that are conducive to learning, in coordination with the Ministry of Public Works and Transport	28167.7
Further development of the schools counselling system to incorporate ways of dealing with the psychological fallout of the disaster on boys, girls and teachers, in coordination with the Ministry of Health and Social Welfare	1600.0
Measures to work with the school caterers or others to ensure that boys and girls who miss school still receive their meal in order to improve their nutrition, in coordination with the Ministry of Agriculture and Food Security, the Ministry of Health and Social Welfare and the WFP.	337.5
Other measures include the introduction of food parcels to encourage long-term food security and sustainability, as well as village stockpiles of food that could be distributed when the need arises.	5250.0
Providing support to teachers to help them cover the syllabus (for example, paying overtime or benefits in kind, or developing a more flexible syllabus that can cope with the disruption). Build on the self-recovery strategies of teachers in adding time after class and at the weekends and holidays.	63.7 157.5
Further developing the disaster and risk management elements of the syllabus to make it more relevant to the experiences of boys, girls and teachers during the recent disaster and providing them with strategies of how to cope with it (including developing a contingency plan, local knowledge and practices), and other relevant hazards for the country such as snowfalls and fires. In coordination the DMA and the Ministry for Education can develop training workshops for teachers (at all levels), parents and local communities.	1 600.0
Encouraging equity of education through the promotion of attendance of boys and girls whose access is challenged by disaster such as the recent extreme weather (especially children with disabilities, younger children and children affected by gender issues)	75.0
Looking into what Village Support Groups could offer to children affected by the disaster, especially Orphan and Vulnerable Children	350.0

The recovery strategy should prioritize the effects of the disaster which impact most negatively on boys' and girls' access to education and the quality of education they receive, instead of focusing solely on the area of the education sector that has sustained the greatest damage – the physical infrastructure. Investments need to be made even in areas which appear on the DaLA table to have lower costs or which do not even appear on the table (such as in teachers' training and counselling), as the long-term costs of depriving children of their right to a quality education are likely to greatly outweigh any short

term saving that comes from not focusing on issues of access and quality. These are already being tackled as part of the objectives of the Education Sector Strategic Plan and so would just need adaptation to the issues that have arisen as a result of the adverse weather.

**Future issues to monitor and evaluate:** To deal more effectively with similar events in the future and to see progress being made during the recovery strategy the education sector should set up a system of monitoring and evaluating that focuses on proper reporting from primary and secondary school in all districts.

Factors to monitor, which emerged as important during the fieldwork study, include:

- Damages to buildings (including classrooms, church halls, toilets and kitchens);
- Days when the school was formally closed;
- Days when school had to be dismissed early due to the weather and what time this occurred;
- Days that boys and girls did not attend due to the weather;
- Days when boys and girls came late and how late they came;
- The same information for male and female teachers for all the above;
- Amount of boys and girls who missed out on school meals and how often this occurred;
- Amount of boys and girls who got sick due to the weather;
- Any observed psychological impacts on boys and girls and male and female teachers (including changes to usual behaviour).

**Key benchmarks for progress in recovery:** To deliver on the objectives of the Education Sector Strategic Plan 2005-2015 and more fundamentally to ensure children's right to education is not impeded, the education sector can set itself a number of benchmarks to measure how far the recovery strategy has come in meeting the objectives of the sector.

These benchmarks include:

- Coordination mechanism that provides guidance to all partners on common standards, strategies and approaches, ensuring that all critical education gaps and vulnerabilities are identified, and provides information on roles, responsibilities and accountability to address all gaps without duplication, as well as a detailed and accurate record of collected information;
- Schools remain open throughout the day and are accessible to all children, regardless of age, gender or disability;
- Schools are safe and present no health and safety hazards to pupils, and children can move safely between it and home;
- All education-related humanitarian response integrates appropriate psychological, health and nutritional interventions, and children no longer demonstrate signs of distress in class, they receive the meal they are entitled to and their nutritional measurements improve;

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- The syllabus deals in a relevant manner with risk management and life skills appropriate to dealing with the impact of disasters<sup>13</sup>.

Achieving these benchmarks will indicate that the education sector is once more on its way to fulfilling its objectives, ensuring the right of all children to education and achieving its desired vision.

### Methodology

Information regarding the base line was gathered from the Statistics Office of the Ministry of Education and Training. Currently, they have gender-disaggregated enrolment information per each district of Lesotho. The sector also has a strategic plan (2005-2015) that contains relatively updated and relevant data of the sector.

Information about the school feeding program was obtained from the World Food Program and the Education Supplies Unit, which have data regarding the schools that could not be reached due to the floods.

Information regarding the costs of the education facilities was established by a person from the Education Facilities Unit, who joined the field-work teams, and helped with the estimations for the damages in the schools and districts that were not visited.

During the field visits, it was possible to gather information regarding vulnerabilities, capacities and responses of the sector regarding the occurrence of a natural disaster, such as the floods. Also, it was possible to gather information regarding the psychological impacts faced by students and teachers.

The Education Management Information System, through the World Bank expert on education in Washington, provided information about the classrooms stock of primary schools.

Information regarding the primary schools damaged during the floods was reported to the Ministry of Education and Training by the District Offices of Education. However, the information gathered for Maseru district seems to be much more complete than for the rest of the districts.

The main constraint for gathering information was the lack of recorded information and information on secondary schools. Firstly, enrolment rates were disaggregated neither by gender nor age. Secondly, information about the classrooms stock was not available. At the same time, information regarding damages and losses was not completely reported by the local offices to the Ministry of Education and Training.

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<sup>13</sup> Adapted from Core Commitments for Children in Humanitarian Action - UNICEF

**ANNEX 3: HEALTH****Pre disaster situation**

Lesotho's health delivery system has three major players. There are government owned hospitals and clinics, church owned hospitals and clinics, coordinated by the Christian Health Association of Lesotho (CHAL) and privately owned clinics and practitioners.

The system is divided into national, district, and community levels. The community level includes services offered at health centres and health posts. The district level comprises hospitals and public health services offered by district health management teams. The national level consists of one referral and two specialized hospitals. Patients with conditions that cannot be addressed at national level are referred to South Africa for care, through the national referral hospital. The country has a total of 216 health facilities broken down as shown below.

The position of the Government of Lesotho with regards to National Health Insurance is that Health Insurance schemes shall be introduced, monitored and regulated to keep costs at an affordable level and promote wider participation (Health Policy Document, 2011).

Table: Summary of health facilities in Lesotho; (*Source: MOHSW, 2007*)

Proprietor	Number of facilities by type			
	Hospitals	Health Centres	Filter Clinics	Total
Government of Lesotho	12	78	3	90
CHAL	8	72	0	80
Red Cross	0	7	0	7
Private	1	35	0	36
<b>GRAND TOTAL</b>	<b>21</b>	<b>192</b>	<b>3</b>	<b>216</b>

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Table: Summary of services offered at different levels; (*Source: MOHSW, 2005*)

Community Health Services	
Average population varies from community to community	Recommended services: Community based health services Promotive and limited preventive services covering the essential public health interventions
Health Centre (both government of Lesotho and CHAL)	
Average population coverage – within 8 km from health facility	Recommended services First tier of contact with formal health care system Supervise community-based health services Public health services Limited curative care as described under the scope of the health centre Out-patient services Limited in-patient services Gate-keeping function in referral system – refer as indicated to district hospital
District Hospital Services (both government of Lesotho and CHAL)	
Average population coverage – based on beds per population	Recommended services Second tier of contact with formal health system Outpatient services In-patient admissions and care Supervise community-based and health centre services Referral to Regional Referral and/or to Queen Elizabeth II hospital

Table: Key Lesotho health service delivery indicators; (*Source: Mwase, et al, 2010*)

Indicator	Value	Source	Year of data
Life expectancy at birth (total in years)	45	WDI-2010	2008
Maternal Mortality Ratio/100,000 births	960.00	WDI-2010	2005
Infant Mortality Rate/1000 births	91	LDHS 2009	2009
Immunization coverage – DPT-3 coverage	83.5	LDHS 2009	2009
Number of hospital beds (per 10,000 population)	13.00	WHO	2006

### Access to health services

79.5% of the national population lives within two hours walking distance of a fixed health facility, but much of the travel is over rough terrain. In 64% of the hospitals a significant proportion of clients showed satisfaction with the health services during recent quality assessments. The reasons for dissatisfaction include long waiting time and un-availability of medicines. The average waiting time ranged from one to seven hours, although there seems to be an improvement in this parameter from many facilities over the years (MOHSW, 2010).



The average OPD contact per capita has increased because of the removal of user fees from about 0.5 in 2007 to 0.7 in 2009. This equals to less than one visit per year, per Basotho. This rate is well below the WHO norm of 3.5 visits per capita per year (Strachan, 2007). The average bed occupancy rate in 2009 for GOL and CHAL hospitals were 38% and 42% respectively. None of the hospitals except QE II were within the expected limits of bed occupancy of 75-80%.

Although no significant change has occurred in the number or relative accessibility of facilities, efforts are underway to further improve the existing structure through an extensive, MCC-supported renovation and construction activity (Lesotho Health Systems Assessment, 2010).

### The health sector development vision

The vision of the sector is: “to have a healthy population, living a quality and productive life by 2020”. Thematic interventions/measures that enable the sector to realize its goals and objectives over several areas include the following: HIV & AIDS, TB, Maternal and Child Health Services EPI, Child Survival and Development, Sexual and Reproductive Health, Nutrition, Environmental Health, Clinical Services, Pharmaceuticals, Communicable and Non Communicable Disease Control, Oral Health, Mental Health, Social Welfare and Monitoring and Evaluation (Health Policy Document, 2004 and 2011).

Table: Top 10 diseases (signs and symptoms) seen at OPD in the country in 2008/09 and 2009/10; (Source: MOHSW, 2010)

Disease	2008/09	2009/10
Cough and cold	23770 (19%)	266317 (19.8%)
Other skin and subcutaneous	101961 (8%)	86552 (6.5%)
Diarrhoea and gastrointestinal infections	78375 (6%)	73838 (5.5%)
Hypertension	75519 (6%)	79553 (5.9%)
Other respiratory diseases	66998 (5%)	73128 (5.5%)
Other muscular skeletal and connective tissue system	65103 (5%)	63594 (4.7%)
Vaginal discharge	45122 (4%)	
STI	-	69093 (5.2%)
Other diseases of digestive system	31866 (3%)	27991 (2.1%)
Conjunctivitis	26613 (2%)	24644 (1.8%)
Tonsillitis	26429 (2%)	25369 (1.9%)
Other diagnosis	509725 (40%)	

### Post disaster situation. Damages and losses

#### Damage to the sector infrastructure and equipment

The heavy rains did not cause major damage to the infrastructure and equipment at hospital and health centre levels. However, three health posts (Maseru, Thaba Tseka and Butha Buthe) were partially destroyed. The sector functions were interrupted in two main areas of the six components of health systems:

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1. Medical products, vaccines and technology: Stock-outs of medicines including TB, HIV drugs and vaccines covering preventable diseases. This was mainly experienced in facilities that are located on the other side of major rivers that do not have well established bridges like in Thaba Tseka (Sehongkhong, St Theresa and Linakeng). Access was hampered by the flooded Senqu River as seen in Picture 1.
2. Service delivery. Community access to many facilities was interrupted for up to 20 days due to:
  - Roads and bridges that were damaged. Facilities were, therefore, too far to reach on foot. Linakeng Health Centre, in Thaba-Tseka, was closed for almost a month in January because health personnel were stranded on the Thaba-tseka side of the river.
  - Due to the high intensity of the rain, communities especially those from far, could not travel in the rain to reach the facilities.
  - Due to the geographic features of the areas, where one has to cross streams and rivers on foot under normal circumstances, it was impossible to do so with flooding streams and rivers. This led to a situation in which sixteen out of twenty seven villages that are serviced by Matebeng HC (in Qacha's Nek) were unable to reach the health center for a period of three weeks.
  - Outreach services that are normally provided in communities that are located far from health centres could not be conducted for two months, resulting in communities missing services such as: child immunisation, ante-natal care, HIV testing and counselling, growth monitoring and basic outpatient services.
  - Fuel for health centres could not be delivered to keep facilities warm, both for patients and health workers as it often becomes cold in the mountain areas when it rains.
  - Communities reported high incidences of gastro-enteritis which can be attributed to use of contaminated drinking water supply sources following the destruction of those that were protected (piped water supplies in the rural areas).
  - A high influx of patients was noted in other facilities like hospitals that could be accessed through other routes and where medicines were available resulting in:
    - Overload in outpatient departments
    - A high consumption of medicines from the hospital
    - Increased number of admitted patients
3. Health financing: There was a reported decrease in the revenue collected from patients due to the low number of patients that reported at health centres. Paray Hospital reported a drop from M32,000 per month to M12,000.

Table: Damage and loss estimates by type of facility; *Source:* PDNA Health Team

FACILITY TYPE	NUMBER AFFECTED	COST by ownership Lesotho Maloti (thousand)		
		PUBLIC	PRIVATE	TOTAL
Fully destroyed facilities				
Village health posts	3	155	0	155
Partially damaged facilities				
Hospital	0	0	0	0
Health Centre	3	108	0	108
Health Post	3	35.8	0	35.8
Equipment and furniture	4	182.6	0	182.6
<b>TOTAL COST DAMAGES</b>		<b>298.8</b>	<b>0</b>	<b>298.8</b>
Losses				
Treatment cost (physical and psychological) - injuries	9	35.7	0	35.7
Treatment for diseases	15,774	2,796	0	2,796
Outreach services	80 visits	1,087.6	0	1,087.6
Vector control		40.5	0	40.5
Total Losses		3,959.8	0	3,959.8
<b>TOTAL DAMAGE &amp; LOSSES</b>		<b>4,258.6</b>	<b>0</b>	<b>5,258.6</b>

## Responses

### Capacity assessment of the response of the sector

The sector capacity for response to disaster is coordinated by the Department of Disease Control at national level. The coordination is facilitated through a national rapid response team, supported by the Disaster Management Authority – Health and Nutrition Working Group. At district level, a similar team exists which works in collaboration with the District Disaster Management Team. Existing capacities at both levels include:

- Availability of human resources for health who participated in the rapid assessment and who were later involved in the current Post Disaster Needs Assessment.
- Technical guidelines are in place to aid response to specific diseases that could be associated with the heavy floods (water and sanitation related disease outbreaks)
- Partners exist nationally and at district level to support government efforts to respond to emergencies. The support includes: technical, financial and logistics.

Existing gaps in capacity includes, *inter alia*, the following:

- Capacity of the local level to conduct a rapid assessment following a disaster. This is in terms of skills and logistics. Due to high staff turn-over, a lot of district based staff have not been trained on emergency management including integrated disease surveillance and response.

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- Weak coordination of partners both at national and district levels to maximize on the available resources amongst all involved.
- The Health Information System at district and national levels does not provide information to the units involved in emergency preparedness and response to anticipate emergencies.
- There is no budget clearly earmarked for emergencies response.
- Districts and national level do not have finalised preparedness and response plans for heavy rains/floods.

### Overview of sector response

The sector response to the heavy rains commenced with the rapid assessment, which was conducted jointly with other sectors under the leadership of the Disaster Management Authority. Additionally, the following measures were taken at different levels of the health sector:

- Supportive supervision by the national level with specific focus on the review of morbidity and mortality rates from diseases according to the requirements of the integrated disease surveillance and response.
- All districts sensitized to be on high alert for potential outbreak of water and sanitation related diseases.
- In Thaba Tseka, the health sector provided services on a weekly basis to the communities that were stuck at Komakoma (Senqu) where treatment was given to people with minor ailments such as common cold and for re-stocking TB and HIV patients with their monthly supplies.
- A helicopter was mobilised to assist people to cross Senqu River at Komakoma.
- When the rains subsided, medicines were delivered to health facilities.
- Health centres mobilised community health workers to inform patients who were on TB and Anti Retroviral Therapy (ART) to come for their supplies, once the rains started subsiding.
- Patients travelling long distances to health centres were given two months supply of ART.
- Public education and awareness sessions were conducted in the districts to address potential health impacts of the disaster.
- Vector control services were provided on demand.
- Chiefs were requested to provide temporary accommodation for outreach services where health posts were destroyed.
- The WHO submitted a proposal to the United Nation's Central Emergency Fund (Rapid Response window) to support provision of outreach services in four mountain districts (Mohale's Hoek, Mokhotlong, Qacha's Nek and Thaba Tseka)

### Risk and vulnerability

The road infrastructure connecting most of the villages with health facilities is either rudimentary or non-existent. As such, they will not be able to access health services during heavy rains and when other harsh weather conditions prevailing.

**Recovery strategy****Recovery considerations**

The purpose of recovery measures is to restore the health sector's performance and access to health services to the pre-disaster level. The following key areas need to be addressed during the recovery phase:

- Support for the reconstruction of village health posts using more resilient construction materials such as bonding mason with cement mortar as opposed to mud.
- Re-roofing of leaking village health posts making provision for adequate slope to enable smooth flow of rainwater from the roofs.
- Finalising the national, district and facility emergency preparedness and response plans and supporting simulation exercise thereof.
- Supporting districts to resume outreach services in remote areas.
- Strengthening the Health Information System to ensure that reporting is complete and timely. This will also address data management aspects at facility and district level to facilitate timely response to emerging health issues.
- Strengthening water quality surveillance and communicating results to stakeholders including the community.
- Strengthening capacity of the health sector in coordination and resource management during emergencies/disasters.
  - Human resources
  - Finances
  - Finances and other logistics
- Strengthening public health campaigns geared towards prevention of communicable diseases that could be attributed to heavy rains and other environmental related risks.
- Given the high HIV and AIDS prevalence and maternal mortality, there is also need to strengthen district capacity to implement the Inter agency Minimum Initial Service Package for Sexual and Reproductive Health in emergency situation (the MISP includes preventing excess of maternal and new born mortality and morbidity, reducing HIV transmission, preventing sexual violence, planning for comprehensive SRH into Primary Health Care).

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### Sector outcome, recovery strategy, outputs and monitoring/ evaluation indicators and targets

Table: Health sector recovery strategies, indicators and targets; *Source:* PDNA Health Team

Thematic area	Early recovery and future risk reduction measures	Long-term recovery and future risk reduction measures	Major Assumptions	Indicators and targets	Lesotho Maloti (thousand)
Long-term recovery outcome: health sector performance and access to health services at or above the pre-disaster situation after the completion of the recovery measures. What are the pre-disaster levels that will guide the desirable levels?					
Service delivery		Reconstruction of three village health posts	Community will be supported with non-locally available materials	Number of health posts reconstructed with more resilient materials/metals Target; 2 per year	155
	Repair of leaking roofs in three health posts		New roofing materials will be provided	Number of reroofed health posts Target; 3 per year	35.8
	Resume outreach services in temporary shelters	Resume outreach services in temporary shelters	Local leadership will support in earmarking the temporary shelters	Number of monthly outreach services conducted Target; 2 per district per month	2,796
	Repair partial damage on health centres			Number of health centres repaired Target; 4 per year	108
	Scale up disease prevention campaigns: <ul style="list-style-type: none"> <li>• Health education</li> <li>• Water quality surveillance</li> </ul>	Scale up disease prevention campaigns: <ul style="list-style-type: none"> <li>• Health education</li> <li>• Water quality surveillance</li> </ul>	Transportation needs will be met	Number of education sessions conducted Target; 2 per district Number of systems surveyed Target; 20 per district	240
Leadership and governance	Improve sector skills in leadership and management		Trained staff will not be affected by the high staff turnover Funds will be available	Number of districts with senior management trained in leadership and management Target; 8 per district	245
	Finalise preparedness and response plans for facilities	Conduct simulation exercises and modify plans accordingly	National plan will be in place to guide lower level plans	Number of facilities with functional plans Target; 4 per district	
Medical products and vaccines	Provide buffer stock of medicines to facilities		The procurement and supply management system will be flexible to accommodate this	Number of facilities experiencing stock-out of medicines during emergencies Target; 1 per district	
Health information and surveillance	Train the health workforce on disease surveillance Promote reporting and data management at all levels		Funding will be available		272.5
<b>Total funding to meet the sector outcome</b>					<b>3,852.3</b>

**ANNEX 4: NUTRITION****Pre disaster situation**

This section of the Lesotho PDNA aims to address the impact that the recent heavy rains have had on the nutritional status of affected communities in the country. In order to put this objective into perspective, a brief explanation of how nutritional status is assessed will be given. Firstly, nutritional status can be defined as adequate or inadequate. The recent floods in Lesotho make attaining the 4 MDGS on reduction of hunger almost unattainable as there was already little to no progress in this direction.

**Situation analysis**

- The food and nutrition situation in Lesotho is characterised by a high degree of chronic food insecurity due to various unfavourable climatic conditions that include erratic rainfall, recurrent droughts, heavy snowfalls in winter and most recently, floods. All these conditions put women and children at nutritional risk. Collectively these disasters result in reduced access to food.
- The current floods take place against a backdrop of high rates of malnutrition in children under the age of five. According to recent studies (LHDS 2004 and 2009, NNS 2007), stunting is the most prominent type of malnutrition and has a prevalence of approximately 39%, a level that is unacceptable according to WHO standards. Stunting is a reflection of interplay of chronic poverty, poor feeding practices, poor sanitation and recurring childhood illnesses such as diarrhoea and acute respiratory infections. Figure 1 shows exceptionally high levels of stunting in the mountain districts, Thaba Tseka, Mokhotlong followed by Qacha's nek. Surprisingly, Mophale's hoek, Leribe and Botha Bothe show an increase from the 2004 LDHS and 2007 NNS. Striking feature is that both Botha Bothe and Leribe lay in the most food secure zones (northern lowlands) of the country. This discrepancy could be due to either HIV/AIDs or the fact that traditionally nutrition livelihood and recovery projects are concentrated in other zones as was the case for the 2002 drought recovery efforts.

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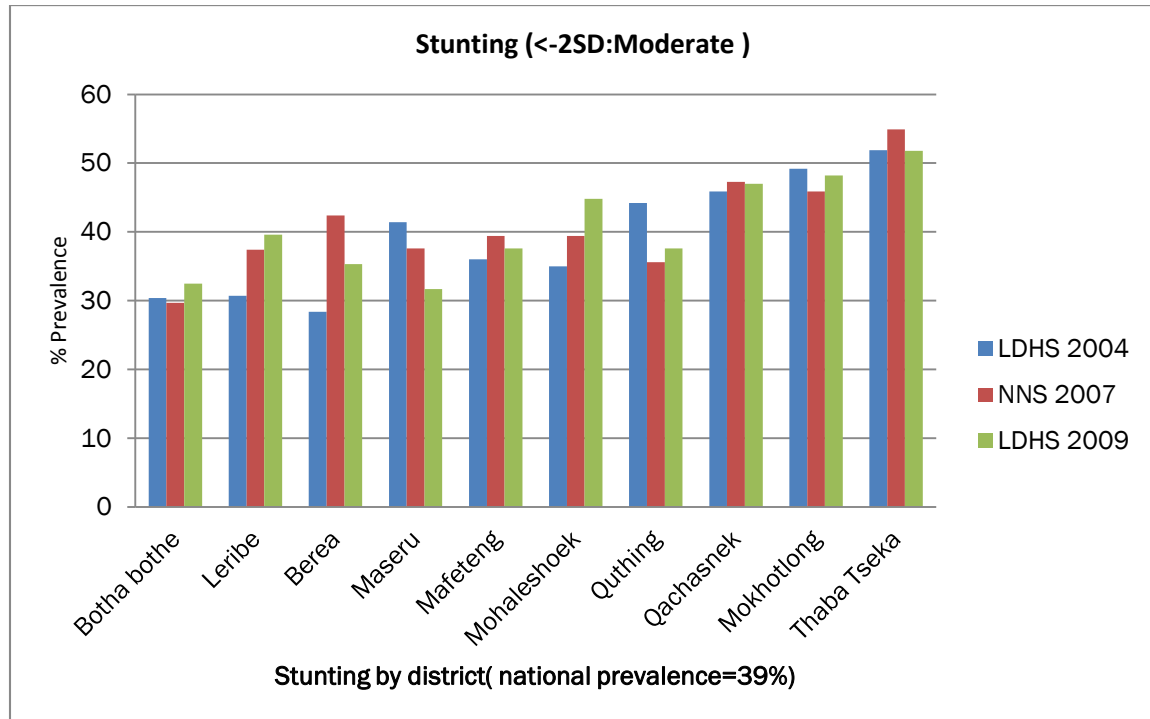


Figure: Stunting trends from 3 surveys

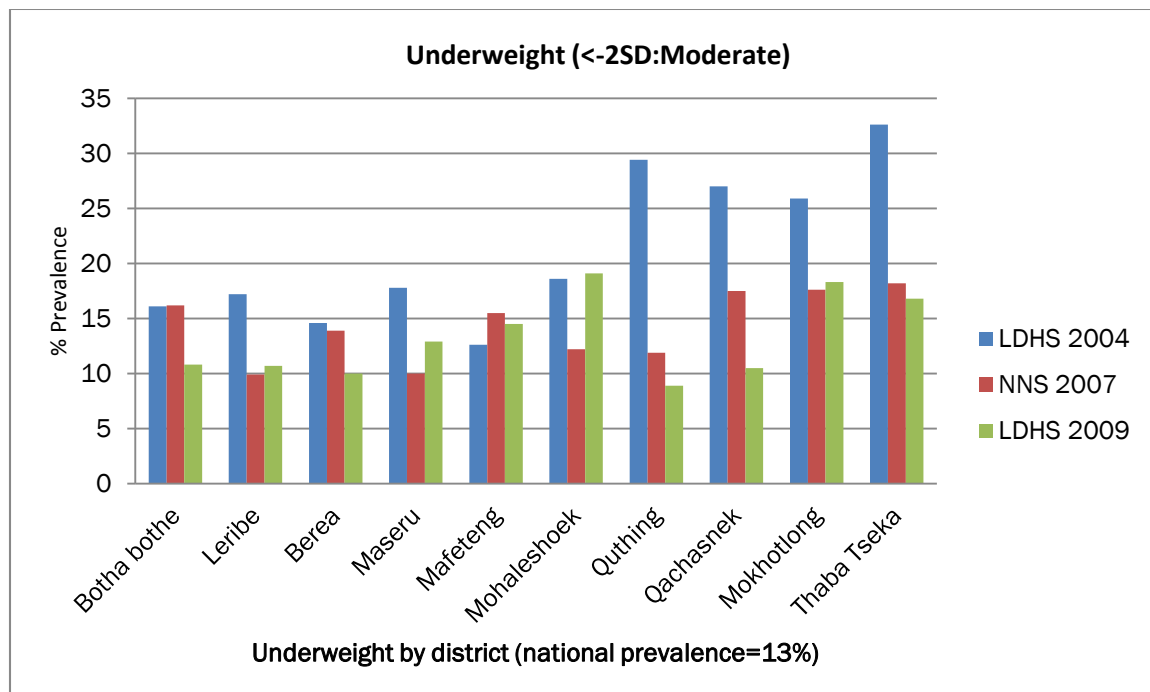


Figure: Underweight trends from 3 surveys

Wasting, an indicator of inadequate food intake and recent episodes of illness, is highest in the age 6-8 months and lowest in 18 to 35 months, with mountain regions still having slightly higher levels. This



confirms the fat growth of Basotho children falters at this early age which offers a window of opportunity in reversing effects of malnutrition.

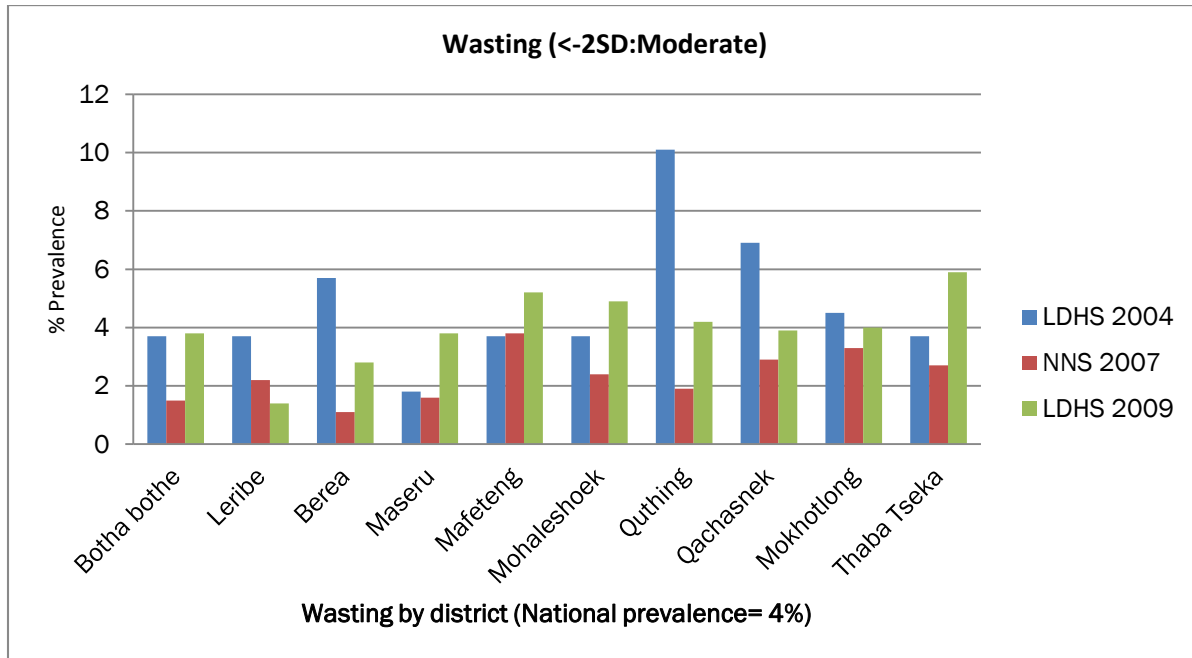


Figure: Wasting trends from 3 surveys

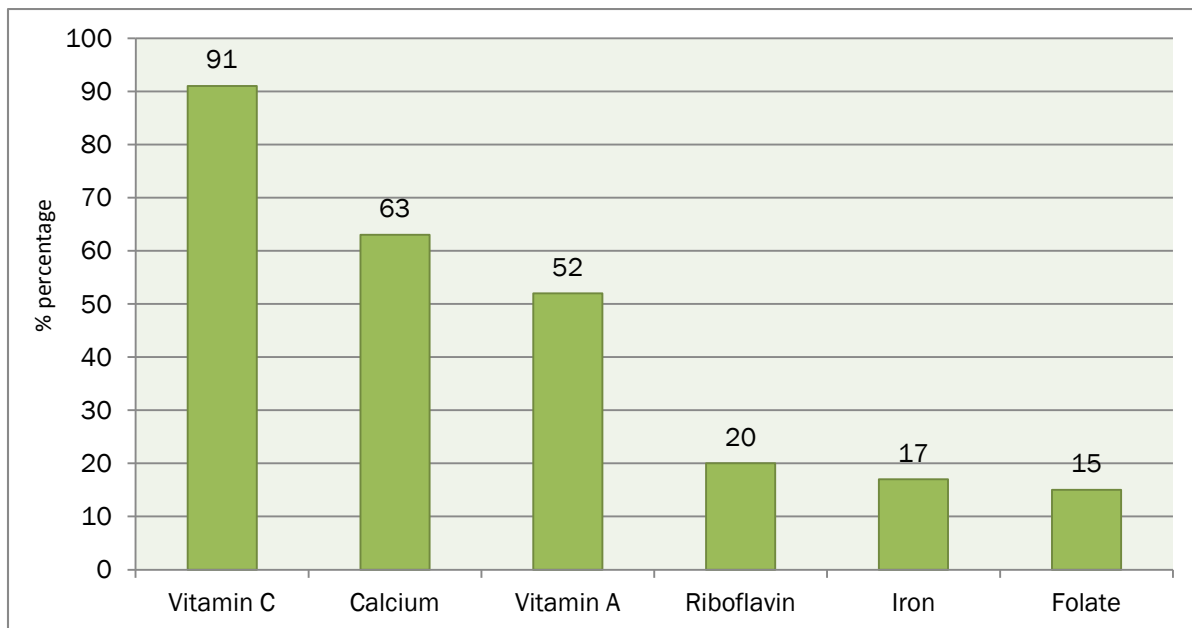


Figure: Substantial micronutrient levels from selected foods consumed in Thaba Tseka

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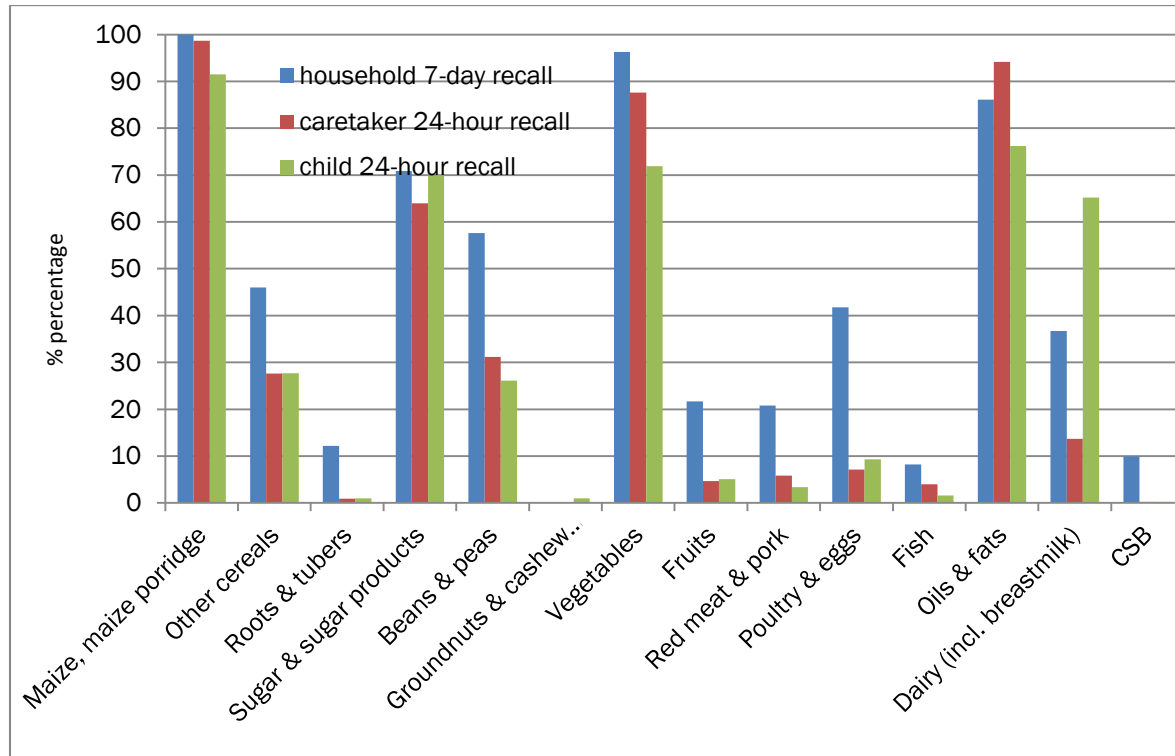


Figure: Summary of foods commonly consumed by caretakers and children in Thaba Tseka

In many resource limited settings such as Lesotho, vegetable production has been extensively promoted as a simple strategy for ensuring micronutrient intake. A body of literature exists on the value of home grown vegetables which range from nutrition, health, and social to psychological benefits.

These studies point to the fact that diets in rural Lesotho are limited in diversity, indicating a high degree of food insecurity. Figure 3 highlights typical food groups commonly consumed on a regular basis by caretakers and children under the age of five from two types of dietary assessment. Traditionally Basotho eat a diet consisting mainly of maize porridge '*papa*' and '*moroho*', green leafy relish cooked with oil. The relish is made from wild vegetables and cultured vegetables mostly grown at home. '*Papa*' (especially fortified) and green leafy vegetables contributed to substantial micronutrient intakes. Protein rich foods are rarely consumed. Figure 4 show a synopsis of amounts of micronutrients from selected foods. A recent study conducted in Thaba Tseka reported that '*Motoho*' (fermented soft porridge) and '*Lesheleshele*' (soft plain porridge: served to children) remain popular breakfast and in-between meals/snack beverages for most households. Both can be made either from sorghum or maize meal.

### Development vision of the sector

- In response to the high levels of malnutrition, the government of Lesotho and the UN are jointly implementing an integrated multi-sectoral nutrition programme. The programme is piloted in four districts namely Thaba Tseka, Berea, Mokhotlong and Qacha's Nek. The aim of the programme is to reduce malnutrition levels and promote health and wellbeing of communities. It should be noted that the project's activities are aligned with the National Nutrition Plan of

Action and overlap with activities that are already in existence in other government departments. Below is a table that summarises major areas of focus for the programme. In addition to the activities outlined here, the nutrition sector is limited in terms of human resources to fully undertake these in all districts.

Table: Summary of Development Vision for the Nutrition Sector

Focus programme areas	Progress
Food fortification To reduce micronutrient deficiencies through Food fortification of staple foods especially anaemia and vitamin A	Food fortification Legislation is in progress. The plan is to fortify maize meal then sorghum meal. In addition, plans are underway to study the feasibility of village fortification.
*Supplementary Feeding at ECCD centres. To provide nutritious meals to children during periods of food shortage through Supplementary Feeding in ECCD centres.	Ongoing in Thaba Tseka for a period of 3 months (pre-harvest season).
Positive deviance. To promote positive behaviours and encourage peer education on positive behaviours that aim to reduce and demystify causes of malnutrition.	Thaba Tseka (stated), Berea (starting), has not started in Mokhotlong and Qacha's Nek.
Infant & Young child Feeding (IYCF): To training health workers on revised IYCF protocols for effective care and feeding including promotion breastfeeding practices.	District level trainings for health care providers (nurses and nutrition personnel)
Livelihood Activities To promote income generating activities such that households improve their livelihoods options. Normally this allows households to have some purchasing power. To promote cultivation of vegetables through homestead gardens to increase a food based approach to increase micronutrient intake.	Income generating activities and promotion of vegetable gardens, especially for OVCs.
*ECCD: Early Care Childhood Development To support children's nutritional status through providing onsite meals.	Wet Supplementary feeding
IMAM: Integrated management of acute malnutrition To provide therapeutic and medical care for malnourished children. Plans are underway to expand this activity to CIMAM (Community Integrated management of acute malnutrition)	Identifying and rehabilitating children with acute and severe malnutrition (inpatient and outpatient).
Inter-sector collaboration and coordination of nutrition activities To Strengthen inter-sector collaboration and coordination of nutrition activities for maximum delivery of quality nutrition services through supporting government capacity and leadership.	Achieved through scheduled regular meetings at central level. More work still needs to be done at district level, especially those without nutrition focal points.
*short-term measures aimed to address malnutrition.	

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### Disaster situation damages and losses

#### Disaster impact on the sector

Deterioration of nutritional status has not emerged as yet, however it is expected that the impact on nutritional status will surface along with the impacts on other sectors such as agriculture and health. Among the districts surveyed (Leribe, Mophale's hoek, Bera and Thaba Tseka) for the PDNA, Leribe had the highest number of children admitted with malnutrition irrespective of pre or post disaster period. Most of the cases in were HIV and gastroenteritis related. Overall, possible impacts on the nutrition sector as identified by district personnel included food inaccessibility and unavailability due to crop failure. The most commonly cited reasons for crop failure included water-logging and disruption in weeding activities. Inaccessibility to markets and healthy services were also common features of this disaster. Moreover, disruption in agriculture labour activities could further reduce purchasing power of most poor households since they depend on labour work for income and in kind payment. Expected declines in nutritional status of children are due to the following:

**Disruption of agricultural labour activities:** Most households rely on for income and in-kind payment (a significant food source for poor households) leading to a decline in purchasing power for households. It should be noted that this is particularly important for women because they are mostly engaged in agricultural labour activities. Thus, they may have to resort to alternative means to fend for their households which may lead them to seek employment outside the village, leaving children in the care in others, a situation which is not favourable.

**Loss of income:** Due to delayed shearing of wool and mohair, which is a major income source according to in Thaba Tseka discussions.

**Loss of animals:** Due to drowning and disease, thereby resulting in low or absence of meat and milk production.

**Crop failure:** mainly with reference to fruits and vegetables, which has resulted in reduction of food preservation activities especially observed in Mophale's hoek. This is an activity mostly done by women which ensure a supply of food during hard times (hunger season).

**Poor sanitary conditions:** are closely linked to diarrhoea and common childhood morbidity in Lesotho.

**Inaccessibility to services:** The destruction of roads and bridges made health centres inaccessible. It was cited that the destruction of the road to Phamong, Mophale's hoek has made travelling almost impossible. In cases of emergencies people have to hire private vehicles which are costly, and delaying/omitting visits to health facilities.

- Affect referral and follow-up of malnutrition cases because they now have to hire private transport to health facilities.

**Inaccessibility of markets:** As a result of difficult road conditions, shop owners are taking advantage by increasing the price of food and other commodities. This may translate to people cutting down on the amount and quality of nutritious food supply.

Functions of sector activities are already stressed especially with respect to the provision of adequate supplies for IMAM activities and vegetable gardens. It is possible that limited access to health facilities, especially clinics, will result in insufficient numbers of children admitted in the programme, hence the registers may not reflect the true magnitude of the problem. This will also negatively affect follow-up of such children leading to relapses.

#### **Malnutrition inpatient & outpatient**

This review focused on three months prior to the disaster, October to December 2010, compared to the post disaster period of January to March 2011. There were no difference in the levels of malnutrition for both outpatient and inpatient data pre and post disaster for all studied districts (refer to annex 2). Overall kwashiorkor predominates over marasmus in the four districts.

- Deterioration of nutritional status will be reflected in time as the food security and sanitation impacts take their toll. Hence the absence of damage and loss assessment for this sector.

**Poor reporting:** Some of the data is not recorded in the appropriate register but in note books which reflect only a few variables. In Mohales hoek, there was no under five outpatient register, as it was not clear to the nurses as to who to report to and what to do with the recorded data and this was eventually destroyed.

**Incomplete data entry:** Diagnosis, referral note, gender, missing MUAC measurements.

**Depleted stores of therapeutic commodities:** plumpy-nut, F100, F75 especially in Mohale's hoek and Leribe.

**Poor follow-up:** Dropouts from treatment were observed in the entire surveyed district. The relapses from treatment observed were mainly due to the distance of health centres to their homes.

**Poor attendance:** Antenatal and postnatal services for women, which affects the effective monitoring of women's health and nutritional status in order to assure favourable outcomes. An observation of rates of low birth weight (a proxy indicator of maternal nutritional status) depicted in Annex 3, revealed low occurrence of low-birth weight. This confirms other findings that Basotho children are born with acceptable weights but however falter in growth from six months (characterised by weaning period).

**Vitamin A coverage:** The coverage was acceptable and well documented in the registers.

#### **Assumptions on gender disparities for nutrition sector**

Unlike their male counterparts, women have little time to engage in other livelihood activities apart from taking care of their children. This means that they are more vulnerable by the simple virtue of their gender as their workload as caregiver restricts them to expand their livelihood options.

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As good nutrition depends on educational status and knowledge of good child care practices, women are more likely than men to be vulnerable, as they are usually the ones to leave school to care for sick household members. This type of situation is mostly exacerbated by the HIV/AIDS pandemic.

Normally nutritional status is worse for boys than in girls, even though there are more girls than boys as reflected in the national census report. The boy child from the age of two years is sent to herd animals with older boys and this compromises their food intake thereby reducing opportunities for eating frequently. Also traditionally in the rural areas boys will be given fewer food rations than girls due to the assumption that girls are more vulnerable than boys and the latter can also find more food in the fields as they look after animals during the day. With the disaster, it is possible that both sexes will suffer equally as boys might miss school to work for food, and girls might miss school to take care of the younger children while the mother engages in other income generating activities.

### **Economic damage**

It is a well known fact that with possible increases in malnutrition rates the MOHSW will have to bear the cost of treatment, disease surveillance and control.

Water and sanitation: there is a need to build proper facilities and ensure that water sources are safe for consumption.

### **Communal, social, cultural, and institutional damage loss and losses in sector / thematic area**

Households will remain vulnerable to chronic food and nutrition insecurity, as well as depressed livelihood strategies if inter-sector collaboration is not strengthened.

### **Responses**

#### **Capacity assessment**

- Humanitarian response in most districts is not yet 'fully' functional for this crisis, the first of its kind in 60 years. The bulk of existing district response is only at the planning stage.
- Humanitarian response is normally coordinated by DMA with its multi-sector district committees (District Disaster Management Teams -DDMT) with nutrition represented. These DDMTs have already drawn plans for response and recovery.
- Gaps for long-term recovery: information gathering, reporting, supplies for monitoring nutritional status, lack of registers, dormant community health workers.
- Not all hospitals have a nutritionist, this personnel is needed; to effectively implement an efficient recovery programme. Collaboration between stakeholders such as the Ministry of Agriculture and Food Security, the Ministry of health and social welfare and other concerned NGOs have to be strengthened through the Food and Nutrition Coordinating Office and DMA. Particularly since these ministries have extensive outreach systems.

#### **Overview of the response for this sector**

- The aftermath of the 2002 drought saw a plethora of relief and recovery activities especially in the southern lowlands. The activities ranged from agriculture and livelihood programs (a strong

focus on promotion of conservation agriculture and vegetable gardening). Coordination mechanisms then needed strengthening. In 2007, the nutrition sector implemented a humanitarian response programme with partners in response to the 2007 drought by instituting the IMAM programme of which the activities are no longer as well implemented. However, the nutrition sector could turn a crisis into an opportunity by reviving all response strategies and expanding IMAM to CMAM (community management of acute malnutrition). This requires revival of activities such as growth monitoring by community health workers, provision of registers (data capturing book) for relevant levels of service, timely procurement of therapeutic supplements, anthropometric tools and training of regular step down training of nutrition and health personnel.

**Risk and vulnerability**

- Poor sanitation and unsafe water sources can have an adverse impact on nutrition and trigger diseases such as diarrhoea. The majority of admitted malnutrition cases in Leribe were due to gastro-enteritis. The nutrition personnel indicated that unsafe water sources (unprotected springs) were largely responsible for the high diarrhoea case load. In addition, most caretakers of admitted children work in textile industries. Workers who are HIV positive are provided with formula milk and the practice is to sell half the batch and remain with a small amount which is normally over diluted to reduce costs. Additionally, due to the stigma attached to HIV, some do not want to be seen with formula since it has become common knowledge that if a woman is not breastfeeding and giving formula there is a high likelihood of HIV.
- Low maternal educational status can affect the growth of children, as caregivers lack such skills as good child care practices and knowledge on food preservation techniques.
- Low food diversity is likely to cause an array of deficiency diseases such as iodine deficiency diseases.
- Poverty and low household income will reduce the ability of most vulnerable households to acquire sufficient nutritious food for their families.
- HIV/AIDS management is likely to be adversely affected as dietary guidelines for PLWHA is unlikely to be sustained within the conditions set by the floods.
- Lack of resilience to shocks is deteriorated as food stocks are depleted to make up for what was lost during the floods.

**Recovery strategy****Recovery considerations**

- Encourage diversity of food sources to include fish especially for areas along the rivers.
- Promotion of key whole gardens should be intensified since they were resilient to floods as compared to other types of vegetable gardens.
- Farmers may have to be supplied with seeds because of not being able to save any from their own production (a common livelihood practice).

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- AID should be relevant to affected communities.eg: distributing cabbage seeds to communities that consume dark green leafy vegetables.
- Plans are underway to provide formula and supplies to hospitals so that they can make their own F100 and F75 to fill the gaps when ready-made preparations are out of stock.

### **Sector outcome, recovery strategy and monitoring/evaluation indicators and targets**

- Prevalence of underweight
- Prevalence of wasting (weight for height) commonly assessed in emergency situations.
- MUAC (Mid upper arm circumference)
- Dietary diversity
- Knowledge of appropriate care and feeding practices
- Coverage of vitamin A and iron supplementation and deworming.
- Livelihood practices ( an increase in livelihood strategies)
- Coverage of Antenatal and postnatal care for women of child bearing age (regular attendance)
- Coverage of CIMAM activities
- Malnutrition admissions and follow ups.

### **Cross cutting issues**

- The assessment did not reveal any gender differences in nutrition issues.
- Livelihood activities are increasingly becoming gender insensitive
- Eg: men are becoming more involved in piggery just as women are rearing cattle and small stock (traditionally this was not the practice & it is an emerging trend).
- HIV and AIDS is a major factor in hospital admissions and deaths amongst inpatient malnutrition cases.

### **Methodology**

Three methods were employed for data collection in four districts namely Thaba-Tseka, Leribe, Berea and Mohale's Hoek. Clinic records were reviewed for the pre disaster period spanning from October to December 2010, and the period from January to March of 2011.

- Quantitative data was extracted from hospital based inpatient and outpatient malnutrition register.
- Qualitative data was derived from focus group discussions and in-depth individual interviews with district nutrition personnel.
- A desk review of relevant nutrition documents was carried out to triangulate the information sources.



**Box: Health and Nutrition Facts**

Malnutrition prevalence: stunting 39%, wasting 4% and underweight 13%.

Inadequate feeding Practices: 54% of children 0 to 60 months are exclusively breastfed, while complementary feeding is introduced as early as 4 months.

Environmental conditions: 80% households have access to improved water sources.

Insufficient food consumption: large proportion of the population has poor dietary diversity indicated by meals which are predominantly carbohydrate based with little protein. Women's average BMI is 25.

Vitamin A coverage: 34% children age 6 to 59 months received vitamin A.

Anaemia: 30% of pregnant women; 26% of women and 47% children 6 to 59 months are anaemic.

Iodine deficiency: 83% of children 6 to 59 months live in households with adequate iodized salt (<15 parts per million).

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### ANNEX 5: HOUSING

#### Pre disaster situation

Houses and shelters are a central part of rural and urban livelihoods and often the most important asset of households. In Lesotho the majority of the households build their own houses through private initiatives and resources. Even for the few houses that are delivered through formal institutional leverage, the construction process is significantly managed by householders themselves. The vast majority of this type of housing is provided informally – constructed by the owner, financed by individual savings and in urban areas, most commonly constructed on illegally held land without basic services. In rural areas individual households assemble local available building materials and only build their houses after all building materials have been put together.

The housing and shelter sector has been substantially affected by the recent severe weather events, where roofs were blown away and houses damaged and destroyed through intensive rain, hail and run-off from steep slopes. The impact of these events on the housing sector predominately affects private households and their financial resources.

#### National housing policy for Lesotho

The crisis in the housing sector in Lesotho, resulting from a widening gap between the housing supply and demand has been recognized by the Ministry of Local Government and Chieftainship (MoLGC) as a major problem. It is against this background that the MoLGC seeks to provide a comprehensive housing policy for effective housing delivery for the country. The National Housing Policy that was adopted by the Cabinet in 2010 has the following vision and goals: the vision of the government for the housing sector is to have a country where all citizens have access to decent and affordable housing in sustainable settlements. The goal of the housing policy is to promote (i) safe, secure and affordable housing as a social good, (ii) economic investments and job creation, (iii) a strategy for poverty alleviation and (iv) a basic human right for the people of Lesotho. Physical planning standards are established across the entire country, while Maseru has established separate standards. These planning standards are the minimum standards, below which, according to wide agreement, no proposals should be entertained. The standards are related primarily to housing areas since it is here that the need for planning standards is greatest.

#### Housing sector institutions

While housing in Lesotho is largely a private issue, several governmental institutions and parastatal agencies play an important role in regulating housing and land issues.

**Housing directorate:** (Ministry of Local Government and Chieftainship): The main government body responsible for issues is the Housing Directorate, which was established in 2007. Its mandate is to formulate housing policy, undertake housing related research, coordinate housing development activities and facilitate settlement upgrading.

**Lesotho housing and land development corporation (LHLDC):** Having been established through a merger of two previous housing agencies in the country, it has the objective to make housing more

easily accessible for larger groups of the Basotho people. The mandate of LHLDC includes (i) Land development through the provision of serviced sites for all income groups; (ii) Provision of rental accommodation for all income groups; (iii) Provision of home ownership for all groups.

**Directorate of lands, surveys and physical planning (LSPP):** Established in 1974, LSPP has the function to prepare and issue titles to land; to maintain records of land transactions; to provide cadastral surveys and mapping; to undertake physical planning and development control services; to collect land revenue by way of assessed ground rent with respect to all land held under leasehold. The Commissioner of Lands is the land and planning authority for Lesotho as a whole.

**Private sector:** Private sector activities can be categorized as informal, formal and individual household related. The supply of malaene would seem to match the demand for renting at the lower end of private housing supply systems, given that there is limited evidence of a housing crisis by squatter settlements/slums and street dwellers. On the other hand, private housing developers are increasingly playing an important role in widening available housing options. These new, invariably up-market developments are predominantly of “enclosed high-density residential estate types”.

**Non-Governmental organisation:** Habitat for Humanity Lesotho (HFHL) is one of the few non-governmental organizations that are directly providing affordable shelter to poor households. HFHL has started building houses in Lesotho in 2001. Habitat for Humanity Lesotho is an ecumenical Christian organization that seeks to eradicate poverty housing in Lesotho by working in partnership with individuals, communities and organizations to provide shelter for low-income families and vulnerable groups.

### Housing types in Lesotho

The types of housing that are found in four different regions of Lesotho are mostly, the Rondavel, Polata, Heisi, Optak and Bangalow modern houses; Malaene are mostly found in the urban areas.

- Malaene are very simple in terms of construction, consisting of 1 or 2-roomed row houses with shared services in the form of pit latrines and water. Malaene is a popular private (albeit largely informal) housing option to most poor urban households and a profitable and secure investment avenue to most urban land owners.
- Polata – is constructed of concrete, mud bricks or sand stone with flat corrugated iron roofing. This constitutes the most common type of construction in urban and lowlands areas.
- Rondavel - is mostly common in the foothills and mountains, however, the traditional rondavel built of stone/mud and thatch remains the most common housing type in the mountain areas.
- Heisi – a rectangular structure of stone /mud and thatch, larger than a rondavel and,
- Optak –western-style, multi-room house, is most the least common in all the regions.
- The Bungalow types are the common features of the suburb areas of the cities and mostly for the high income bracket in Lesotho.

The first three types, namely rondavel, heisi and polata, which are typical of low income house types, constitute about 75% of the housing stock in Lesotho. The Bureau of Statistics (BOS), 2006, describes the

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distribution of these main housing types in the ten districts of the country, as well as the main construction materials of wall, roofing and facilities such as water, sanitation and electricity. The following graph and table describe the overall distribution of housing types in Lesotho.

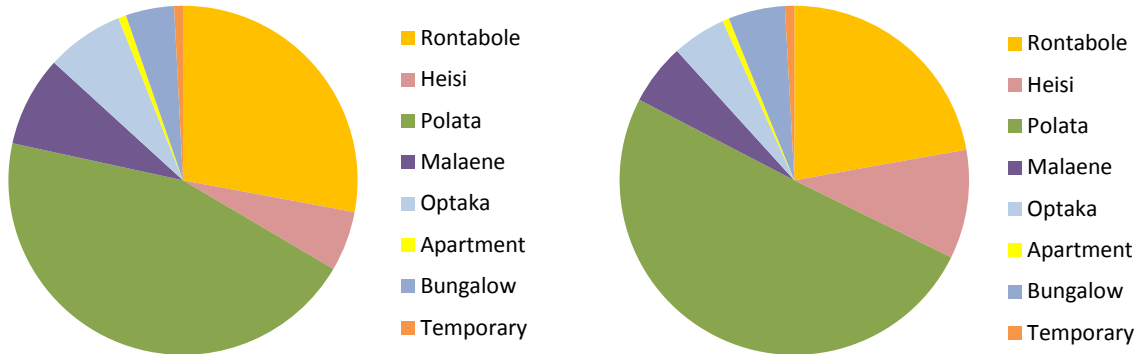


Figure: (Left) National distribution of housing types in Lesotho; (Right) Distribution of housing types in the three northern districts of Berea, Leribe and Botha Bothe; *Source: BOS, 2006.*



Figure: (left) Traditional heisi house type, built of mud bricks and Stones; (right) De-roofed bungalow type of house in Kolonyama (Leribe district)

According to the housing survey (BOS, 2006), country wide 45.5% of the walls are made of concrete bricks, 38.7% of natural stone, and 6.9% of mud brick. In the northern low lands the use of mud bricks (19.9% in Botha Bothe, 12.5% in Berea, 11.5% in Leribe) and concrete bricks (54.6% in Berea, 54.7% in Leribe) for the construction of walls is more prominently used than in the highlands, largely due to the availability of these material in the low lands.

Corrugated iron sheets are the main material for roofing in Lesotho, covering more than 68% of all roofs in the country. Traditional housing types such as rondabels and heisi are covered by straw and thatch, accounting for more than 28% of the roofing material.



Figure: (left) Optak (Leribe district); (right) Polata constructed of mud bricks



Figure: (left) Village setting (Berea District); (right) Traditional rondavel (mud / stone)

### Post disaster situation. Damages and losses

#### Affected areas and districts

The rapid assessment of DMA following the extreme weather events in December and the beginning of January (conducted in January 2011) reported the highest number of affected houses for the districts of Berea, Leribe and Botha Bothe, followed by Mafeteng, Mokhotlong, Quthing, and Masaeru, while Thaba Tseka and Qacha's Neck had only a few damaged houses. In relation to the total number of houses, the district of Botha Bothe, followed by Leribe, was worst affected with more than 1% of all houses affected. In total it can be estimated that between 2000 and 2500 houses were affected (destroyed, damaged on walls or roof) by the severe weather events.<sup>14</sup>

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<sup>14</sup> A total number of 2225 houses have been used for the calculation of impacts in this assessment.

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### Affected housing types

Following the field survey, the housing types of Lesotho (rondavel, heisi, polata, optak, bungalow, temporary) were further specified according to the main construction material used for the construction of walls (mud bricks and stick mud, (sand) stone and concrete bricks). This provides a more accurate analysis of the impact on and costs in the housing sector.

Of the partly damaged or fully destroyed houses more than 40% were of the polata type, which uses mud for the construction of walls, followed by polata which were built of concrete blocks, and those built of sandstone (approximately 20% and 14% respectively). Other housing types such as rondabels and heisi only counted for 12.5% and 7% of the affected houses, while optaka and bungalows account for the remaining 4.5%. This estimation does not include houses where water seeped through the floor and walls, but that were otherwise not damaged at all.

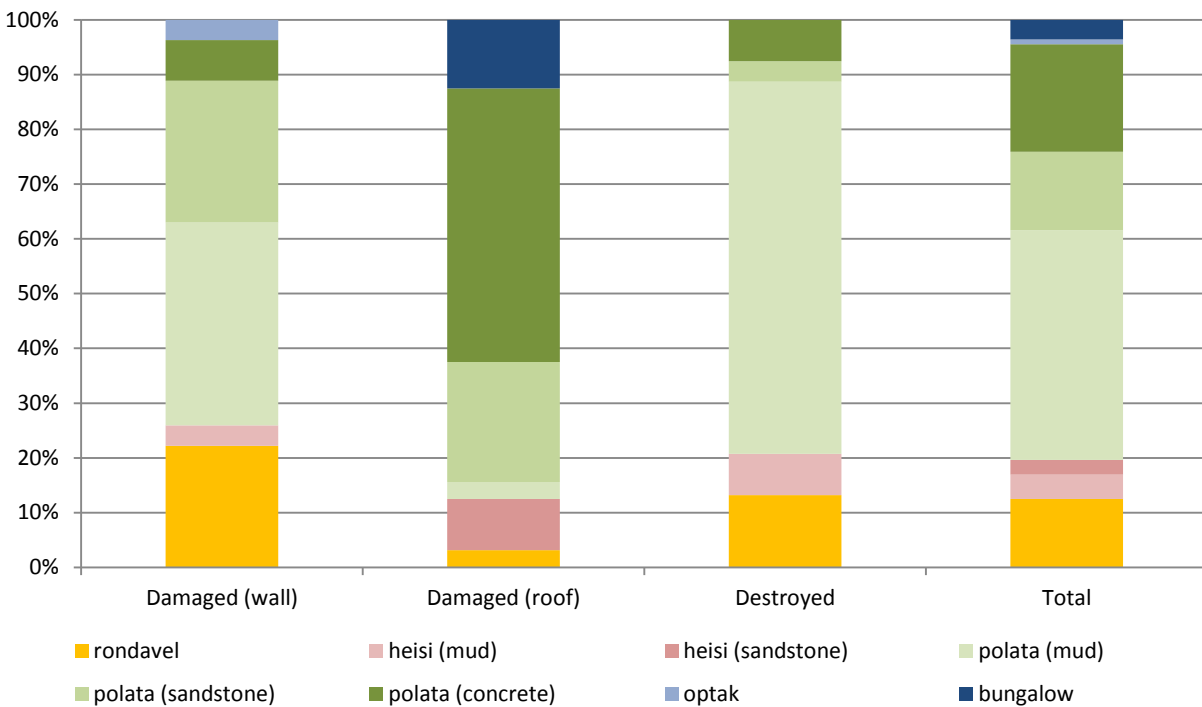


Figure: Distribution of major housing types, which were fully destroyed, damaged on the roof or damaged on the walls

Of the houses which were fully destroyed, more than 70% were polata houses made of mud bricks (68%) or sandstone (4%). Rondabels and heisi account for 13% and 7.5% of the destroyed houses, while 7.5% of the houses were polata types constructed of concrete blocks. For the houses where the roofs were blown away, 50% were of the polata type constructed with concrete bricks, 22% polata type constructed of sandstone and 12.5% were bungalow type of houses. Heisi (9%), rondabels (3%) and polata constructed of mud bricks (3%) account for the remaining. All impacted houses are privately owned.

Public administrative buildings were not affected or at least not affected in a way that any impact were reported to the Ministry of Public Works and Transport.

### **Economic impact on the housing sector**

#### **Damages**

The damages are composed of the (i) costs for reconstruction of all fully destroyed houses to the original status before the severe weather events, (ii) the costs for repairing damages on walls and roofs, (iii) costs of lost and damaged furniture, as well as an estimation of (iv) costs for cleaning and drying of houses, which observed water seeping through the wall and floor. Total damages are estimated to be Lesotho Maloti 22 million, comprising of 11.7 million for fully destroyed houses, 5 million for the damaged walls and 2.9 million for damaged roofs, 1.3 million for damaged furniture and 1.3 million for cleaning and drying of houses.

#### **Losses**

The losses are made up of costs for providing shelter for affected families, costs of foregone rental income and opportunity costs of household members, who need to rent out or live with relatives as their homes have been affected. Most people affected were able to stay with relatives or neighbors in the villages, where in the local villages normally no costs are charged. For this assessment the opportunity costs for renting out houses have been included.

Total losses for the housing sector add up to M 1.5 million, almost equally divided between shelter items provided and opportunity costs for people staying with relatives. The impact on the formal rental market is very limited. Lesotho Housing for example reported rental losses for only one of their up-market units. However, the impact on the low to middle income market of malaena houses in greater Maseru is not addressed in the loss assessment. Considering these might have substantially increased the estimated losses to the housing sector.

Table: Overview of country wide damages and losses in the housing sector

	<b>Privately owned houses/ building (Lesotho Maloti – million)</b>	<b>Publicly owned houses/buildings (Lesotho Maloti – million)</b>
Damages	22.4	n/a
Losses	1.5	n/a

### **Responses**

#### **Overview of the response to the housing sector**

Community Councils together with counselors and chiefs at the villages play an important role in the immediate response to disasters such as this year's severe weather events. They collect lists of affected people and items in the villages, provide immediate relief, but also liaise with planning authorities at district level. In most cases following this year's floods, the Community Councils contacted the DMA offices at district level and reported the impact from the various villages. In many cases the DMA offices

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reached out to the affected villages and communities. DMA has established village disaster management committees in many villages, through which relief and awareness operations can be coordinated. Nevertheless, the relief offered by DMA at village level remained constrained by the resources available. Community Councils together with counsellors and chiefs at the villages play an important role in the immediate response to disasters such as this year's severe weather events. They collect list of affected people and items in the villages, provide immediate relief, but also liaise with planning authorities at district level. The Community Councils contacted in most cases following this year's floods the DMA offices at district level and reported the impacts from the various villages. In many cases the DMA offices at district level have reached out to the affected villages and communities. DMA has established in many villages village disaster management committees, through which relief and awareness operations can be coordinated. Nevertheless, the relief offered by DMA at village level remained constrained by resources available.



Figure: (left) Household storing remaining furniture from destroyed house under tarpaulin, background temporary housing made from corrugated iron in Ha 'Esekelo (Berea district); (right) Local reconstruction efforts, rebuilding mud / stone walls of polata (mud) houses in Serupang (Leribe district)

Shelter items, such as tents, tarpaulins, shelter kits, cloths and blankets were distributed by the Lesotho Red Cross. Some 200 tarpaulins were distributed by Red Cross and an additional number of 600 tarpaulins and tents reached Lesotho at the beginning of April. In many cases shelter items such as tents are delivered to the chief or the counselors for further distribution in the villages. In the rural setting most affected people stayed with relatives or asked neighbors to temporarily take care of houses and children. Individuals received tents and tarpaulins, but formal shelter camps have not been established following these severe weather events. From the household survey it can be estimated that approximately 20% of the affected households had at least parts of their household staying with relatives and neighbors in the villages.

An organized system of coordination and reporting of the impact on housing from village level to district DMA and national level DMA is currently not in place. A centrally managed and regularly updated database of affected houses and shelter demand does not exist. DMA has in the past however been involved in the financing and planning of the construction of houses for households, who have lost their



properties through severe weather events. Nongovernmental organizations such as Habitat for Humanity (HfH) or World Vision finance and organize a timely reconstruction of houses targeting vulnerable communities such as orphans and child headed households. Following this year's severe weather events, HfH focused its reconstruction efforts on the Maputse community council (Berea district).

### Risk and vulnerability



Figure: (left) De-roofed bungalow type of house in Kolonyama (Leribe district); (right) Houses located in or close to river beds (Botha Bothe district)

The specific vulnerabilities of the different housing types and their construction as well as their particular exposure to natural hazards are well reflected in the areas and housing types most affected by this year's severe weather events. Driving forces behind these vulnerabilities are however often the lack of maintenance of houses or the lack of enforcement of building standards. The communities and interviewed households reported five main types of effects of the severe weather events between December 2010 and the beginning of March 2011, caused by:

- Long period of intensive rainfall in December and January, which resulted in:
  - saturated soils and water seeping through the walls and floors of many houses,
  - wetting and consequently weakening the structure of many mud brick houses, and
  - run-off from hill slopes , pounding on small flat terraces, where houses were build on.

Mud brick houses were particularly hard affected by the impact of the severe weather events. Sun dried mud bricks and mud plastering rapidly weakens and dissolves though the impact of intensive and continued rainfall. Houses were often located at the lowest areas of a small terrace on hill sides, resulting in water pounding around houses. Without strong foundations (including water proof dpm) the bottom part of the houses got dissolved first, resulting in cracks and final collapse of the houses. River floods caused by high water levels at the Caledon and Senqu River and its major tributaries damaged and destroyed several houses exposed in the natural riverbeds.

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- Strong winds, particularly in the Leribe, Berea and Mafeteng districts, blew off roofs. These events particularly impacted the bungalows and polatas constructed of concrete bricks. Particularly vulnerable were houses that not had roofs attached according to normal standards
- Rock slides affected several houses exposed on the rocky top slopes of hills.

While 46% of all houses affected in Leribe, Berea and Botha Bothe were mud brick houses, only between 19% (in Botha Bothe) and 11.5% (in Leribe) of all houses are constructed of mud. This indicates that polata houses constructed of mud are particularly vulnerable to extreme weather events and may require urgent redesign.

The field assessment and household survey indicated that houses of several groups were particularly vulnerable and more affected by the severe weather events than others. Although questions related to occupation, livelihood assets or e.g. HIV/AIDS were not included in the survey, it has been observed in these discussions that female headed households (often grandmothers taking care of grandchildren), widows and orphans were particularly hard hit by the severe weather events. The vulnerability of these groups needs to be addressed in reconstruction efforts.



Figure: Weak anchoring of roof at some of the concrete houses in Kolonyama (Leribe); (right) Hill side run-off weakening and damaging mud / stone wall

### Recovery strategy

#### Recovery considerations

The housing sector is nearly completely privately owned and organized. The vast majority of the homeowners in rural and urban areas own their house and in most cases even built it nearly entirely with his or her own hands and means. Damages and losses in the housing sector are therefore nearly entirely covered by the homeowners themselves, which has severe implications on the livelihoods of the affected people. Houses and shelters remain for most households the biggest asset. The sustainable planning of land and housing resources on the other hand remain one of the most promising areas of the government to mainstream disaster risk reduction efforts. The question remains, who else then but

the private homeowners themselves have to carry the costs for reconstruction? How can the existing government institutions support their reconstruction efforts? Immediate to long-term strategies for recovery and reconstruction are based around the following pillars:

- Support for immediate reconstruction and provision of additional shelter,
- Community campaigns for improved standards of construction,
- Reducing vulnerability to natural hazards by targeting particular vulnerable groups and improve the weak and vulnerable construction standards,
- Reducing exposure to natural hazards, through hazard and risk mapping and consequent incorporation of risk reduction efforts land planning,
- Strengthen coordination, institutions and policies

Immediate needs for reconstruction:

- Households affected by the severe weather events need immediate assistance for reconstruction, ideally before the onset of the winter period. As housing is largely a private matter and Lesotho has only limited experience with public housing schemes, the government should consider alternative means to support affected households. DMA has supported in the past the reconstruction of houses following disasters. Providing subsidies for constructing improved foundations and roofs could be a mean to expedite and support private households' reconstruction efforts. The needs of particularly vulnerable groups need to thereby be addressed. In addition to the costs for reconstruction of houses made of mud or concrete bricks or natural (sand) stone, the necessary efforts for redesign of damaged and destroyed houses are included in the cost estimations.
- Additional shelter needs to be provided for households and areas, which have not yet been reached in the relief efforts of DMA, Red Cross and other agencies. Alternative means of improved temporary shelter, such as pre-fabricated houses need to be considered.

Short to medium term assistance for reconstruction and recovery:

- The redesign and retrofitting of houses, which were partly damaged (particularly through seepage of water through walls and the floor) need to be supported to avoid further ongoing damages on these structures. Some of these houses have been severely weakened in their structure and, if not retrofitted and improved, may be damaged or destroyed during the following rain season.
- The coordination mechanism to timely respond to housing and shelter needs at village, community council and district level between councils, DMA, Red Cross and other NGOs needs to be urgently implemented.

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Table: Short to medium term needs for reconstruction in the shelter and housing sector

	<b>Lesotho Maloti (million)</b>
Total damages	22.4
Redesigning foundations	7.5
Redesigning roofs	2.0
Redesigning walls	1.5
Total needs for reconstruction, including redesign	33.4
Additional costs for reducing seepage through floor	10.0
Identifying areas at risk of rock and mud slides, storms, and river floods	3.5
<b>Total</b>	<b>46.9</b>

### Long-term recovery needs:

- Areas particularly exposed to natural hazards especially to rock-slides, storms, hill side run-off, and flooding from river beds, need to be identified through a multi hazard risk assessment and a strategy is needed to address these hazards in spatial planning. Community councils need to be strengthened in their capacity to implement the findings of this assessment.
- Capacity building and community outreach should be initiated to improve construction standards and skills of local craftsmen, and create awareness for construction in areas exposed to natural hazards.
- Houses constructed of mud bricks, mud and stone or mud and wood proofed to be most affected by the severe weather events. An upgrading and retrofitting of mud houses of the 5% most vulnerable households and locations exposed to natural hazards is urgently required. This should be an upgrade from mud brick houses to simple standards stone or concrete brick houses.

### Building-back-better and risk reduction efforts:

- Establish a low cost housing programme, which can provide access to affordable housing to all Basotho and particularly low income groups. This low cost housing scheme should be particularly designed to be resilient to natural hazards in Lesotho. Upgrading all mud brick houses to sustainable and resilient low cost housing schemes (concrete or sand stone) could be very costly (estimated M1.9 billion). Additionally the costs for land development need to be included. This could ideally build upon the experiences from the Lesotho Housing and Land Development Corporation and similar efforts in neighbouring countries (South Africa).
- Institutions (e.g. Ministry of Local Government, Directorate of Lands, Survey and Physical Planning) need to be enabled and strengthened to enforce building and construction guidelines.

- Provide low income groups with access to finance, e.g. micro credit schemes to gain credit for low cost housing and upgrading and improving their houses. This could also be an alternative means to enforce building standards and promote risk averse spatial planning.
- Develop and promote low cost housing techniques, resilient to natural hazards and suitable for the environment and culture of the Basotho. Examples include the use of hydro foam concrete used for low cost housing in South Africa.

Table: Long term needs for reconstruction and recovery in the shelter and housing sector

	<b>Lesotho Maloti (million)</b>
Enforcement of construction norms and training program for local craftsmen	10.0
Upgrading and / or relocation of houses for 5% most vulnerable households	14.0
<b>Total</b>	<b>24.0</b>

### Improving construction standards

Any reconstruction effort by a private homeowner, NGOs and the public should ensure that the minimum standards for construction are met and essential risk reduction efforts are ensured. While the upgrading of housing standards, relocation of houses and growth of settlement to areas less vulnerable to disaster fits under a building-back-better strategy, also the immediate reconstruction and repair of houses should include some minimal re-design efforts.

### Essential re-design of houses:

- Mud houses are particularly vulnerable because of their weak foundations. For all to be reconstructed houses made of mud bricks a simple concrete foundation and floor slab shall be included. Incorporating a first row of sandstones in the mud houses construction will further reduce the impact of rising water.
- Mud houses are also weak at the top, where roofs are attached to the walls. Here the incorporation of concrete ring beams will substantially reduce the risk of roofs being blown off.
- Concrete houses, where the roofs were blown off, shall be retrofitted at the roofing through the incorporation of additional purlins and rafters in the roof construction.
- Existing houses which had water seeping through the walls and floor, can and should be retrofitted through the raising of floors with concrete and the incorporation of dam proof membranes in the floor. The estimated costs for reconstruction and retrofitting are summarized below.

### Improved construction and building back better guidelines:

- Houses located on steep hill slopes often face high amounts of run-off. Diversion ditches, made of natural stones and concrete, can divert the water around the property. Small terraces, where houses are located, need to often be stabilized with gabions or small stone walls to avoid run off and sedimentation damaging houses, fields and infrastructure below. These efforts should

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ideally be coordinated at village and district council level and be part of a larger risk reduction strategy.

- Improving design standards for houses so that they can withstand the strong storms and wind forces in parts of Lesotho. Promotion and improvement of saddle roof construction instead of a flat roof, particularly on polata houses made of concrete is an important part of this.

### Overcoming institutional challenges

The housing sector in Lesotho is largely privately organized, and the institutions coordinating and regulating land and housing issues at local level have only limited resources. Nevertheless, any long-term strategy for recovery and risk reduction in the housing sector has to address the following main institutional challenges.

- **Legislative issues and challenges:** This concerns issues relating to poor or ineffective legislation and enforcement machinery of the state. Spatial planning is by nature statutory and the implementation of planning laws in Lesotho has been extremely poor.
- **Organizational issues and challenges:** According to the decentralization dispensation, local authorities are the custodians of local planning, but invariably and largely, local councils in Lesotho are under-resourced and politically weak. They neither have resources to initiate their own programs, priorities and capital investment projects, nor institutional power to use as leverage against other actors in the development of their towns and settlements. In the end, local authorities lack the mandate to provide strategic planning services at local level and to enforce planning and building regulations.
- **Financial issues and challenges:** Outside donor-funded spatial planning efforts, no major financial outlays have been made by the Lesotho Government, beyond the recurrent budget to agencies dealing with spatial planning (the LSPP, the MCC and other local authorities).
- **Political issues and challenges:** The planning and management of cities and towns is the responsibility of city/town/municipal governments. A properly arranged organizational framework with clear lines of responsibility, functions and jurisdictions is a prerequisite for effective planning, including decisional and financial autonomy, with the centre exercising only oversight functions.
- **Disaster Risk Reduction issues and challenges:** Given the topographical nature of Lesotho, disasters such as floods that have recently been experienced have never been anticipated and have never been part of the country's disaster preparedness plan. The responsibility for institutional disaster response is vested in the Government established body called DMA which became almost overwhelmed on how to coordinate sectoral ministries to respond to the effects of floods.

Identifying the areas where urgent intervention (disaster risk reduction) is most likely to be needed should be a priority in order to reduce risks and vulnerability for the communities. As part of these

efforts, the legal framework should be reviewed in the housing sector to assess, and if required amend, existing building codes and regulations. Additionally, general contingency plans must be developed.

**Sector outcome, recovery strategy, outputs and monitoring / evaluation indicators**

This year's weather events had a severe impact on the housing sector in Lesotho and highlighted some of the overall challenges in this sector. These events can however also create a unique momentum to elevate the public efforts in the housing sector and implement the recently adopted housing policy. The reconstruction and recovery strategy should focus on (i) supporting immediate reconstruction of affected houses, and (ii) implementing risk reduction efforts in the housing sector to reduce vulnerabilities and exposure to hazards (see also chapter 6). The following time frame is envisioned for the implementation of the reconstruction and recovery, with a prioritisation considering the limited availability of financial resources.

- Support reconstruction of private houses through joint efforts of DMA, line ministries and NGOs such as HfH and World Vision, particularly targeting the most vulnerable households (next 6 months).
- Conduct multiple hazard mapping and outreach to planning authorities and communities (next 6 to 18 months).
- Capacity building and advocacy for improved construction and spatial planning guidelines (next 12 to 24 months).
- Conceptualize framework for low cost housing scheme or micro finance institutions to promote resilient construction of houses next 12 to 24 months).
- Upgrade mud houses to simple stone and concrete houses for the 5% most vulnerable households. (next 12 to 36 months).

**Methodology**

A rapid assessment of the impact of this year's extreme weather events was conducted by the Disaster Management Authority (DMA) in January 2011. Since then a number of additional reports on affected people, houses, agricultural areas and other affected assets in the villages have been received from community councils and traditional chiefs. These reports, together with field assessments, statistics, discussions with stakeholders and background information, built the main sources for this assessment. Reports from community councils have been evaluated from Leribe (Serupane, Kolonyama), Botha Bothe, Quthing (all community councils), Berea (all community councils).

Following the rapid assessment from January, Leribe, Berea and Botha Bothe were selected for in-depth field assessments in the housing and shelter sector. 163 households were interviewed in Leribe (46 households), Berea (94 households) and Botha Bothe (23 households). The household survey provided information on (i) number of household members (where available), (ii) type and size of the affected houses, (iii) types of damages/destruction of the houses, (iv) facilities at the house / dwelling unit. Livelihood aspects and human recovery needs were addressed in qualitative interviews.

Costs for (re)construction and repair of the major housing types have been defined based on the home owners own estimation, quotations obtained from local suppliers of building material and estimations of

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the Ministry of Public Works and Transport – Building Design Unit. The construction costs reflect the average construction standards of the housing types observed in the country. This implies that the construction standards and consequently costs for construction are below the normally estimated construction costs for similar types of houses.

Data of the housing census from 2006 (BOS, 2006), such as total number of housing units per district, main housing types and construction material, were obtained as a basis for extrapolation to the entire country. For some of the districts, where no complete record of affected houses was available (such as Leribe and Botha Bothe), the relative impact in a number of community councils was assumed to be valid for the entire district. Example: Two community councils in one district reported more than 6% of the houses affected, thus it is assumed that this is valid for the entire district.



**ANNEX 6: AGRICULTURE AND FOOD SECURITY****Pre disaster situation**

Although the agricultural sector contributes to only 7.1% of the country's Gross Domestic Product (GDP) against 58.2% from the services sector and 34.6% from industry, agriculture is the largest employer in the country, and about 70% of the population depend on agricultural activities for their livelihoods. Less than 10% of the land in the country is suitable for agriculture. Agriculture in Lesotho is almost exclusively rain-fed (with less than 100 ha under irrigation) and largely subsistence, depending on traditional low-input, low-output systems. The combination of limited arable land (which is seldom utilized fully<sup>\*\*\*\*</sup>) and low productivity and production has implications not only on food security, but also on farmers' susceptibility to climatic shocks such as droughts. Consequently, in most years the country produces enough to feed itself for only three to four months; the rest of the food requirements are met through commercial imports and to a lesser degree, through food assistance.

The main crops grown in the country are maize, sorghum, wheat, beans, peas, vegetables and potatoes. Maize is the dominant crop in terms of scale of production, especially in the northern districts, with Leribe being the biggest producer. For the last six years, cereal production and productivity have been declining steadily; with a nadir being reached during the devastating drought of 2006/2007.

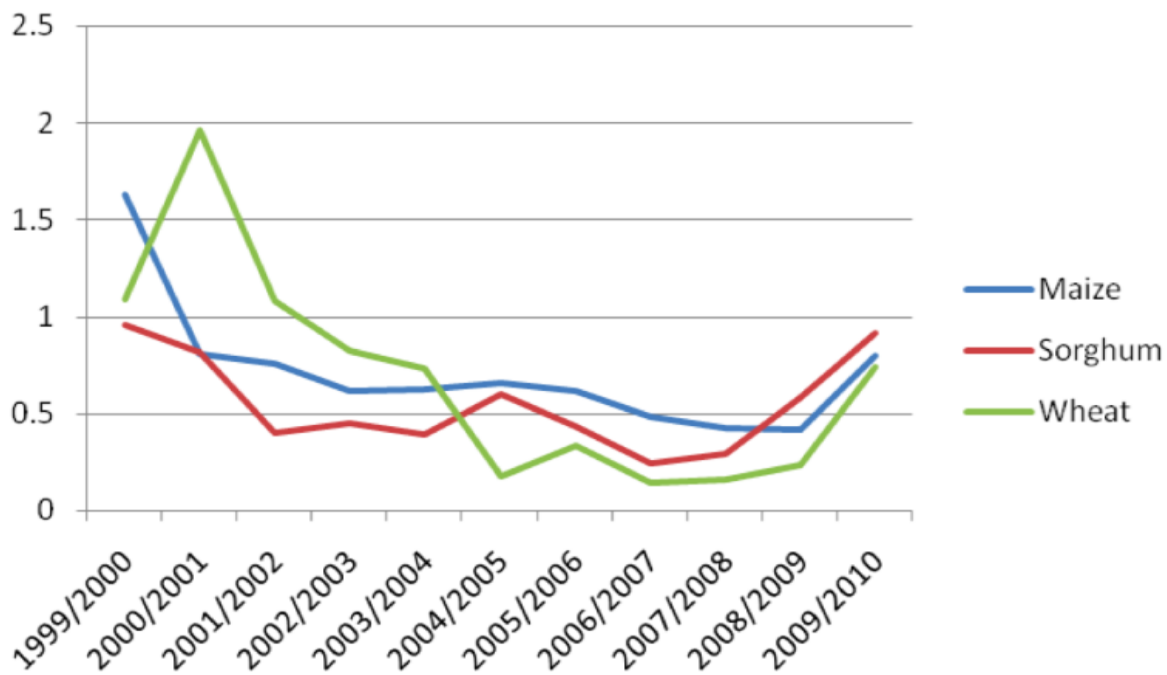


Figure: Yield levels (tons/ha) trends of the main cereal crops from 1999/2000 to 2009/2010 summer agricultural season.

<sup>\*\*\*\*</sup> In the 2008/2009 main cropping season, 52% of arable land was estimated to have been left fallow, (MAFS).

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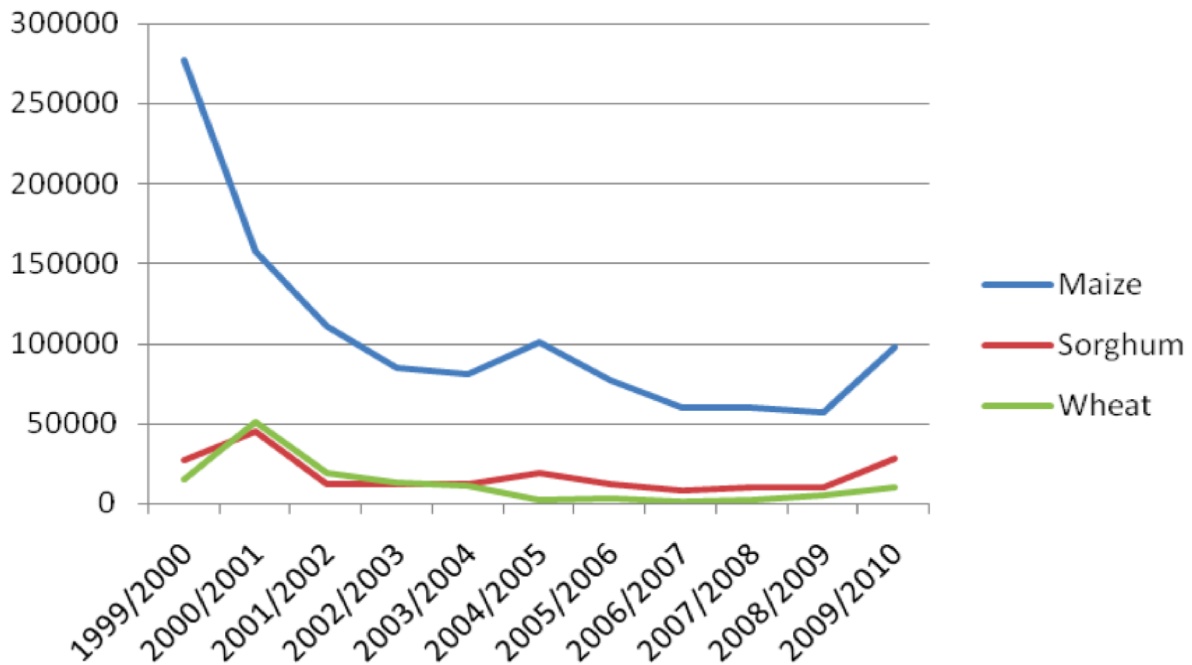


Figure: Production trends (tons) of the three main cereal crops from 1999/2000 to 2009/2010 summer agricultural season.

Livestock plays a critical role in the lives of Basotho – for wool and mohair, and is a source of wealth, draught power, milk, meat and transport. Its management involves the extensive rearing of cattle, sheep, goats and some households also keep horses, donkeys, pigs and poultry. Whilst the numbers of sheep and goats have been increasing and the numbers of cattle have remained steady over the last six years, productivity has generally been very low and is declining. Reports by Department of Livestock Services (DLS 2010) indicate that wool and mohair (the main agricultural export products) production per animal is low - averaging 2.68 kg; compared to other countries' 4.3 kg for wool<sup>§§§§</sup>. Diseases, poor nutrition and management, as well as stock theft, are the major factors contributing to low productivity from the sub-sector.

<sup>§§§§</sup> <http://www.dpi.gld.gov.au/sheep/7925.html>

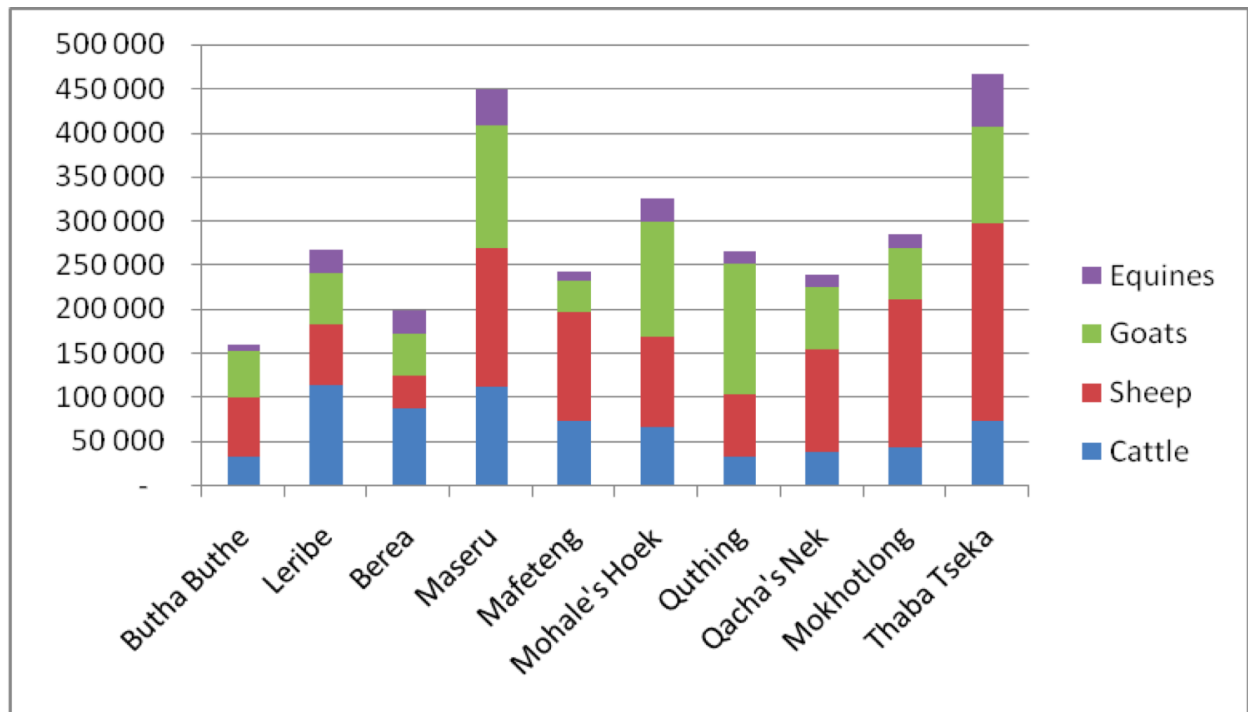


Figure: Livestock distribution across the 10 districts of Lesotho (no of livestock)

The Government of Lesotho recognizes the key role played by agriculture for economic growth, employment, income generation and the achievement of food security. The Agriculture Sector Strategy and Food Security Policy and Action Plan are the key strategic frameworks which outline the Government of Lesotho’s aspirations to eradicate poverty through agricultural development, focusing on improving production and productivity, and promoting commercialization in both the crop and livestock sub-sectors.

**Post disaster situation. Damages and losses**

**Description of the disaster effects and impacts on the sector**

The December 2010-January 2011 heavy rains and subsequent floods have further exacerbated Lesotho’s already weak smallholder agricultural production by affecting both crop and livestock production in significant parts of the country. In addition to full or partial crop losses by many smallholder farmers, this caused a decline of soil fertility in some areas of the country. Based on information collected from the district offices of the Ministry of Agriculture and the assessment carried out by the post-disaster needs assessment mission, maize, sorghum, wheat and beans were found to be the most affected crops. Livestock, particularly cattle, sheep and goats, was also affected by the floods as part of the stocks drowned and part of the animals that survived were contaminated with diseases.

As shown in the table below, the heavy rains have affected all the important crops throughout the country, and districts like Leribe, Berea and Thaba-Tseka, which historically have played an important role in crop production in Lesotho were particularly hit by the rains.

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Table: Estimated crop production in Lesotho before and after the floods

	Crop	District									
		Maseru	Butha Buthe	Berea	Leribe	Mafeteng	Mohale's Hoek	Quthing	Qacha's Nek	Thaba Tseka	Mokhotlong
Pre-flood, expected production (tons)	Maize	6,850	4,330	11,247	13,837	2,075	6,759	4,065	6,103	9,520	7,717
	Sorghum	1,020	1,879	1,840	2,425	1,750	2,420	919	592	2,235	9
	Wheat	1,197	116	193	6,101	95	0	28	855	6,318	8,667
	Beans	630	257	468	1,183	158	81	230	310	270	1,971
Post-flood, expected production (tons)	Maize	2,595	436	1,741	2,090	123	1,622	650	1,230	1,145	2,151
	Sorghum	133	244	61	152	114	170	48	0	0	0
	Wheat	948	51	43	1,361	45	0	19	497	1,511	5,542
	Beans	472	104	116	213	12	36	103	100	59	971

In understanding the impact of the disaster on the agriculture sector in Lesotho, it is important to appreciate that there were two challenges that affected the sector, namely that i) generally the rains came a month later than normal and ii) the total amount of rainfall. Once the rains came, they were incessant during the period December 2010 to January 2011. The heavy rains that fell during this period resulted in flooding and excessive water-logging, which affected the main summer crops as well as physical damage to infrastructure and fields; with the main crop production areas in the north of the country being disproportionately affected. The prolonged excessive rains on one hand prevented weeding of the crops that had been planted, while at the same time preventing the planting of those fields that had not yet been planted. In addition, heavy erosion in some places resulted in the physical loss of soil. A total of 74,912 hectares worth of crops were lost and 806 hectares were destroyed or damaged by the rains – including 3 smallholder irrigation schemes.

For most parts of the country, the rains started late - by the time the rains fell, most livestock were already in poor condition. Hence the combination of the poor body condition and poor rangelands made the animals susceptible to diseases. Among the diseases reported to have increased were foot rot, black quarter, anaplasmosis, lumpy skin disease and blue tongue. Furthermore, the heavy rains partially coincided with the shearing season (November to December) which made sheep in particular susceptible to death by exposure due to the temperature drop during the prolonged wet spell. In addition some livestock were reported to have drowned while crossing flooded water courses. Overall 44,142 livestock died and 24,825 others were reported sick at the time of the assessment. There was also damage to livestock infrastructure – wool shearing sheds, fences and dip tanks.

**Economic damage and loss valuation**

The overall damage to the agriculture sector – field crops, damage to irrigation infrastructure and livestock - is estimated at M50.43 million (US\$7.19 million<sup>\*\*\*\*\*</sup>). Due to the erodability of soils, terrain characterized by steep slopes, and the fact that the vast majority of farmers in Lesotho practice conventional tillage which involves turning of the soil, in many areas, soil losses were experienced resulting in gully formation in fields.

Table: Estimated damage and losses to agricultural sector; *Source:* Estimates of PDNA Team field Assessment

<b>Sector</b>	<b>Damages Lesotho Maloti (million)</b>	<b>Losses Lesotho Maloti (million)</b>
Field Crops	5.30	103.58
Irrigation Schemes	0.33	-
Livestock	44.80	22.20
<b>Total</b>	<b>50.43</b>	<b>125.78</b>

**Assumptions**

Crop damages and losses

- Area planted was obtained from DAOs
- Normal producer prices, for each crop, Maloti/Kg = Price is the average for the country (i.e. maize – M1.18; sorghum – M1.5; wheat – M2.59 & beans – M10).

Livestock losses

- Initial data was obtained in Thaba Tseka and Mokhotlong districts.
- The market value of animals is similar in Thaba-Tseka, Qacha's Net and Quthing.
- Animal values for Maseru were calculated based on observed prices. For cattle, the value was calculated on the basis of the average of the actual price of dairy cattle and ordinary cattle.
- The market value of animals is similar in Maseru, Berea, Leribe, Mafeteng and Butha Buthe.
- Observed prices in Mohale's Hoek are between those in Maseru and in Thaba Tseka.

Livestock damages

- Initial data was obtained for buildings in Thaba Tseka.
- Distribution of destroyed items in the other districts is based on the distribution of the animal population per districts (2008/09).
- Except for Thaba Tseka, the estimation of destroyed assets in the other districts was based on the estimated impact of the floods.

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\*\*\*\*\* 1US dollar = 6.9 Lesotho Maloti

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Overall, losses were significantly higher than damages in the sector; with the crop sub-sector suffering the highest damage. The losses resulted from yield and production losses in areas that would normally be planted but that had to be left fallow; as well as production losses from sick and dead animals.

While the majority of rural households in Lesotho seldom grow enough food to meet their needs in good years, the heavy rains will result in even less production being realised.

While the severity of the impact of the heavy rains varied across the country and within each district, it is estimated that about 9% of the agricultural population of Lesotho was directly affected by this natural disaster. This equates to an estimated 34,053 households (170,265 people).<sup>++++</sup>

### Impact on food availability

Food availability in Lesotho has been estimated by the Lesotho Vulnerability Assessment Committee (LVAC) on an annual basis. According to the 2010/11 LVAC report produced in May–June 2010, about 200,000 people required humanitarian assistance of varying levels in 2010/11. Overall the LVAC analysis indicated that approximately 13,500MT of cereals was required for 2010/11; an amount equivalent to M78, 000,000<sup>++++</sup>.

As a result of the floods, it is expected that the initially estimated number of households requiring humanitarian assistance could have increased by about 25%, reaching some 250,000. With more in-depth vulnerability analysis, there is a high likelihood that more people will be identified with high levels of food insecurity this year, at least until July/August 2011, when farmers start harvesting their 2011 winter crops.

The table below presents the Cereal Balance Sheet for the 2010/2011 Marketing year. Crop production contributed close to 40% of total requirements and it should be noted that 2009/2010 production was significantly higher compared to the previous year. According to the Bureau of Statistics, maize production was 71% higher than the last season; sorghum production was 176% higher, while wheat production was 117% higher. Planned imports amounted to 230,170MT leaving the country with uncovered shortfall of 79,286MT.

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<sup>++++</sup> This is based on a national population projection of 1,891,830 in 2010, from the Lesotho Bureau of Statistics, (2010); Lesotho 2006-2026 Projections.

<sup>++++</sup> Figure estimated using current rural prices of maize meal.

Table: Lesotho food balance sheet for the 2010/11 season

<b>Annual balance sheet on 30th April 2010 in thousand Lesotho Maloti</b>						
			<u>Maize</u>	<u>Wheat</u>	<u>Sorghum</u>	<u>Total</u>
<u>1.Domestic Availability</u>			133.414	44.393	28.730	206.537
1.1 Opening stock (01/April/2009)			35.379	33.753	0.648	69.780
Formal (Monitored)			29.638	32.880	0.000	62.518
On farm (monitored)			5.741	0.873	0.648	7.262
1.2 Gross Harvest			98.035	10.640	28.082	136.757
<u>2. Gross Domestic Requirements</u>			250.719	82.938	23.764	357.421
2.1 Human consumption			246.402	81.487	23.282	351.171
2.2 feed ,seeds, other uses			4.317	1.451	0.482	6.250
3. Domestic Short fall/Surplus			-117.305	-38.545	4.966	-150.884
<u>4.Total Planned Imports</u>			140.676	89.494	0.000	230.170
4.1 Commercial Imports			140.676	89.494	0.000	230.170
4.2 Food Aid - Agency			0.000	0.000	0.000	0.000
4.3 Food Aid - Government			0.000	0.000	0.000	0.000
<u>5. Imports Received</u>			9.450	3.950	0.000	13.400
5.1 Commercial Imports Received			9.450	3.950	0.000	13.400
5.2 Food Aid Received - Agency			0.000	0.000	0.000	0.000
5.3 Food Aid- Government			0.000	0.000	0.000	0.000
<u>6. Expected Imports</u>			131.226	85.544	0.000	216.770
6.1 Commercial Imports Expected			0.000	85.544	0.000	85.544
6.2 Food Aid - Agency			0.000	0.000	0.000	0.000
6.3 Food Aid - Government			0.000	0.000	0.000	0.000
7. Uncovered Shortfall/import Gap			23.371	50.949	4.966	79.286
8.Current Stock Level on 31 April '10			25.513	31.097	0.000	56.610

Yet, in 2011 there were evident and considerable losses of crops, livestock and livelihoods, and people will need help until the next harvest with the intention that in July/August, an early lean season response with either cash/vouchers, food or both will be necessary

Indeed the overall impact of the floods and heavy rains will require more in depth analysis to accommodate not only damage and losses but the vulnerability sphere of this crisis.

#### **Communal, social, cultural and institutional damage, loss and need evaluation**

It is worth noting that under normal circumstances, at this time of the year many households expect to buy grain and other foodstuffs anyway. The assessment was also able to establish that for the Foothill and Mountain areas, people expect to be eating green maize by February. However, this season, because of the late onset of rains, the crop was largely immature in February and there were fears that it would fail to reach maturity as a result of the onset of the cold.

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Under normal circumstances such poor rural households earn income through, *inter alia*, casual labour opportunities working on the fields. These income generation opportunities have been unavailable as a result of the heavy rains. Furthermore, the challenge this time around is that food and other goods are only available at much higher prices. It is clear that this is because of combination of factors, i.e. the global increase in food prices since the beginning of 2011 and is exacerbated by increased transport costs in the areas where roads and bridges were damaged by flooding.

While under normal circumstances farming households do not spend much money on veterinary drugs, livestock owning households reported that they were spending more on veterinary drugs as a result of higher incidences of livestock diseases that were caused by the heavy rains. At the same time, they are failing to milk their cows due to diseases like mastitis - reportedly a secondary effect of diseases such as lumpy skin disease. Another effect is the inability to transport wool and mohair; which is a prime revenue source for sheep and goat owning households. Farmers also reported a deterioration of the quality of wool and mohair because it was muddy. This is likely to result in lower prices than normal.

### **Responses**

Within the Government, civil society and the UN agencies, there is some capacity in humanitarian response – as evidenced by the fact that the country has faced a number of livelihood shocks (droughts, soaring food prices, and livestock diseases) but managed to respond effectively. However, despite this, there is a need to further strengthen the mainstreaming of Disaster Risk management (DRM) into agriculture programmes in order to obviate the need to be always reacting to crises – through strengthening preventive measures, early warning systems and supporting programmes that bridge relief, recovery and development. This is especially important in view of the fact that the country is on a chronic knife-edge of food insecurity. The ongoing National Strategic Development Plan process needs to mainstream DRM and for this, there needs to be a realization that disasters can easily derail development.

Another area that needs strengthening is the monitoring of implemented response and recovery programmes. The lessons learned can be used to inform the implementation of future programmes.

### **Risk and vulnerability**

The agricultural sector and the large number of people that depend on it are susceptible to a number of shocks. Among the key risk factors are poverty, agricultural practices and other exogenous factors such as the seasonality of agriculture.

### **Poverty**

Poverty is the primary cause of vulnerability in Lesotho. An estimated 55% of Basotho live below the poverty datum line. Poverty prevents people from optimizing agricultural potential since they cannot afford to purchase quality inputs and fail to prepare and plant their fields or do so late in the season, resulting in decreased yields. Furthermore, in an economy where 60-70% of the food consumed is bought, income is an important determinant of food security. In rural areas of the country, many poor households depend on casual employment opportunities in other people's fields for income generation



and payment in kind. As there were significantly less casual employment opportunities, many more people will be vulnerable to food insecurity.

Because the vast majority of farmers in Lesotho are subsistence farmers, the levels of productivity and production are extremely low. In fact on average, farmers produce enough to cover their household food needs for only 3-4 months. Thus by destroying a large portion of the crop, the heavy rains worsened an already dire food security situation for many families. Broad based economic development at macro and micro levels would ensure that people have access to income.

**Agricultural practices**

The heavy dependence on rain-fed agriculture predisposes Basotho farmers to climatic shocks such as drought and dry spells. In the context of the current disaster, had irrigation been available, many farmers would have planted in at the right time and by the time the heavy rains came, they would not have affected their crop as badly. Thus the losses due to the rains would have been less severe.

Certain agricultural practices contribute to vulnerability to shocks and food insecurity. Among these is the dependence on conventional agriculture, which tills the soil. Given the high erodability of Lesotho's soils, steep topography and high intensity rainfall lead to heavy erosion. An estimated 40 million tonnes of top soil are lost every year. Consequently, it can be assumed that during the heavy rains a lot more top soil was lost. Indeed observations in the field bear this out as 806 hectares of agricultural land were completely destroyed. This reduced productive land further and diminished production prospects, worsening an already precarious food security situation. The lack of crop diversification also renders Basotho more susceptible to risk, in that if the maize crop fails, there is no recourse. Possible solutions to these problems could be the promotion of conservation agriculture, as well as crop diversification as risk management strategies.

With respect to livestock, because of poor grazing resources - which were at their worst just before the rainfall season –animals were already in weak body condition when the rains came making them more susceptible to disease and death. The irony is that at the start of the cropping season, the animals are needed the most to provide draught power for ploughing and planting – weakening them further. Interventions to improve grazing area management as well as supplementary feed at critical times can be adopted to ensure that animals are in better condition at the start of the season.

In addition, the coincidence of the heavy rains with the shearing season meant that a lot of sheep and goats were more susceptible to death as a result of exposure to prolonged wetness and cold.

**Exogenous factors**

Because agriculture is so markedly seasonal, planting times have to be adhered to strictly, or the crop will fail to reach maturity as a result of the onset of the cold season. The unrelenting heavy rains did not allow many people to plant at all, while others planted a lot later than they should have, with the result that a lot less production is expected for the year. Crop diversification (to spread the risk of crop loss), coupled with irrigation development (to ensure that farmers plant at the right time, whether or not the rains have fallen) are recommended as risk management strategies.

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There are clearly defined gender roles in agriculture in Lesotho – with a clearly defined distribution of labour and asset ownership and/or management roles. In households where there are both men and women, men are largely responsible for ploughing and planting, while women predominate when it comes to weeding. In terms of asset ownership, men own and are responsible for sheep, goats, cattle and other large stock; women on the other hand have ownership and managerial rights over poultry and pigs. Despite these clear roles, as more and more women become *de jure* or *de facto* heads of households in their own right (due to death of spouses, never having been married, single, or being wives of migrant workers), these roles are shifting<sup>§§§§§</sup>. Male headed households account for 65.5% of the rural population and females 34.5%. Given that rural female-headed households tend to be poorer than male ones, it will be important for the recovery strategy to pay particular attention to this category of farmers.

Another cross-cutting issue to take into account in the recovery strategy is HIV/ AIDS. With universal access to ARVs, HIV/AIDS has increasingly become a manageable condition in Lesotho, becoming less and less debilitating. However, since ART needs to be accompanied by good nutrition to be effective, and because HIV-infected people need good nutrition to boost immunity, they will need to be targeted in the proposed interventions. Families with a high orphan burden or orphan-headed households are particularly vulnerable and will also need to be specifically targeted.

Climate change requires special attention in the recovery strategy as the shifting seasons - late onset, prolonged dry spells, and excessively wet seasons - make agriculture a high risk business. Mainstreaming disaster risk management in the recovery interventions is a strategy that will help targeted populations prepare for and strengthen their resilience.

### **Recovery strategy**

Based on the rapid assessment conducted in January 2011, the sectoral response to the heavy rains has been to enable access to winter cropping inputs, as well as veterinary support to affected livestock. The heavy rains have ironically provided good prospects for a good winter crop in the Lowlands and the Foothills due to higher-than-normal soil moisture levels. However, any crop based interventions would need to address fertility issues due to heavy leaching from the rains. The Government of Lesotho has allocated M18 million (US\$2.57 million) in the form of a general subsidy for winter cropping inputs, limited tillage services, as well as for veterinary drugs and access to livestock feed. In addition, the UN System in Lesotho has availed close to US\$1 million in winter cropping inputs, veterinary support and food assistance to the at least 35,000 affected households and some 180,000 livestock. In addition, the Government of Lesotho has also availed M5.8 million (US\$2.86 million) to control black-quarter and anthrax throughout the country. Further, a number of NGOs have indicated that they will redirect their resources to provide support to affected households, either through a winter crop or the ensuing summer season.

For the most part, better-off households have already started to plough their fields in preparation for planting a winter crop. In addition households with the necessary resources have already started to

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<sup>§§§§§</sup> BoS, 2010: 2006 Population and Housing Census Analytical Report, Vol. III: Socio-economic Characteristics.

procure livestock to replace the animals that died as a result of the rains. However, given the pervasive nature of poverty in the rural areas, spontaneous recovery is very limited.

The Government of Lesotho, through the Ministry of Agriculture and Food Security, is likely to provide more subsidies for the summer cropping season. However, given the decreased revenue flows as a consequence of lower SACU receipts, the magnitude of this support from the Government is unknown at this stage. What is clear is that the outcomes from the Post-Disaster Needs Assessment (PDNA) – the quantification of the needs and the gaps - will provide much needed guidance in terms of developing a clear recovery strategy. In addition, the fact that the Government of Lesotho is currently developing the National Strategic Development Plan (NSDP) to provide the development blueprint for the next five years provides a unique opportunity to mainstream a disaster recovery and risk reduction strategy. It is clear that whatever developmental aspirations the country has, it will always be derailed by disasters, given the likelihood and chronic nature of vulnerability to shocks.

### **Recovery considerations**

The aim of the proposed recovery strategy is to:

- In the short-term, ensure that affected vulnerable households have access to income in order for them to achieve food security.
- Support the recovery of affected farming households by enabling them to recover their productive capacity through provision of cropping and livestock inputs.
- In addition, it is important to take the opportunity provided by the disaster to “build-back-better” through the introduction of improved agricultural technologies and techniques such as conservation agriculture and strengthening farmer capacity for improved crop and grazing management, through training and extension messages that promote crop diversification as risk reduction strategies. Among other outcomes, this would contribute to reduced soil erosion while allowing for increased productivity.

The agricultural sector is closely linked to a number of sectors, mainly infrastructure, health, water and sanitation, nutrition and employment. Thus a comprehensive recovery strategy that takes all these into account has to be considered.

The affected farming households not only need access to input and output markets, but also access to services such as health and education, as well as access to shops and services necessary for them to sustain their livelihoods – e.g. veterinary and extension. For this to happen, certain infrastructure needs be functional, namely road networks and bridges. This comes in addition to agriculture-specific infrastructure, e.g. wool shearing sheds and irrigation infrastructure.

Since poverty is one of the greatest threats to the achievement of food security in Lesotho, a broad-based employment development strategy is needed for people to have access to the income necessary to purchase food as well as to enable them to grow crops and raise livestock. Proposed strategies include increasing income generating opportunities through cash transfers e.g. cash for work to rehabilitate damaged roads and bridges; as well as to undertake land reclamation works such a gully

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rehabilitation. Village disaster management committees will need to be capacitated to be at the forefront of the implementation of these interventions at community level.

Given that the winter cropping season is imminent, and the fact that some interventions have already been implemented in this regard, in any case the scope for winter production is relatively limited. It is recommended that the agriculture recovery strategy focuses largely on the provision of winter cropping inputs followed by the provision of main summer cropping inputs for the 2011/2012 summer crop. Since the bulk (98%) of the impact of the heavy rains on the livestock sector was a result of animal deaths, a recovery strategy could focus on enabling affected households to replace their stock. This would also take into account the need to improve the livestock genetic resources by introducing quality breeding stock. Possible strategies could involve subsidizing the purchase of livestock, though this could be a challenge considering that most breeding stock is imported. In addition, to minimize further losses to existing stock, interventions will also need to include provision of veterinary support and capacity strengthening for livestock management and possible interventions including restocking.

Table: Proposed recovery strategies and targeted socio-economic groups

Recovery strategy/Expected output	Socio-economic group	Implementation timeline
Cash transfers – rehabilitation of damaged infrastructure.  Output: Improved access to food for vulnerable farming households. Recovery of flood-affected assets supported.	Very poor and poor households – up to 50,000 households <u>Estimated costs – \$8,571,429</u> *****	Immediate to May/June 2012
<u>Provision of winter cropping inputs:</u> i. GoL subsidy programme  ii. Free input distribution  Output: Improved household food production	i. Targeting those farmers with some disposal income (better-off farmers) – at least 15,101 *****. <u>Estimated costs – \$3,827,698</u>  ii. Targeting the most vulnerable but viable farming households; up to 5,694 households *****. <u>Estimated costs - \$620,646</u>  Both include capacity strengthening for improved techniques.	Immediate to May 2011
<u>Provision of summer cropping inputs:</u> i. GoL subsidy programme  ii. Free input distribution  Output: Improved household food availability	i. Targeting those farmers affected by flooding but with disposable incomes – 9,317 households. <u>Estimated costs - \$1,015,553</u> v. Targeting the most vulnerable but viable farming households – 11,387 poor households. <u>Estimated cost - \$1,241,183</u>  Both include capacity strengthening for improved	May – September 2011

\*\*\*\*\* Daily wage rate of \$7 for 5 days per person over 12 months.

\*\*\*\*\* These are all the people who are affected by floods; less than those to receive free inputs. However, given the difficulties in administering a targeted subsidy, it may be important to have a general subsidy for agricultural inputs that all farmers can potential access – as GoL has been doing for a number of seasons.

\*\*\*\*\* Assuming 103,521 people or 20,794 households (9% of farming population) affected by flooding; and 55% are poor/very poor; 50% able to plant in winter. Figure to be fine-tuned after LVAC 2011 findings and BoS Crop Forecasting Report.

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Recovery strategy/Expected output	Socio-economic group	Implementation timeline
	techniques.	
<u>Repair to damaged infrastructure</u> Output: Improved household food availability	v. Irrigation schemes affected i. Fencing and woolshed damaged. Estimated costs – USD828,000	Immediate to October 2011 (before the onset of the next rains)
Livestock restocking programme  Output: Recovery of livelihoods of affected households supported.	Credit facility/Subsidy programme; <u>Estimated costs - \$7,142,857</u>	Immediately to December 2011
Repair of damaged infrastructure  Output: Recovery of livelihoods of affected households supported.	<u>Estimated costs - \$522,857</u>	
Provision of veterinary care  Output: Recovery of livelihoods of affected households supported.	Subsidized veterinary drugs and products; <u>Estimated costs - \$1,773,213</u>	
Improved livestock management  Output: Recovery of livelihoods of affected households supported.	Training programmes targeting livestock owners and herders; <u>Estimated costs - \$100,000</u>	

Critical benchmarks for monitoring will include:

- Amount of income generated through participation in cash-for-work programmes and its use;
- Number of affected households reached through each intervention (disaggregated by sex, geographical location);
- Amount of inputs accessed;
- Area planted/number of animals treated;
- Yields and production attained;
- Trend of livestock disease incidences;
- Number of farmers adopting improved crop and livestock management techniques.

### Methodology

Data used in the PDNA was collected from the ten districts, with four districts of Berea, Mokhotlong, Thaba Tseka and Leribe visited by the PDNA team. The other districts provided information based on their own assessment. In the four districts visited by the PDNA team, more than one approach was used; discussions were held with the district agricultural office staff, mainly the subject matter specialists in crops, livestock and irrigation. Thereafter some fields were visited and discussions were held with the chiefs of mostly affected areas, groups of farmers and individual farmers/households affected. These were comprised of men and women.

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However, there are some constraints relating to data collection and interpretation: time was limited, hence only four districts were visited, of which the coverage was not sufficient. Even in those districts not visited, the assessment was kind of rapid; therefore the information might not be sufficient.

For the next PDNA to be more effective, more time should be given to data collection, which is the main activity in terms of providing information which can be a bit close to precision. The existing structures within the Ministry of Agriculture should be fully utilized as it allows staff to access even the remotest parts of the country which might not have been reached during the current PDNA.

### **Box: Community-level impacts - The case of Ha-Tsekelo Village in Berea**

In Ha-Tsekelo village, Berea district, farmers have been producing maize intensively, but the recent heavy rains and the subsequent floods have caused substantial crop destruction. The nature of the damage includes mainly waterlogged areas that amount to over 80 hectares in the village, affecting directly more than 60 households. In Ha-Tsekelo village, household farmers had on average planted 1.3 hectares to different crops, mainly maize. Out of the planted area, about 90% was affected by the floods. In most instances, farmers claim that they lost nearly all their crop as a result of the floods. In fact, the PDNA team was able to witness that some fields were still under water in the first week of April 2011, at the time of the assessment. While maize was the most lost crop in terms of volumes, farmers also lost large amounts of planted beans and sorghum. On livestock, sheep and goats were the most affected species. One farmer in Ha-Tsekelo reported that he had some cattle heads with sporadic skin problems, something that he had never seen before.

**ANNEX 7: COMMERCE AND INDUSTRY****Pre disaster situation**

The Commerce Sector is mandated with the development of the Private sector through the creation of an enabling environment for trade, investment, business and industrial initiatives. The strategic plan of the sector is informed by the Government of Lesotho vision 2020 and Poverty Reduction Strategy documents which set out Lesotho development priorities for the medium and long term respectively.

Amongst the challenges of the sector is private sector led job creation. This calls for focused entrepreneurship programmes that are targeted to empower local enterprises i.e., with more emphasis on the development of Small, Micro and Medium Enterprises (SMMEs) and a complete overhaul of the sector aimed at promoting Basotho participation in the economic mainstream of the country.

Therefore, the core business of the sector for its functionality is mainly the development of pro-investment policies and the creation of an enabling business environment, hence the vision “MTICM shall be a leader in private sector led job creation and poverty reduction through the creation of an enabling environment for trade, investment business and industrial development”.

The sector is contributing massively to the economy of the country through both formal and informal employment by industry and commerce (predominantly SMMEs) respectively. The export oriented textiles and garments industry is one of the major contributors to the formal employment, employing around 45,000 people. On the other hand, informal employment figures range around 200,000 people in 2005 estimations.

**Post disaster situation. Damages and losses**

The end of 2010 saw Lesotho engulfed in heavy rains which resulted in the flooding of many areas in the country and these heavy rains sustained the intensity for almost two months, i.e. December, 2010 and January 2011. Physical damage in the sector was minimal due to the fact that minimum standards of the building structures are set for a business to get licenced, so this requirement made business buildings resilient to the floods. Small leakage through the roofs damaged some goods for resale, and led to ceilings getting affected.

However, the sector’s functionality was highly compromised by those heavy rains, which rendered roads inaccessible and in some areas inadequate bridges hampered the delivery/transportation of goods to the shops. An example is the Senqu River at Koma-Koma in the Thaba-Tseka district, where crossing to or from Thaba-tseka town was impossible for a number of days. Another example is in the Berea district, where the bridge collapsed, making going to Mapoteng from Teya-Teyaneng impossible.

These incidents did indeed impede the access to goods and other essentials services to the sector. Customers on the other hand were unable to access goods from the businesses, as in many areas, to get to the shops one has to cross either a river or a gully, and mostly there are no foot bridges. The impact of the floods was heavily felt in communities where poverty is prevalence because of a hand to mouth way of living due to high unemployment in the rural areas. It is believed that the increase in consumer price was due to longer alternative routes or means of getting goods to the businesses.

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Notwithstanding its negative impact, there were some positive effects, as some businesses experienced increases in turnover, an indication that people were forced to buy locally or opted for substitute products, meaning that long-term effects of the floods might bring some benefits to some sectors. Nutritional elements might benefit some communities/families by a shift from refrigerated products to buying fresh fish, beans, etc, which have higher nutritional qualities comparatively.

### **Economic damage and loss valuation**

The sector mostly felt economic damages when transporting the commodities/goods to the businesses, due to the collapsed of some bridges or over flooding of rivers and gullies. Some businesses had to travel longer distances to get to the stores and markets. To recoup the additional cost, prices had to be raised.

A business person of Mapoteng trying get to Teya-teyaneng is compelled to go through Maputsoe route; this causes higher transportation costs, and high depreciation for motor vehicles. This scenario undoubtedly had a negative impact on the profitability of the businesses.

The loss of turnover is one of the effects of the floods, and mostly SMMEs, predominantly Basotho owned, experienced low turnovers during the floods period. The issue of financial capacity had a contributing factor, as the limited economic muscle of SMMEs forces them to buy in smaller quantities, so when the disaster hits they are the ones who suffer mostly, because they ran out of stock quickly. These types of losses, although they are not very insignificant, can be impossible for SMMEs to recover from. The sector mostly lacks access to financial facilities that banks offer due to myriad circumstances, among others high collaterals requirements are prohibitive for the sector to access financing.

The sector field work covered five districts, namely, Botha-Bothe, Leribe, Berea, Mohale'shoek and Thaba-Tseka, and from the data that was collected, the average was calculated of sales lost, and damages were calculated as well. From the total of business visited, it was possible to calculate the percentage of affected businesses in each district.

The data facilitated computation of following figures:

- Number of businesses in each district
- Percentage of the affected businesses in each district
- Average of physical premises damaged per business
- Average damages on assets per business
- Average damages on stock/raw material per business
- Loss on sales/turnover

### **Responses**

At the time of the field work, the sector absolutely had no baseline information to facilitate comparisons of the data collected during the exercise. The poor or lack of statistical data hampered the work immensely; it has been a great challenge for the group to operate under this condition. Another gap is



that some businesses owners don't have proper records. The group had to devise a means of getting the information by way of averaging daily turnover to get a monthly sales turnover.

**Overview of the response for the sector**

The government of Lesotho intervened by the provision of the boards of crossing the rivers in some areas and a helicopter was also provided. But still there were some problems as the intervention was not meant to ferry goods, and business owners had to pay some cash to get the assistance.

**Risk and vulnerability**

The sector relies on roads infrastructure to transport stocks to the businesses and bridges to cross rivers and gullies. As long as roads are not resilient to floods, it is difficult for the sector to avoid a disaster. The responsible government urgency should engage massively on the reconstruction of floods resilient roads.

The disaster impact on this sector is dependent upon individual business people taking proactive measures that will help sustain business operations during the disaster. The imminent risk for the sector is running out of stock a few days after the disaster. This situation is difficult to avoid since it can have financial implications on the business owner.

However, to reduce the disaster risk for the sector, there is a need for a collaborative effort by all stakeholders to engage in pre-disaster campaigns aimed at creating disaster awareness and enhancing preparedness among the business operators.

**Recovery strategy**

The commerce sector needs financial support to recover satisfactorily. This is where the role of financial schemes are critical; access to credit is essential for the sector to recuperate fully and to achieve better productivity than before the disaster. The country needs SMMEs since they have been proven as the engine of the economy and their contribution to job creation efforts are indisputable. The Government Partial Credit Guarantee Scheme is indeed critical to bring back a sector that performs even better than in the pre-disaster era, as a case of "building back better". The full Government of Lesotho apparatus should accelerate the operationalisation of the scheme to avoid a long-term impact on the sector, especially considering its fragility.

Another important role player for optimal functioning of the sector is the infrastructure sector. The commerce sector performance is highly dependent upon good road infrastructure, water, telecommunications and electricity facilities. The availability of these services is highly beneficial to the communities due to their multiplying effects on the economy.

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### ANNEX 8: ROADS AND TRANSPORT

#### Pre disaster situation

The roads network of Lesotho includes a total of 6,545 kilometers of different types of roads, built and maintained by different institutions of the Government, as shown in the table below:

Table: Road Network in Lesotho; *Source:* 2009 Road Surveys.

Institution	Length of roads per surface type, kilometers			
	Paved	Gravel	Earth	Total
Roads Branch	1,105	1,150		2,255
Department of Rural Roads		2,140	1,360	3,500
Maseru City Council	76	237	153	466
Ministry of Local Government	44	122	158	324
<b>Total</b>	<b>1,223</b>	<b>3,649</b>	<b>1,671</b>	<b>6,545</b>

The estimated total vehicle population or stock in 2009, based on a consultant's report prepared in 2010, is as follows:<sup>§§§§§§</sup>

Table: Total Vehicle Population in 2009

Vehicle Class	Number
Motorcycle	458
Light vehicle	34,060
Medium vehicle	21,296
Minibus	12,956
Bus	660
2-3 Axle Goods vehicle	1,838
4 and 4+ Axle Goods vehicle	2,992
Other	708
<b>Total</b>	<b>74,968</b>

Usage of the road network by the vehicle population described above, expressed in terms of daily traffic volume per road type, is given below, where it may be observed that a weighted average traffic of 352 vehicles per day occurs in the entire network, of which 93% refers to light vehicles and the remaining 7% refers to heavy cargo vehicles:

<sup>§§§§§§</sup> Review of the Projected Road Maintenance Needs and the Generation of Road Fund Revenue, Final report, Africon Lesotho Consultants, Maseru, March 2010.

Table: Road network usage by vehicle class

Institution Road	type Length,	km	Daily Traffic Volume by Vehicle Class							Total
			Motor Cycle	Light vehicle	Medium Vehicle	Minibus	Bus	2-3 Axle Vehicle	4+ Axle Vehicle	
RB	Paved	1,272	2	481	401	305	7	25	57	1,276
	Gravel	753	0	56	47	35	1	4	9	152
	Earth	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
DRR	Paved	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
	Gravel	1,877	0	14	12	9	0	2	4	41
	Earth	717	0	8	7	5	0	1	1	22
MCC	Paved	74	1	188	156	119	0	0	0	464
	Gravel	237	21	18	14	0	0	0	0	53
	Earth	153	21	18	14	0	0	0	0	53
MoLG	Paved	44	20	16	13	0	0	0	0	49
	Gravel	122	20	17	13	0	0	0	0	50
	Earth	158	21	18	13	0	0	0	0	52
Weighted Average			3	132	110	82	2	7	16	352

Source: MCC and MoLG Road Surveys 2009 and RB Roads Data

The use made of the network by all types of vehicles, expressed in the number of vehicle-kilometers of travel, is shown in Table T-4 below, where it may be observed that the highest usage (85.6%) is made of the paved network maintained by the Road Branch of the Ministry of Public Works and Transport (MOPWT).

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Figure: (left) Multiplate culvert washed away at Kubetu along B24 Road; (right) Flood damaged multi-plate culvert at Khukhune along A1 Road

Table: Number of vehicle-kilometers of travel

Institution Road	type	Annual Vehicle Kilometers Traveled (VKT) by Vehicle Class, million Km							Total
		Motor Cycle	Light vehicle	Medium Vehicle	Minibus	Bus	2-3 Axle Vehicle	4+ Axle Vehicle	
RB	Paved	1.0	223.16	186.04	141.48	3.3	11.6	26.5	<b>593.25</b>
	Gravel	0.1	15.37	12.81	9.74	0.32	1,12	2.56	<b>42.00</b>
	Earth	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<b>N.A.</b>
DRR	Paved	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	<b>N.A.</b>
	Gravel	0.0	9.62	8.02	6.10	0.19	0.66	1.50	<b>26.14</b>
	Earth	0.0	2.13	1.78	1.35	0.04	0.15	0.33	<b>5.79</b>
MCC	Paved	0.0	5.1	4.2	3.2	0	0	0	<b>12.6</b>
	Gravel	0.0	1.2	1.0	0.8	0	0	0	<b>2.93</b>
	Earth	0.0	1.9	1.6	1.2	0	0	0	<b>4.60</b>
MoLG	Paved	0.00	0.32	0.27	0.20	0	0	0	<b>0.79</b>
	Gravel	0.00	0.90	0.75	0.57	0	0	0	<b>2.23</b>
	Earth	0.00	1.21	1.00	0.76	0	0	0	<b>2.98</b>
<b>Total</b>		<b>1.1</b>	<b>260.91</b>	<b>217.47</b>	<b>165.4</b>	<b>3.85</b>	<b>13.53</b>	<b>30.89</b>	<b>693.31</b>

While no current detailed information on vehicle operation costs are available for Lesotho, an examination of historical data<sup>\*\*\*\*\*</sup> as well as duly-adapted information from nearby countries allows the adoption of the following values for the case of paved roads; these figures include fuel, oil, tire, maintenance and depreciation costs.<sup>+++++</sup>

<sup>\*\*\*\*\*</sup> Economic Evaluation Oxbow - Mokhotlong Road, Roughton International, October 2010

<sup>+++++</sup> Adapted from Feasibility of tolling certain corridors in Lesotho, Africon Consultant's Report, December 2010

Table: Vehicle Operation Costs (VOC) for Lesotho

Vehicle Operation Cost, per vehicle class, Maloti/kilometer				
Light	Medium	Bus	2-3 Axle Cargo	4+ Axle Cargo
2.90	4.10	8.81	12.63	23.23

**Post disaster situation. Damages and losses**

As a result of the intensive and persistent rains, and of the ensuing runoff and floods, the road network of Lesotho sustained damage of different types that were assessed by the respective sector institutions after conducting detailed field visits to different affected road sections.

One point that is relevant to the assessment and also for post-disaster recovery and reconstruction activities is that existing roads were built many years ago, but houses and settlements have only recently been built in adjacent areas, which has modified the originally envisaged rainfall/runoff ratios. This has caused that some culverts and bridges are now unable to allow the resulting runoff from the rains; these works have been destroyed by the action of the water, and adjacent homes and settlements have been flooded as well. In fact, some road sections can now be considered as acting as partial dams to the free flow of water courses, and it is essential and urgent to revise the entire criteria used for defining the size and location of culverts, bridges and other drainage structures in order to reduce future flood risk.

Complete and partial destruction of limited-length road sections, bridges, culverts and other drainage structures, as well as some deterioration of road surface quality occurred as a result of the floods. Short-term (up to 1.5 days) traffic interruptions occurred in some towns and between urban and suburban areas at the time of the floods, causing revenue losses to public and private transport companies<sup>\*\*\*\*\*</sup>. The relevant sector authorities promptly sent out crews and machinery to re-open traffic in the interrupted road sections, and financed these expenditures using their own regular maintenance budget.

In another important case, vehicular traffic in road B-24 that connects the towns of Mapoteng and Teyateyaneng was effectively cut off when the ensuing floods destroyed two culverts. After this damage the roads authorities built a temporary drift downstream of the damaged section to enable traffic of 4-by-4 vehicles through, but more than 95% of normal traffic had to use an alternative road – involving a combination of roads A-1 and B-23) that is 38.8 kilometers longer and has similar surface characteristics, and thus transport costs between the two towns increased significantly with a direct negative impact on the people. Furthermore, when persons fall ill in the nearby villages, the damaged road section prevents easy and expedient access to the hospital, which is located in the next town of Mapoteng.

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\*\*\*\*\* In one town Botha-Bothe 27 taxis lost revenues for not being able to cross a river that had destroyed a bridge, to the tune of about 30,000 Maloti in about a day's time right after the floods.

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The installation of Bailey-type bridges would have provided a temporary solution to the above-described problems, but the existing ones in the country were used several years ago in specific road sections after previous floods and have become a permanent feature at those locations. Creation of a minimum stock of such temporary building facilities, at central level in Maseru, should be considered as an essential component of any minimum risk reduction program for the transport sector.

In other road sections of the country, culvert drainage capacity was clearly exceeded by flood flows and these structures were totally or partially destroyed, without interrupting traffic flows (See Picture T-2 below). However, repairs or reconstruction – using updated hydrologic design standards – should be carried out in order to prevent further deterioration of the structures that may cause an outright interruption of traffic along those roads caused by subsequent rains in the near future.

In regard to road surfacing damage, potholing, raveling and rutting occurred in limited-length road sections that have resulted in a much higher road roughness; road transport costs have risen slightly in the entire road network. However, it must be stated that many roads have not received adequate maintenance in recent years and their quality has deteriorated over time, so that it is difficult to determine what road surfacing damage is due exclusively to the rain and floods and which damage is due only to lack of maintenance. §§§§§§§§

In certain places, the Orange river could not be crossed due to damage to bridges and culverts, and to the lack of boats or ferries for that purpose, since existing units have not received adequate maintenance in recent years. The need to replace these boats and ferries is obviously very evident to facilitate recovery of transport services for the users.

### Estimation of damage and losses

The transport sector assessment team – composed of government officials from the Roads Directorate, Ministry of Local Government, Maseru City Council and Ministry of Public Works and Transport and with support from the World Bank – using detailed information collected by District-level officials from same units, estimated the value of damage caused by the floods on the road network, and also estimated the losses arising from the brief traffic interruptions that occurred, from the utilization of alternative longer roads where road sections were fully cut off over the time required for their repair or reconstruction, as well as due to the deterioration of road surfaces that could be attributed directly to the rain and floods. Table below describes the estimated values of destroyed assets (damage) and higher costs of transport (losses) for the road sector, as well as the ownership of such values.

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§§§§§§§§ Information on a 40% increase across the board in vehicle maintenance costs was provided by a private enterprise that provides fleet vehicle rental services to all government ministries, due to the need to replace tires, suspension and other parts of rented vehicles more often than normal. However, it is not possible to tell define how much of the increase in maintenance costs in that case is due exclusively to the impact of the floods disaster.

Table: Estimated values of damage and losses in Road Transport (Thousand Maloti); *Source:* Estimations by Assessment Team

	Damage	Ownership		Losses	Ownership		Total Damage & Losses Value	Ownership	
		Public	Private		Public	Private		Public	Private
Damage to roads, bridges and culverts	62,189.5	62,189.5					62,189.5	62,189.5	-
Damage to Maseru City roads	18,135.0	18,135.0					18,135.0	18,135.0	
Higher transport costs due to damage to road surface				31,610.0		31,610.0	31,610.0	-	31,610.0
Higher transport costs using alternative roads				25,757.5		25,757.5	25,757.5	-	25,757.5
<b>Total</b>	<b>80,324.5</b>	<b>80,324.5</b>	<b>-</b>	<b>57,367.5</b>	<b>-</b>	<b>57,367.5</b>	<b>137,692.0</b>	<b>80,324.5</b>	<b>57,367.5</b>

### Recovery strategy

Estimations of the financial requirements to achieve economic recovery and reconstruction with disaster-resilient features have been made using the DaLA methodology <sup>\*\*\*\*\*</sup>.

### Needs for recovery

It is foreseen that in order to urgently reduce the higher transport costs being faced for the rest of the year by the users of road B-24, that connects the towns of Mapoteng and Teyateyaneng – which have been estimated to be M25.7 million, it would be necessary to establish at the soonest a stock of Bailey-type bridges in the country. These temporary facilities would then be available for use after any emergency to re-establish traffic flows, and in this special case of road B-24 would enable to re-open full traffic flows. A stock of, say, 10Nos 20-meter long temporary bridges having a 10-ton capacity may cost a total of US\$ 125,000 or roughly M1 million. Its availability would reduce the value of the above mentioned losses in road B-24 and would reduce future similar losses in cases of bridge and culvert destruction. There is a need to procure boats for villagers to cross Orange River which cuts across the country. Orange River could not be crossed for many days at some locations where boats are in use because they are either of inferior type and/or have deteriorated.

### Needs for reconstruction

Using the estimated values of destruction of bridges, culverts and road sections, the needs for reconstruction using design criteria appropriate to the post-flood conditions – i.e. in some cases, longer bridge span lengths, larger design capacity for culverts and other drainage structures, etc. – in the road transport sector have been estimated for each affected road section.

\*\*\*\*\* For details on the procedure for estimating the financial requirements to achieve economic recovery and disaster-resilient reconstruction, see Global Facility for Disaster Recovery and Reduction, *Guidance Notes for Estimation of Damage and Losses after Disasters*, The World Bank, Washington, D.C., 2011. (<http://www.GFDRR.org>)

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### Needs for disaster risk reduction

The financial needs to carry out several studies and to revise design standards for the road transport sector have been estimated. On the one hand, a study to re-calculate design floods in major watersheds, taking into consideration the land-use changes that have occurred in recent years (i.e fast urbanization of previously unused watershed areas) as well as possible climate changes in the occurrence and intensity of rainfall is to be made. From it, a new flood frequency analysis is to be made in order to re-define and update drainage design standards for bridges, culverts and similar structures for the country. On that basis, a revision of the drainage capacity of bridges, culverts and other structures in the main roads of the country is to be made, to define possible expansion of drainage works capacity in the near future.

### Summary of post-disaster needs

Financial requirements for post-disaster activities to ensure economic recovery and reconstruction with disaster risk reduction features have been estimated, and are described in the table below.

Table: Summary of post-disaster needs for economic recovery and reconstruction; *Source:* Estimations by the Assessment Team

<b>Post-Disaster Needs for Recovery and Reconstruction</b>	<b>Financial Needs, Lesotho Maloti (million)</b>
<u>Recovery Needs</u>	<u>1.3</u>
Acquisition of a stock of Bailey-type bridges, to reduce higher transport costs	1.0
Acquisition of boats, to facilitate river crossing at all times	0.3
<u>Reconstruction Needs</u>	<u>161.3</u>
Reconstruction of destroyed bridges, culverts, and road sections	88.8
Reconstruction of Maseru City roads	72.5
<u>Disaster Risk Reduction Needs</u>	<u>15.0</u>
Study to revise rainfall-runoff relation after recent land-use changes	2.5
Updating of drainage design parameters based on above	5.0
Revision of drainage flow capacity of existing bridges and culverts in road network	7.5
<b>Total</b>	<b>177.6</b>

### Human Recovery Needs Assessment (HRNA)

A field trip was undertaken on the 6<sup>th</sup> April 2011 to physically observe the damages and their extent with regard to how the communities were affected and the coping strategies they employed during the floods. Due to time constraints, the transport sector team visited three sites in Botha-Bothe, two in Berea and one in Leribe; other districts could not be visited.

#### Butha Buthe district

During the interview with the transport owners and operators it was discovered that business was badly affected on a temporary basis. As a result of this problem, taxi owners had to share the money collected



on each platform since they could not reach their final destination in either direction. Some estimated their loss to approximately 50% of their daily collections. In other instances taxi owners indicated that they had to use their family funds to top up payment of wages for drivers since daily collections were insufficient to pay them and these drivers could not be retrenched at that time. Besides the public transport problems, it was reported that in the process of restoring passage over the river, a government excavator machine got stuck in the river and the continuing rainfall raised the level of the river water, which nearly submerged it. As a result of this the excavator suffered extensive damages, rendering it unusable at the time of writing this report.

Interviewees said that prevention or reduction of future flood disasters can be achieved by construction of concrete bridges supported on piers instead of multi-plate culvert crossings. A concrete bridge in the area where a multi-plate was damaged was observed to have stood a test of time during the floods. The interviewees also recommended that a weigh bridge be put in place for vehicles entering through Caledon's port bridge since they suspected that the damaged bridge had suffered rapid deterioration due to overloading which had left it vulnerable to the flood damage.

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### ANNEX 9: WATER AND SANITATION

#### Pre disaster situation

The responsibility for overall planning and co-ordination of water supply and sanitation activities in Lesotho falls under the Ministry of Natural Resources (MNR), through the overall coordination of (COW) Commissioner of Water. WASCO, the Water and Sewerage Company, is responsible for service delivery in urban areas, while the Department of Rural Water Supply (DRWS) is responsible for services in rural areas.

Both the Ministry of Health and Social Welfare and the Ministry of Local Government have a long history of promoting hygiene and sanitation in rural and urban areas respectively.

The water and sanitation sector in the country is facilitated through a multitude of assets across the country which include river gauging stations, water supply intakes, dams, boreholes, wells, infiltration galleries, springs, water treatment systems, pumping systems, gravity systems, distribution pipelines, water storage tanks, sewerage systems, pit latrines and septic tanks among others.

The sector has a policy framework, which is backed by an implementation strategy. Regular programs include water supply, rehabilitation, sanitation, hygiene, school WASH (water sanitation and hygiene) and emergencies. In addition, the programmes are supported by strategies for sustainability, M and E and community participation among others. Mostly, systems are developed with government funding with the help of donors. According to the Joint Monitoring Programme (JMP) WHO/UNICEF Report 2010, only 29% of the population had access to improved sanitation in 2008. The percentage of the population with access to improved water was 85%. There was no data on WASH in schools, but reports estimated that up to 50% of schools do not have adequate WASH facilities.

The vision of the sector as outlined in the policy is that 'all the Basotho are entitled to have access to a sustainable supply of potable water and to the provision of basic sanitation services at an affordable cost'. Some of the documents guiding the sector include the Lesotho Water and Sanitation Policy (LWSP, 2007), Water Act 2008, Vision 2020 and Millennium Development Goals (MDG).

One of the current prominent programmes in the sector include The "Six Towns Water Supply Project" which focuses on the upgrading of water supply and sanitation in the six urban centres of Mapoteng, Maputsoe, Morija, Roma, Quthing and Teyateyaneng, The "Maseru Wastewater Project" (MWWP) is an intervention to rehabilitate the Maseru sewerage system, which has deteriorated from lack of investment.

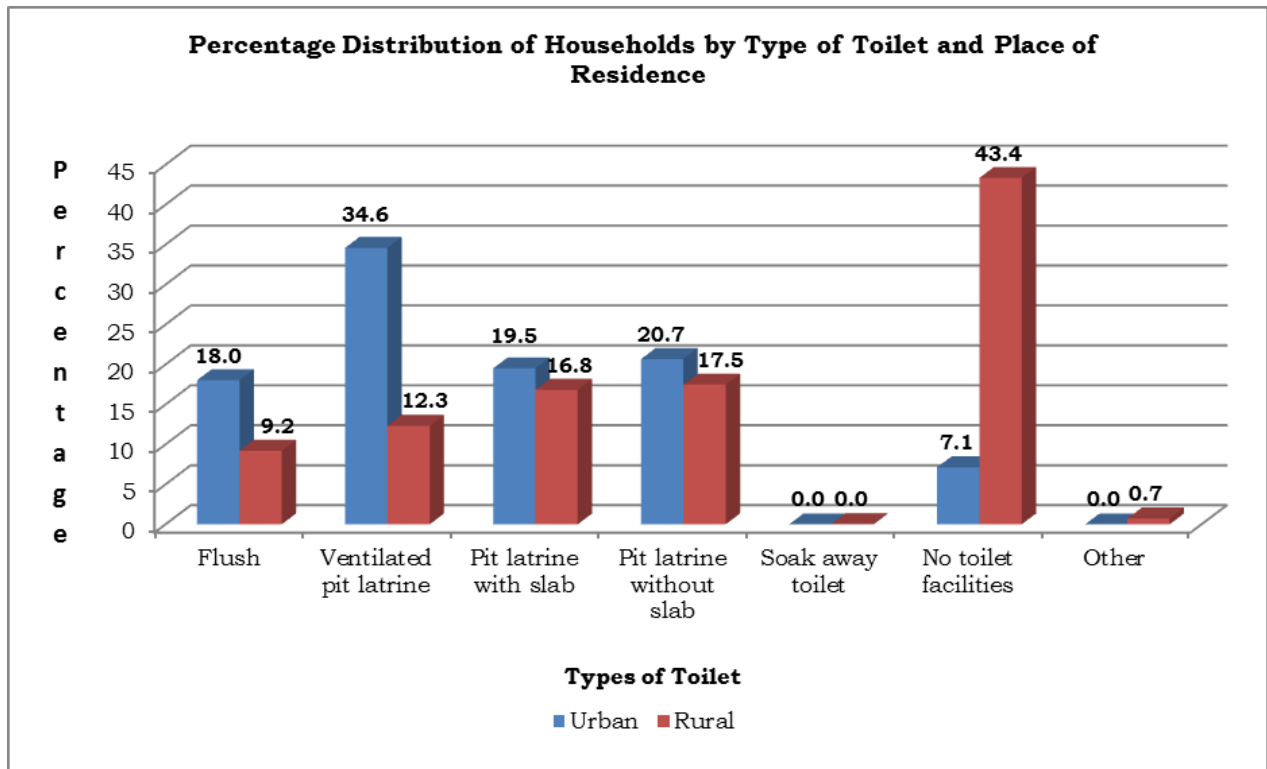


Figure: Percentage distribution of households by type of toilet and place of residence; *Source: CMS-Lesotho*

Another notable program is the Millennium Challenge Authority (MCA), a government entity of the Millennium Challenge Corporation (MCC), which is also providing support to DRWS through which 250 villages with up to 150,000 households are targeted with supply of water and sanitation.



Figure: (left) School latrines; (right) Woman in Thaba Seka with water from a stream after pipeline was washed away by floods

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### **Post disaster situation. Damages and losses**

The floods caused by the heavy rains last December and January, had devastating effects, causing damages to the water supply network and sanitation in the country. The operation of more than 40 water supplies, the majority of them small rural pipelines, was disrupted following damages affecting boreholes, wells, springs, pump houses, staff gauges, concrete support structures and pipes. Most of the unprotected springs were filled with debris. Gravity water pipeline systems from springs were eroded and damaged by falling rocks and boulders swept away by floods.

People living in Matukeng in Leribe District, which is on a flood plain, were adversely affected by poor sanitation when their latrines were flooded. The urban sewage ponds in the country were equally flooded following the heavy rains. Schools, hospitals, businesses and the industrial sector, where many firms depend on water supply for their functions, were affected. From the urban water supply in Maseru and Mapoten, WASCO was spending more resources for trucking water to consumers, while revenue, critical for operating the company, was not forthcoming.

The estimated cost of damages and losses caused by the rains have been calculated based on the current cost of reconstruction. The total damage is estimated at M 40,760,773.20. The figures also indicated that out of the total losses, those caused by direct physical damages on the water supply systems amounted to M 37,871,642 while those losses resulting from direct loss of revenue and additional expenses like trucking water amounted to M 2,889,131. The analysis further indicated that urban water systems suffered more losses as compared to the rural systems. In Maseru alone, the damages are estimated at M 35.5 million, which constituted about 95% of the total amount of damages incurred in the urban areas. In total, the losses in the urban sector amounted to M 37,435,875 while the losses in the rural sector amounted to M 3,324,899. It is also evident that the water component suffered heavier losses compared to sanitation. The losses on sanitation were mainly related to the cost of latrines damaged, which were only M 107,300, as compared to those of the water component, which were M 40,653,473.20.

### **Risk and vulnerability**

There is evidence of capacity gaps in the institutions in the sector. Lesotho has been undergoing a process of decentralisation and most of the municipal functions have been transferred from the central government. The leading institutions which are responsible in the sector include WASA, Rural water supply, Ministry of Health, Ministry of education and the local communities. The institutions need more financing, and more trained personnel to enable them to better prepare and respond to emergencies. They need more logistical support, especially vehicles and equipment. Coordination with other stakeholders in the localities, especially NGOs and the Private sector, needs to improve for more effective participation.

Lesotho is a mountainous country and during heavy rains, water supply structures including pipelines which have been constructed on water ways, are at risk of being damaged by rocks and boulders being washed down the slopes. In order to reduce the risk and vulnerability of the communities, there is a need to ensure that the water supplies are better constructed and strengthened to avoid potential

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damages. The local communities and stakeholders need to play a bigger role in the development and management of their own systems. There is a need to review the capacities of the various stakeholders to ensure they are trained and equipped for the various tasks. At the moment, the water and sanitation systems are heavily subsidized by the Government.

Table: Damages and losses in water and sanitation (Lesotho Maloti)

District	System	Damage	Downtime/ months	Production/ M3/day	Rate/M3	Revenue Loss	Urban	Rural	Total
Thaba Tseka	1	9,604	7	7,2	5	7,560			
	2	9,602	7	7,34	5	7,707			
	3	2,977	7	7,2	5	7,560			
	4	9,602	7	27,2	5	28,560			
	5	9,602	7	19,5	5	20,475			
<b>Totals</b>		<b>41,387</b>		<b>68,4</b>		<b>71,862</b>		<b>113,249</b>	<b>113,249</b>
Butha Buthe		225,190	7	33,45	5	35,154			
		18,921	7	13,83	5	14,521			
<b>Totals</b>		<b>244,111</b>		<b>47,3</b>		<b>49,675</b>		<b>293,786</b>	<b>293,786</b>
Quthing		109,432	7	345	5	363,300			
		113,0	7	518	5	543,900			
<b>Totals</b>		<b>222,432</b>		<b>864</b>		<b>967,200</b>		<b>1.129,632</b>	<b>1.129,632</b>
Maseru			1	35,403,640		1,687,730			
	Higher cost Trucking water					8,758			
	4 rural Systems	225,748	7	13,5	5	14,385			
<b>Totals</b>		<b>35,629,388</b>		<b>13,5</b>		<b>1,710,873</b>	<b>37,100,128</b>	<b>240,133</b>	<b>37,240,261</b>
Berea	Revenue Losses	275,835	7	13,7	5	10,689			
	Tankering		7	13,7	5	49,222			
	4 rural systems	225,748	7	13,7	5	14,335			
<b>Totals</b>		<b>501,584</b>		<b>13,7</b>		<b>74,295</b>	<b>335,746</b>	<b>240,133</b>	<b>575,879</b>
Leribe	4 rural Systems	225,748	7	13,7	5	14,385			
	Sanitation	104,0	7		5	3,300			
<b>Totals</b>		<b>329,748</b>		<b>13,7</b>		<b>17,685</b>		<b>347,433</b>	<b>347,433</b>
Mokhotlong	4 rural Systems	225,748	7	13,7	5	14,385			
<b>Totals</b>		<b>225,748</b>		<b>13,7</b>		<b>14,385</b>		<b>240,133</b>	<b>240,133</b>
Qachas Neck	4 rural Systems	225,748	7	13,7	5	14,385			
<b>Totals</b>		<b>225,748</b>		<b>13,7</b>		<b>14,385</b>		<b>240,133</b>	<b>240,133</b>
Mohale Hoek	4 rural Systems	225,748	7	13,7	5	14,385			
<b>Totals</b>		<b>225,748</b>		<b>13,7</b>		<b>14,385</b>		<b>240,133</b>	<b>240,133</b>
Mafeteng	4 rural Systems	225,748	7	13,7	5	14,385			
<b>Totals</b>		<b>225,748</b>		<b>13,7</b>		<b>14,385</b>		<b>240,133</b>	<b>240,133</b>
<b>Total</b>		<b>37,871,642</b>				<b>2,889,131</b>	<b>3,324,890</b>	<b>37,435,875</b>	<b>40,760,773</b>

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### Recovery strategy

#### Human recovery needs

The estimated total population affected by the excessive rains was 172,293 people, out of which 149,620 are urban dwellers, while 22,673 are situated in the rural areas. As a result of the disaster, communities have resorted to fetching water from alternative sources, some of which are unsafe, especially unprotected springs. In many cases, the people are forced to walk long distances to water sources, which is time consuming. People's health is also at risk because communities are unable to safely carry out hygiene practices such as hand washing after visiting the toilet. Basic hygiene practices at the household level are also not being practiced, partly because the community lacks knowledge and the proper facilities to carry out such practices. In addition, most of the communities were already suffering from inadequate access to latrines and the situation has now been exacerbated. Outbreaks of water-borne diseases such as diarrhoea were reported during the heavy rains due to poor quality of drinking water. At least 543 cases were reported in the districts of Thaba-Tseka, Botha Buthe, Quthing and Leribe. Some cases of dysentery were also reported in Botha Buthe.

Table: Water and sanitation recovery needs

Name of Water Supply	District	Urban/Rural	Pop. Affected	Water Yield M3/day	Period of rehab/ months	Unit cost/ 1000 litres	Water Supply/ person-before floods	Value of Water loss	Rural pop	Urban pop	Rural water loss	Urban water Loss
Makhalong	Thaba Tseka	Rural	533	7,20	7	5	13,51	7,560	533		7,560	
Ha Monyollo	Thaba Tseka	Rural	433	7,34	7	5	16,95	7,707	433		7,707	
Linokong	Thaba Tseka	Rural	180	7,20	7	5	40,0	7,560	180		7,560	
Ha Rantsimane	Thaba Tseka	Rural	751	27,20	7	5	36,22	28,560	751		28,560	
Phara-Hlahle	Thaba Tseka	Rural	525	19,50	7	5	37,14	20,475	525		20,475	
Masoleng	Butha Buthe	Rural	633	33,48	7	5	52,89	35,154	633		35,154	
Motjanyela	Butha Buthe	Rural	170	13,83	7	5	81,35	14,520	170		14,520	
Tosing	Quthing	Rural	982	346,0	7	5	352,34	363,3	982		363,300	
Mt Moorosi	Quthing	Rural	7,946	518,0	7	5	65,19	543,9	7,946		543,900	
Maseru	Maseru	Rural	144,500	45	1	5	311,42	6,750,0	10,520	144,500	14,385	6,750,000
Others	Others	Urban	10,520	14	7	5	79,0	14,385				
Mapoteng	Berea	Rural	5,520		7	5				5,121		
<b>Total</b>			<b>172,293</b>					<b>7,793,121</b>	<b>22,673</b>	<b>149,620</b>	<b>1,043,121</b>	<b>6,750,000</b>

Most schools in the areas visited are without water and there is a big challenge in keeping the latrines in clean and hygienic conditions. Moreover the children are unable to wash their hands due to lack of water. In the areas where water systems were damaged by heavy rains, information was collected in five districts covering 16 households among the affected victims. This also covered six schools and seven

water systems. The results indicated that water systems have management committees but the majority of them are inactive. Most do not collect revenue regularly and some do not have the capacity to carry out maintenance of their systems.

The collected information showed that 12 out of 16 households visited in five of the districts affected by heavy rains are still without access to safe water. In the same localities, nine out of 16 households visited in the districts have pit latrines, and only seven households visited practice personal hygiene by washing hands after visiting the toilet. The results also indicate that the female population in the affected areas is higher. The average family size in the flood affected area is five, where the total number of females in all the households visited stood at 45, compared to 40 males. Only seven out of 16 affected households have families headed by a literate person.

The results show a pathetic picture of schools visited. Only two out of six schools visited in the affected regions have running water, and only one out of the six had latrines which meet the acceptable standards, which require at least one latrine for 25 girls and one latrine for 35 boys. The results show that up to 60 children in some schools are expected to share one latrine. None of the schools had a hygienic latrine and all the schools visited indicated filthy status of latrines. None of the children washed hands after visiting the toilets. The results showed that out of a total of 1756 children, boys were in the majority in the schools, with 949, as opposed to girls with 807.

**Recovery considerations**

The Water and sanitation sector is important and crucial for other sectors such as health, education, nutrition and industry among others. In this regard, a full recovery of other sectors will largely depend on this sector. However, in order for other local communities to fully participate in the WASH sector they must themselves be able to fully understand the relationship between sectors to help them prioritise the action being considered for recovery.

**Recovery needs**

Full reconstruction and recovery of the WASH sector in Lesotho needs M 37,871,642 to cover reconstruction of both rural and urban water supplies and M 2,889,131 for losses arising out of lost revenue and costs of trucking water. The sector further needs M 27,772,544.88, for improving the water system at Maseru to protect it and minimise damages during any future disasters. This would amount to a total of M 68,533,317.88. An additional 20% of the total figure ( M 13,700,663.57) is required to cover capacity building and training of the stakeholders to enable them to better prepare for and respond to future disasters, and reduce risks and vulnerability. The expenses would go towards strengthening the policy framework, the M and E framework and data management within institutions. Other areas to be covered will be coordination, logistical support and training on emergency preparedness and response. The money will also be used to equip the stakeholders with capacity to manage and response to their own emergencies, and implement water and sanitation standards in schools. Communities will also be trained to minimise the effects of disasters by being trained to manage hygiene issues especially household water treatment and safe storage, hand washing and household sanitation. A total amount of M 82,239,981.45 is required for full recovery.

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### **Sector outcome, recovery strategy, outputs and monitoring/evaluation indicators and targets**

*The desired long term recovery outcome is to have a healthy population, in the affected area, using sustainable safe water and sanitation facilities and practicing good hygiene with capacity at the local level backed by the district and national level to prepare and respond to any emergencies or disasters in the affected area.*

In order to achieve full recovery, the various response options have to be prioritized to identify the medium and long-term recovery needs. A high priority action will be reconstruction and rehabilitation to achieve full operational status of WASH facilities. More important will be building capacity of the communities for the ownership of water and sanitation facilities at the local level. Capacity building of community in the management and operation and maintenance will be undertaken to ensure ownership for sustainability.

It will be important that schools recover fully in the shortest possible time in order to minimise the impact on education. As such, School WASH will be undertaken in schools as a high priority. These activities have an added advantage of creating child friendly schools, by providing gender sensitive WASH facilities for the children. These include latrines with hand washing facilities and girls bathroom for menstrual management. Facilities will be adapted for the physically challenged. Formation of school health clubs will be included for the dissemination of WASH messages, particularly on school walls known as 'talking walls'. Other elements to be undertaken will include outreach to communities through child to child and child to parent participation. The children will also learn about the use of water to improve the quality of school meals and improving the school environment and attendance.

The provision of Latrines to communities is a high priority. Latrines are largely subsidized by the Government but there is a need to ensure that there is adequate ownership. CLTS - Community Led Total Sanitation is a relatively new and exciting participatory social mobilization methodology, which results in households being triggered for improved sanitation and hygiene. CLTS specifically addresses the issue of basic sanitation by creating demand for the use of latrines and creating open defecation free communities. It has proven its ability to induce sanitation behaviour change and bring a stop to open defecation practices, as well as increasing latrine coverage among the populations triggered by practitioners. Government partners and other stakeholders will be trained and equipped with skills in CLTS and subsequently plan for the scaling up of the intervention as well as increase the number of CLTS practitioners. Hygiene promotion is another high priority intervention that must be addressed in the recovery process. Hygienic practices and behaviour by household members are very vital for control and reduction of water related infections and more so diarrhoea diseases. Hand washing and household water treatment and safe storage are among the good hygiene practices with high impact at household level. More important is the use of clean containers with covers, and good hygiene behaviour that prevents the contamination during water collection, transport, and storage at home. Members of the family will be given a brief and basic technical training on household water treatment techniques.

Capacity building interventions are some of the longer term recovery needs to be addressed both at the local and national level. Capacity issues will be addressed at different levels covering, institutional,



human, logistical, and financial capacities among others. The coordination structures will be strengthened both

Table: Recovery and results framework

Results	Outputs	Indicators	Verification	Risks and assumptions	Partner funding
40 Communities accessing clean water by end of 2013	Rehab of 40 water systems 40 community trainings	No of water systems operating No of trained communities	Progress reports	Funds available, from donors and GOL	UNICEF EU WB
1000 Households accessing individual latrines by end of 2013	40 CLTS trainings	No of CLTS conducted in villages	Training monitoring reports	Communities will accept challenges	UNICEF GOL
20 Schools accessing gender sensitive WASH facilities by end of 2013	20 gender sensitive WASH facilities	No of WASH facilities No of Trainings conducted	Workshop reports Field monitoring reports	Funds available, from donors and GOL	UNICEF GOL
Health facilities have WASH facilities by end of 2013	15 WASH facilities	No of gender responsive WASH facilities	Field monitoring reports	Ministry of health will facilitate	GOL
Communities practice hygiene knowledge by end of 2013	40 Hygiene promotion activities	No of HH practicing hand washing with soap and household water treatment	Field monitoring reports	GOL will take the lead	UNICEF
Functioning emergency cluster coordination system	Cluster coordination established Emergency preparedness plan established	Emergency preparedness plan No of coordination meetings	Minutes of meetings The emergency preparedness report	Development partners will facilitate	UNICEF
Increased performance of sector partner institutions	Sanitation profile increased Trainings conducted HRAP, Gender Emergency , data, M and E. n	Sanitation policy developed Institutional logistical financial and human capacities Enhanced	Workshop reports M and E reports	Human resource capacity will Be available	EU WB

at the national and local level. Training will be undertaken to cover other components, such as emergency preparedness and response, gender, equity, human rights, policy, data collection and management, resource mobilisation and sector wide approach:

1. Rehabilitate water supplies for populations covered by currently damaged systems including community training and management of the utilities
2. Primary schools need to have access to gender sensitive sanitation and practice good hygiene including hand washing – promote social marketing and talking walls including school health clubs
3. For hygienic sanitary facilities at household level, introduce CLTS - community led total sanitation for promoting hygienic sanitary facilities at household level
4. Health facilities need to have gender responsive water and sanitation facilities

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5. Communities need to have improved household hygiene knowledge and practices, including hand washing with soap and household water treatment and storage - culture sensitive communication materials are needed
6. Introduce emergency cluster coordination to deal with emergency preparedness and response, and ensure that supplies are prepositioned for emergencies.
7. Increased performance of sector partner institutions to manage, implement, monitor and coordinate sector programmes and review policies – build capacity on communication, HRAP (human rights approach to programming), gender issues, emergency preparedness, data analysis and management.

### **Description of gender and disaggregated data were obtained**

The gender-disaggregated data was obtained by collecting information at the household level and at the school level. Information on gender composition was obtained at the household level when collecting information on sizes of family gender composition and access to water and sanitation and hygiene. Similarly the information from schools covers data on composition of latrines for boys and girls and composed of population of girls and boys in the school.

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**ANNEX 10: ELECTRICITY AND ENERGY****Pre-disaster situation**

The history of electricity supply in Lesotho began in a meaningful way with the establishment of the Lesotho Electricity Corporation (LEC) in terms of the Lesotho Electricity Act of 1969. The LEC was mandated by the Act for the generation, distribution, transmission and supply of electricity in the entire country. A national grid was established in the lowlands, linking major centers to the Eskom plant in South Africa, and gradually expanded to reach other centers. Four mini-hydro plants, some of them with diesel generator backups, were developed at Mantsonyane (2MW), Semonkong (180kW), Tlokoeng (670kW) and Tsoelike (400kW). The LEC was commercialized in 1993, which entailed a reduction of subsidies, agreement on performance targets and responsibility for the sector.

In 1986 the Lesotho Highlands Development Authority (LHDA) was established as implementing agency for the Lesotho Highlands Water Projects (LHWP). The LHDA was mandated to develop hydropower schemes as part of the LHWP and constructed the 72MW 'Muela Hydropower Plant MHP which was commissioned in late 1998. LHDA also operates a 500kW mini-hydro plant at Katse Dam to supply the local power requirements<sup>++++++</sup>.

The government of Lesotho, through the department of Energy, established the Rural Electrification Unit (REU), whose purpose (among others) is to improve access to electricity in the rural areas and to connect households to low voltage electricity infrastructure. Since its establishment, REU has started a few. Amongst them is the *Lesotho Renewable Energy Based Rural Electrification* (LREBRE) project which is a five year initiative project aimed at reducing carbon dioxide emissions by promoting renewable energy technologies. A total of 1537 Solar Photovoltaic (PV) systems have been installed through LREBRE since its inception. The electrification rate in Lesotho is 16%: in the urban areas it is 44% and in the rural areas it is 6%.

**Energy efficiency and conservation**

Energy efficiency refers to all dynamically improved energy saving measures on demand or end-use side such as appliances, motor drives, housing and services including transport, or to use the same amount of energy to achieve better results. The key challenge for the Government is to encourage greater energy efficiency in all sectors of the economy, thus resulting in improved economic efficiency and the release of savings for investment in other areas of the economy, as well as ensuring that the barriers inhibiting investments in energy efficiency and demand-side management are removed.

Efficient use of energy can be achieved through adequate investments in energy efficiency and demand-side management; introduction of standards for all energy consuming devices; promotion of energy saving techniques; ensuring that appropriate energy saving technologies are available and affordable throughout the country.

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<sup>++++++</sup> Development of Policy Framework and Implementation Strategy.

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### Energy demand

The extent of usage of different energy sources differs from urban to rural households, depending on the availability of energy sources, as well as the extent of disposable household income. The residential sector is responsible for 81% of the country's total energy consumption. The transport sector constitutes about 12% of the total energy consumption.

In medium-to large-scale industries, electricity is used as a major source of energy in the production line, for lighting, motive power and for space heating in these industries. Other forms of energy used by this sector include coal, diesel and oil. Electricity is used in the commercial sector as a major source of energy for refrigeration, lighting, space heating and cooling. LPG and coal are used for cooking and steam production. Government buildings consume relatively large amounts of energy in the form of electricity for space heating and cooling, as well as lighting.

Agriculture requires energy input at all stages of production. In traditional farming practices, it is mostly human labour and/or animal power. In the national energy balance, agriculture accounts for less than one percent of the total energy consumption (this covers petroleum products only).

The table below shows the energy sales per type of customer before the floods in 2010 and the projected sales in 2011 after.

Table: Energy sales per type of customer

<b>Customers</b>	<b>Estimated sales for 2010 Lesotho Maloti</b>	<b>% sales</b>
Special Domestic consumption (MWh)	3,751,852	0.71
Special General Purpose (MWh)	4,271,044	0.80
Commercial (High voltage)	43,257,080	8.15
Commercial (Low voltage)	40,783,437	7.68
Industrial (High voltage)	140,197,587	26.41
Industrial (Low voltage)	37,330,379	7.03
LHDA	6,361,432	1.20
Pre-paid Domestic consumption(MWh)	186,502,415	35.12
Pre-paid General Purpose (MWh)	68,458,425	12.89
<b>Total Consumption (MWh)</b>	<b>530,913,651</b>	<b>100</b>

### Post disaster situation. Damages, losses and responses

The December 2010 to January 2011 hydro-meteorological event brought about intensive rainfall rates with resulting flash floods, strong wind gusts and, in some locations, hail storms. These effects caused

partial destruction in some of the components and subsystems of the LEC electrical network. Electricity supply was interrupted for brief periods not lasting more than a few hours, as service was restored promptly by LEC crews except for Dilli-Dilli/ Sixondo where the interruption lasted for two days. This was— despite full supply availability as restored by the power company – slightly due to the destruction of a relatively limited number of housing units caused by the floods, and will not return to pre-disaster levels until those housing units are rebuilt and re-connected to the power grid.

The sector infrastructure comprises of transformers, poles and wire lines, some of which were totally or partially destroyed or washed away by the heavy rains. There were a few cases reported of a broken pole at Hlotse and an H-pole at Mohale’s Hoek, which were replaced by the electricity company. Some electricity lines along the Mohokare River had to be relocated to avoid them being washed away by the flooded river.

In response to the damage to electrical infrastructure alongside active gullies, erosion prevention works were undertaken in various places that were considered to be exposed and vulnerable to floods; these include Khukhune, ‘Muela and Mohale’s Hoek.

Two hydropower stations supplying the villages of Semonkong and Mantsonyane, are operated by LEC. Both of them were affected by the floods. The company had to incur costs of about M50,000<sup>\*\*\*\*\*</sup> for repairing the access road to the power station. The Semonkong hydropower station was also affected. The inlet tunnel (Picture 1) was washed away by the floods. The cost of this is estimated to be M 40,000. The station was filled with water. Electrical equipment in the station was covered with water and destroyed and new equipment had to be ordered from Bloemfontein. To rectify the electricity cuts, the company had to use a standby diesel generator (Picture 2), which is more expensive to operate since it consumes about 400<sup>ssssssss</sup> litres a day.

Another basic source of energy used mostly in the rural communities is biomass. Biomass includes wood, charcoal, biogas, and fuel bricks and is mostly used by poor people for cooking, lighting and heating, since it is cheap. This is the source of energy that is very vulnerable and mostly exposed to heavy rains and hence was badly struck by the floods. Most people had to turn to other means of energy since most forms of biomass were heavily soaked in water.

In Mohale’s Hoek district in Mataoeng village, the power lines were destroyed by corrugated iron sheets, which were taken by the heavy winds. To restore the lines, about 600 metres of electric wire had to be replaced by the company. In the same district in a village called Ha Makhate, the poles were washed away by the heavy rains. The situation was temporarily restored by diverting supply from the nearby transformers, and poles were erected. These two scenarios affected the supply of electricity for some hours only since LEC restored the situation on time. The table below indicates some relocation, reconstruction and recovery costs incurred by LEC after the floods<sup>\*\*\*\*\*</sup>.

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\*\*\*\*\* Figure provided by LEC

\*\*\*\*\* Source; LEC

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Table: Relocation, reconstruction and recovery costs

<b>Response to damage</b>	<b>Affected place</b>	<b>Estimated costs Lesotho Maloti (thousand)</b>
33kV line relocation	Mohokare river	150
Replacement of an H-pole along 33kV line	Mohale's Hoek	40
Broken pole along 66kV line replaced	Hlotse Adit	40
Erosion Prevention works on the 88kV line	Khukhune	50
Erosion Prevention works on the 88kV line	'Muela	30
Erosion Prevention works on the 88kV line	Mohale's Hoek	30
<b>Total</b>		<b>340</b>

### **Risk and vulnerability**

The electricity infrastructure in Lesotho is rarely affected by disasters except for minor impacts. Hence it can be rendered less vulnerable to common disasters (floods and droughts); with an exception being the Semonkong mini hydro-power plant which is normally covered with silt in times of heavy rain fall. This can hinder electricity generation and prompts for costly alternative means of generation through a diesel generator. From there, the infrastructure is mostly affected in places where electricity poles and lines are constructed near/above trees, which grow rapidly during rainy seasons and can cause disruptions to the lines.

Another is the issue of gullies; electricity poles constructed near active gullies usually get disrupted in times of floods as gully walls collapse and the gullies fall wider; a few cases of lightning-stricken lines are sometimes reported.

### **Recovery strategy**

In addition to recovery measures already taken by the Lesotho Electricity Company, possible recommendations to avoid the piling of silt in power plants would be to consider relocating the plant to a location less exposed and less vulnerable to floods, with sensible considerations of suitable environment and relocation costs, in comparison with maintenance costs in the long run. If relocation seems too far-fetched to implement, there are yet two more possible solutions that can be looked at: the construction of silt traps to prevent the debris getting into the plant seems more foreseeable, or else wait till the rains calm in order to remove the debris out of the plant.

To avoid a continued fall of gullies, gabions have to be erected inside and alongside the gullies. Grass and vegetation should also be planted to reduce the rapid washing away of the soil.

**ANNEX 11: SOCIAL PROTECTION****Pre disaster situation**

Lesotho experienced catastrophic heavy rains that covered the whole country from the end of December 2010 to the first of week of January 2011. The Lesotho Meteorological Services categorized the rains as above normal and many weather stations presented readings that surpassed the records for the ten year period of observation. In the northern districts, rainfall during these 41 days was equivalent to rainfall normally accumulated in six months in the respective stations (Leribe, Butha-Buthe and Phuthiatsana). The rainfall experienced in other parts of the country during this period was around 50% of the normal six months' accumulation.

The Protection sector team focused on how the heavy rainfall affected the promotion and protection of basic rights of the people, their welfare and access to essential services, especially the vulnerable groups or categories of the population, such as children, women, people living with disabilities, people in detention facilities, the elderly, and those in hard to reach areas. The impact of flooding on access to essential services like health, educational facilities, and police, amongst others, was a critical area of focus for the protection sector as it hampered on the rights of citizens to access basic rights. The third part was assessing the readiness and protective environment for adequate and enhanced response capacity through the existing regulatory framework in terms of protection policies, laws, systems and structures.

All the relevant offices that were visited in the four districts (Thaba-Tseka, Mokhotlong, Qacha's Nek and Mafeteng) are highly incapacitated, with regard to adequate personnel and skill set; full information and knowledge on disaster preparedness and response; infrastructural equipment – vehicles, ICT; protection equipment - tents, clothing, blankets, mattresses, heaters, lights; care and support – food parcels, first aid kits, water supplies; psycho-social support services and safety and security. There is inadequate response capacity or preparedness to assist people in affected communities to mitigate the impact of the floods or disasters caused by the heavy rains. There is little capacity in terms of rescue services, available services and relevant mechanisms in place.

**Post disaster situation. Damages and losses**

1. As roads and bridges (foot and vehicle) were washed away hindering access of people to either side of the Senqu River, the villages along the river valley were severely affected. There was no access to food supplies, health and rescue services and children could not go to school. It was not possible for vehicles to get to most of the affected areas due to mountainous topography. Significant numbers of people drowned. Eight car passengers drowned and due to lack of rescue services, skills, and equipment within the police services, not much could be done. Lots of livestock was also washed away as the rivers were flowing down from the highlands where most livestock is kept. This also caused the drowning of some herds boys looking after the livestock. Most herds boys remained stranded without shelter, clothing and food supplies as it was not possible to reach them nor could they get to villages due to overflow of rivers.

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The office of DISPOL alluded to the response capacity to the whole crisis to highly inadequate resource capacity- personnel, equipment and ICT facilities, vehicles, infrastructure, skills and knowledge, competencies. This hindered the police in general to provide expected and adequate safety, security and protection services. Though support was provided by military chopper since the LMPS does not have any of its own, this came late when significant losses and damage had already occurred and the standard of rescue services provided were notably below acceptable standards. This means that safety, security and protection of citizens by the LMPS were at risk during the time of crisis.

The health post in Koma-Koma was not operational for about two months, as the two nurses and a doctor, who offer services there are from Mashai health centre and they could not cross over the Senqu River to the post, leaving the community were left stranded without health services. Similarly, the general dealer who operated a shop in that area had closed down as he could not get supplies down to the shop due to flooding of the river.

2. Fields were washed away with food produce, right as produce was near to ready. This highly affected people's access to food and nutritional value. The consequences were extremely adverse since most of the communities relied on the produce for subsistence and livelihood purposes. This affected the socio-economic stability of communities as they could not afford to purchase food and were not able to make money from their field products. This also affected vegetation along the river valley. Trees were destroyed that are used for house hold fuel and are sold by communities. Grazing land for animal herds was also destroyed.
3. Houses were destroyed and this significantly put the safety and security of affected families at risk, exposing them to various forms of harm and threats to human dignity. Most of the houses affected belonged to vulnerable groups of people – over 50 OVC were left without shelter as their houses were destroyed, where some were still not placed properly in alternative care and others not reunified with relatives as over 35 were orphaned children. Several houses belonged to elderly people and persons living with disabilities, which had left them homeless and in the mercy and good spirit of neighbourhood for temporary shelter.
4. The heavy rain worsened conditions in detention facilities and child care facilities, affecting the safety, health and wellbeing of inmates, children and children in conflict with the law, which were forced to sleep and live under appalling conditions because of leaking and damaged roofs and walls, wet floors and the lack of safe drinking water.

The Correctional Services facility of Mafeteng, holding over 180 inmates, which was already not in such a good shape, has been severely affected by the heavy rains. The wall surrounding the facility was shaken and is bent and threatening to fall at any moment, which is a hazard to the lives of all people around, staff and inmates. The inside of cells where inmates reside and sleep was flooded with water. This still occurs whenever it rains, to the extent that the inmates sleep on their feet with their belongings in their hands overnight once it rains, which poses an inhabitable environment, and which is unacceptable to the international standards of human rights.





Figure: Mafeteng: Officer Commanding, Senior Superintendent Kakoli expressed concern on the inhabitable and unacceptable conditions of the Correctional Service facility

There was no supply of safe and clean drinking water as most water sources were destroyed and exposed to contamination. People had diarrhoeal diseases as a result of drinking unsafe water, where a significant number of inmates (over half of the total number of 133) from the Correctional Services facility suffered influenza and later on chicken pox, diarrhoeal diseases due to bursting of pipes, poor sanitation and insufficient water supplies.

5. There was a significant shortage of canoes to help people cross rivers where that was feasible during the crisis.. People were desperate to cross over to access basic services, to the extent that people were sleeping over at the river banks just to make sure that they could cross at the earliest time possible. However, this exposed people to various forms of exploitation, violence and abuse. There was no supply of overnight shelter or tents, moreover, there were reported cases of casualties at such places as people struggled to cross over.

#### **Communal, social, cultural and institutional damage**

6. The results of the already mentioned impact of the disaster were strong emotional and psychological effects on the affected communities. This challenged the social fabric and social network that villagers and communities upheld. The crisis affected almost everyone in the communities either directly or indirectly, and this weakens and undermines the coping and managing mechanisms within the communities, as well as the ability to support each other adequately. The people detained in correctional facilities rely on supplies from family and relatives, and moral support from regular visits. All this was affected by inaccessible roads, and the inmates could not receive the usual and regular support, which also destabilised them more during the crisis.
7. The apparent shortage and lack of food supplies, clothing and other basic needs leads to desperation where people then resort to offensive and criminal behaviour, such as of stealing.

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There were a lot of petty crimes within communities, which was mostly small theft like food from fields and fruit from trees. Pieces of clothing and the like were commonly stolen, which could be linked to the needs of people around.

8. The delivery of the Restorative Justice as non-formal justice system was affected, given the difficulties for the Correctional Service and the Probation Unit to reach the houses of victims of crimes, with the aim of victim-offender reconciliation and mediation. The overall delivery of justice was delayed and hampered given the impossibility for witnesses and suspects to attend the Court trials, worsening the backlog of criminal cases and attempts to provide restitution.

### **Responses**

#### **Capacity assessment**

There is very low response capacity within the field of social protection, child protection and the rule of law. There are inadequate numbers of personnel to deliver these services, a shortage of skills, lack of infrastructure and ICT equipment, uncoordinated systems and structures, and a very child and gender insensitive justice system. There are similarly inadequate staff members from within development partners (UN system for example) and Civil Society Organisations who come in as supporters of the government in the implementation, promotion and protection of rights of all citizens, especially the vulnerable groups. However, CSOs are much more active on the side of collaboration for care and support, though they may not be everywhere to cover everyone during times of crisis and disaster. The key partner in responding to child protection in emergencies would be the Department of Social Welfare (DSW), which is weakened considering its mandate and responsibilities to ensure care and support for the welfare of the children who may be affected. There are on average only about five staff members of DSW in each district countrywide, which hardly meets the demand of services in regular times. The newly established Child Welfare Unit is only getting strategically placed at the moment, whilst the whole department is under a capacity development process, following a comprehensive capacity gap assessment process and strategy. This includes development, improvement and implementation of standards, protocols and procedures of addressing vulnerability issues, particularly those brought about by crisis situations and affecting marginalised groups. For example, administering PA for relief purposes by DSW, placing displaced children on alternative care, proceed to intervene in terms of exploitation, violence and abuse of others especially children, women, persons living with disabilities and the elderly, are amongst the required critical interventions.

The Child and Gender Protection Unit (CGPU) of the Police is largely manned with staff that have not all received relevant and adequate training. This may be a setback to effectively and adequately respond to emergency situations for the protection of children and women. The CGPU is currently in the process of improving its capacity to record, investigate, manage and generate reports on the cases they have handled for advocacy and social mobilisation programmes on violence against children and gender-based violence.

The previous delay in the enactment of the CPW Act has created gaps in putting in place necessary mechanisms and measures on time, such the enforcement of the guidelines on care facilities, which have been in place since 2006 and could not be executed without a legal statutory mandate. There is the one-stop centre that had no legal standing but is now backed up by the Sexual Offences Act, Anti-Trafficking in Persons Act and the Children's Protection and Welfare Act, though it is not operating at the moment and may need more effort and resources. These statutes provide for the relevant and necessary protocols and procedures to be followed to prevent and respond to cases of abuse of children with proper mechanisms and referrals.

The current process of developing the NDSP is a strategic opportunity to address the issues around critical capacity challenges of the protection sector to enable it to address and reduce the possible risks of disaster situations, and help mitigate the impact of future emergencies. The process then should include developing a risk reduction strategy for future disasters and enhance disaster preparedness within the government system and all its sectors.

At the district level, there needs to be mainstreaming of a protection sector preparedness plan to the overall District Disaster Management Team (DDMT) strategy and have the relevant sector staff join the team.

#### **Overview of the response to the delivery of protection services**

The LMPS embarked on a full rescue mission throughout the crisis, despite the limitations and shortfalls, an effort that helped rescue many lives, livestock, individual and public assets. They assisted to rescue those at risk by optimally utilising and overstretching their capacity to the extent possible. The most significant support was by calling in the military helicopter to assist in the most inaccessible areas to help save and protect lives and assets. The police managed to adequately provide safety and security measures to control the levels of possible criminal activities that people are usually exposed to in times of crisis.

The DDMTs of districts managed to mobilise resources available at the districts, to try and respond to the crisis at hand and provide to the best possible extent maximum rescue services, such as mobilising local vehicles to move people to and from various points, with the private sector providing food supplies, and the Red Cross coming in with tents where critically needed.

The affected communities are the structures that carried the heaviest burden of rescuing and reducing the impact of the disaster on their own initiatives and interventions. They were able to mobilise support within themselves to address the immediate effects and needs caused by the disaster. Where houses were destroyed they organised alternative placement of the displaced members in either relatives' or other Good Samaritan's households. They made sure the affected families could eat at least daily and kept whatever food produce that survived in the communal fields for the affected community members. Furthermore, people from different communities have been trained on water lifesaving skills and they assisted in rescue missions of drowning people and livestock.

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A house belonging to orphaned children, in Ha Laka, where a 15 year old girl lived by herself after her two siblings were rescued by the community and relatives, was destroyed by the rains, leaving the girl homeless.

One child from Mafeteng was placed in a temporary facility Amitofo, within the district, since his house was destroyed by the heavy winds and the child was living in a child headed household. Children have been affected by destroyed houses and therefore lacking proper shelter, some abandoned, separated or displaced by consequences of flooding, and are hence susceptible to violence, exploitation and abuse of many forms.

There is a need to develop mechanisms of identifying children in need of urgent care and protection as provide for in the Children's Protection and welfare Act 2011, to ensure that children affected by the disaster in various ways are identified and the impact mitigated accordingly. Tracing and identification mechanisms need to be put in place.

The child helpline was established for ease of reporting on cases of abuse of children in a much more accelerated manner and to ensure timely referral for appropriate and relevant services.

### **Risk and vulnerability**

Inaccessibility to basic social and protection services (health, education, food, PSS, legal, etc.) renders the most vulnerable groups of people more susceptible to and increases their risks of being severely affected by the impact.

There is exposure to various forms of violence, exploitation and abuse, especially for children and women: they get exposed to sexual abuse and molestation, labour exploitation, trafficking, high risk of offending the law, abandonment, neglect and many such.

Lack of coordinated and synergised child protection and gender sensitive social protection systems undermines the impact and effects of whatever sporadic and individual sector response mechanisms that are mobilised and implemented during disasters.

### **Recovery strategy**

#### **Recovery considerations**

There are laws, policies and strategies that need a strategic and effective operationalisation in order to reduce risk factors at times of emergencies and disasters. These include the assessment and analysis of capacity requirements for efficiency, and the need to develop operational plans and guidelines.

Focusing on the following components for all relevant and key protection sectors to enable them respond accordingly during emergency situations:

1. Infrastructural development and resources, ICT equipment and vehicles, emergency facilities
2. Establishment of an emergency division with full equipment within the LMPS in all district and minimal at Police posts

3. Specialised training and acquisition of relevant skills for emergency and crisis situations to the police and all front line providers for rescue, recovery and response missions
4. Regular or routine refresher training for all front liners and the DDMT on humanitarian courses
5. Regular advocacy and social mobilisation campaigns on population threats, risks, and emergencies that may lead to disaster situations.
6. At macro - level consider intensive water drainage system that would recourse the flow of water from the sources, which are mostly in the high mountains; invest in land development and improvement to address degradation and preserve severe soil erosion; explore possibilities of PPP to expand on major infrastructural development projects in a cost friendly manner and invest heavily in construction of high footbridges over large rivers.
7. Construction of new correctional facilities where applicable.

In the past 7 years Lesotho has undertaken extensive legal and policy reform initiatives to ensure the protection and well-being of children.

Table: Key policies related to protection

Law /Policy	Status	Related guidelines & tools	Comment
Sexual Offences Act 2003	Enacted and operational	Guidelines on management of sexual abuse	Although this was passed in 2003 there is generally limited knowledge, women are still reluctant to report violence. The entrenched male attitudes and practices towards women in relationships are not changing in a desired pace. Women and girls are still discouraged from seeking help when they have been abused or when they face domestic and sexual violence. The creation of the CPU is slowly improving this but more work and action still needs to be done. More community sensitization particularly in rural areas and remote villages where certain traditional practices that violate women's rights are still prevalent.
Education Act of 2010	Passed in May 2010		The Act legalises the right to free and compulsory education, thus eliminating gender disparities in primary and secondary education
Non Formal Education Policy			
Legal Capacity of Married Persons Act No 9 of 2006			Act provides legal status to married women, who had been considered minors under customary law. This has affected women's equality rights within the marriage; the Act clarifies issues such as inheritance and the custody of children once one or both spouses die.
Child Protection and Welfare Act, 2011	Recently enacted after a long wait		
Anti-Trafficking in Persons Bill 2010	Before Cabinet		

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Law /Policy	Status	Related guidelines & tools	Comment
National Welfare Policy 2003		Social welfare service provision guidelines	
National Health and Social Welfare Policy 2004		Social Welfare Strategic Plan 2005 – 2010  Guidelines and Standards: Residential Care for Vulnerable Children and Youth 2006	Developed but not implemented and adhered to
National Policy for Orphaned and Vulnerable Children 2006	Approved and operational	Rapid Assessment, Analysis and Action Planning for OVC 2004  National Action Plan for OVC 2004  Costing of the OVC Action Plan 2005, revised in 2006  Monitoring and Evaluation Plan for OVC National Plan 2005  National OVC Strategic Plan 2006 – 2010  Standardized Format for Orphan Registration 2005  Directory of Service Providers for OVC 2005 (Updated 2009)  Update of the Situation Analysis for OVC	Ongoing

### Sector outcome, recovery strategy, outputs and M & E indicators and targets

Establishment of the Child Grant Programme was one of the innovative approaches introduced by the government of Lesotho to reach out to the most vulnerable children who are in dire need of cash assistance. Launched in April 2009, to date it is now operational in five districts. This programme is a collaboration among various sectors, namely: the GOL, the European Commission (EC) and UNICEF, with the DSW as a lead department. This programme reaches out to the most vulnerable households with children. After careful assessment by local inter-sectoral teams, these households are awarded quarterly cash grants up to a value of M360. The approach with this programme is to converge all efforts in

selected high poverty district pockets and ensure maximum input and use of resources to benefit the most vulnerable children and their household and thus reduce the impact of risks and crisis situations.

Assess the existing capacities for rescue services, available services and relevant mechanisms in place. Ensure that relevant and essential medical examinations are sought to facilitate proper placement of separated children and administer appropriate placement mechanisms and procedures.

Engage relevant sectors such as CGPU and DSW to enhance investigation and social inquiry mechanisms and ensure procedural reunification with families or reintegration with relatives accordingly. Facilitate where necessary removal and appropriate placement of sexually abused persons as per the set protocols and procedures involving all relevant sectors like CGPU, DSW and the courts of law. Facilitate provision of food parcels, care and support (PSS included) to ensure the welfare of the children.

Immediate support needs to be provided to re-roof and reconstruct destroyed houses, especially those belonging to OVC and the elderly, and people living with disabilities.

Individual institutions must have in place policies, strategies and structures to respond to an emergency situation as well as the appropriate tools, equipment and skills. For instance, each of the Police district offices should have a properly equipped and skilled rescue team, Correctional Services should have an evacuation plan in case of emergencies and there should be the possibility to set up mobile courts in case of a disaster which hampers the movement of people attending the trial to and from the courts. In addition, the Government should take in consideration the possibility to have a special contingency fund for emergency situations.

In addition, a Village Disaster Management Team should be capacitated and equipped to respond to an emergency at the village level, especially in providing emergency responses, such as shelters and basic supplies for vulnerable groups affected by the flood.

Coordinated work has to be re-emphasised and the establishment of an information management system for identifying of and tracking support to vulnerable children is required. Existing child protection and rights promotion structures should be strengthened. Focus on capacity building at all levels as well as social mobilisation using the medias will also go a long way towards the protection of children's and women's rights in Lesotho.

### **Methodology**

There are countrywide existing protection procedures and processes that respond to issues of violence, exploitation, abuse and disruption in the lives of vulnerable groups of people and these include police services, legal processes, social welfare delivery, local management and administration procedures, vital registration and several others. Such have constituted the focus of the assessment under the sector of protection where relevant institutions and structures were assessed in the four districts of Thaba-Tseka, Mokhotlong, Qacha's Nek and Mafeteng.

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There were two methods applied to collect data for the protection sector, interviews with service providers (DMA, DDMTs, Das amongst others) and people from affected areas, as well as assessing the effects and damages incurred.

In order to assess the impact of the flood on these vulnerable groups, interviews have been conducted with the Police (LMPS, Child and Gender Protection Unit, Police Complain Authority), Victims of Crimes Support Office, Correctional Services facilities, support groups, child care facilities and elderly care facilities, Department of Social Welfare, Chiefs and Local Government Councillors, Village Disaster Management Team and Master of the High Court, District Administrators 'offices.

These are samples of questions asked during interviews:

1. Has the flood impacted on your daily work? How?
2. Did you receive any peculiar reports or cases as a result of the flood? (ex: assaults, human trafficking, sexual abuse, abduction, robbery, theft ) How were these reports and cases handled?
3. Did you face with any peculiar scenario or circumstances directly related to the flood?
4. Which group was the most affected in the delivery of your service and how?
5. How did the flood affect your delivery of services?
6. How, in an ideal situation, would you have reacted to the emergency? (in terms of resources, skills, assets, infrastructures, etc..)
7. Did you ever refer cases to other services providers? To whom?
8. Did you receive any additional and external support? From whom?



**ANNEX 12: HIV AND AIDS****Pre-disaster situation****Situational analysis**

Lesotho is experiencing one of the most serious HIV and AIDS epidemics in the world. The 2009 Lesotho Demographic and Health Survey (LDHS) included HIV testing of almost 3,800 women aged 15-49 and 3,150 men aged 15- 59 and estimated that 23% of Basothos aged 15-49 are HIV-positive. Based on the GOL/NAC/UNAIDS estimates, out of a population of 2.1 million people, an estimated 280,000 persons are living with HIV. This places Lesotho as the country with the third highest adult HIV prevalence rate in the world.

The estimated adult HIV prevalence rate for 2008, the most recent available data was 23.6% (UNGASS Report, 2010). This was an increase of 0.4% from 2007 as shown in figure 1.

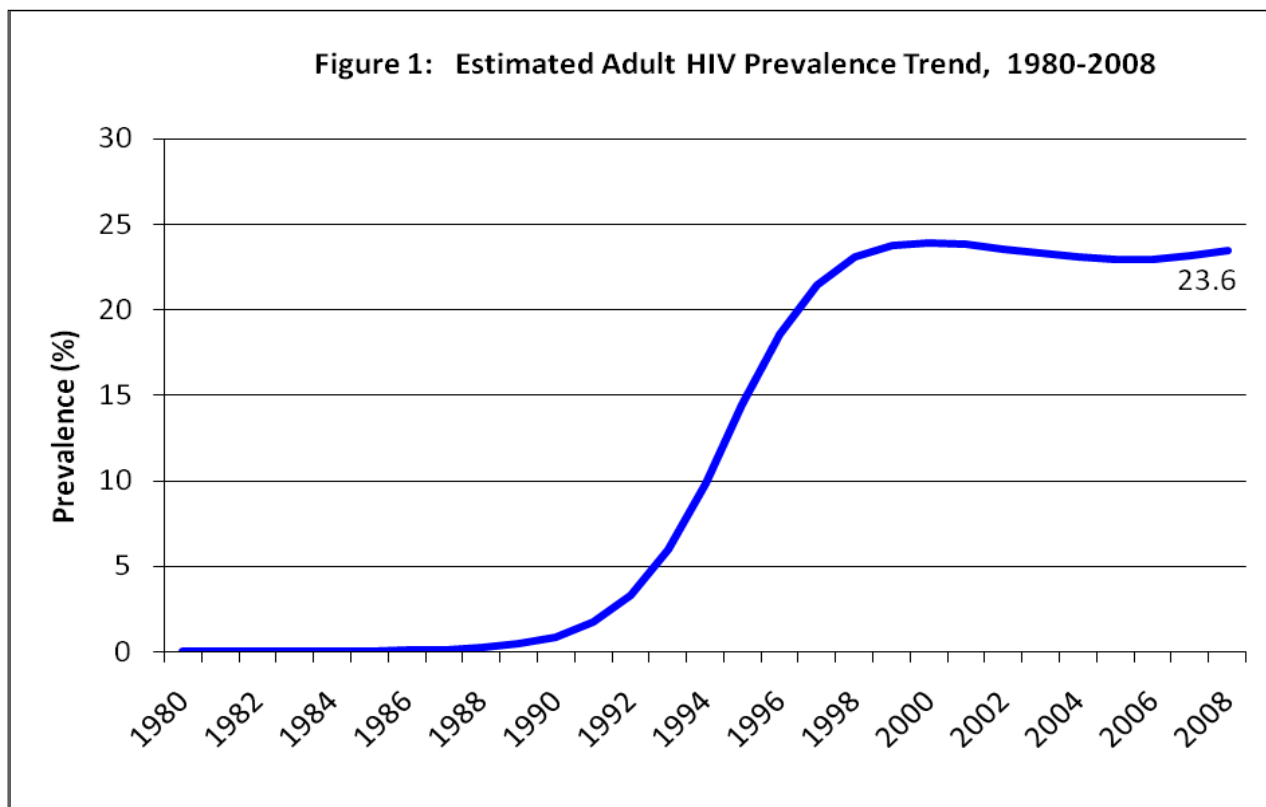


Figure: Estimated Adult HIV prevalence Trend, 1980-2008; *Source:* National AIDS Commission 2008

In 2007, annual adult HIV incidence was 1.7% or approximately 21,000 new cases that year, representing a considerable drop from the peak incidence at 3.6% in 1995. Life expectancy at birth is currently at 40, rising from its nadir of 34 in 2005.

In Lesotho the HIV prevalence has remained essentially unchanged since 2004. Small increases and decreases have been observed however these are not statistically significant and do not signify true

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changes in the population. The recent Lesotho Analysis of Prevention Response and Mode of Transmission Study indicate that annual incidence rate has stabilized at 1.7%, representing some progress. This study, along with the study on Multiple and Concurrent Partnerships identified key drivers of the HIV epidemic in Lesotho, including multiple sexual relationships; inter-generational sex; early sexual debut; Mother–To–Child Transmission; income inequality compounded by poverty and food insecurity; migration and mobility; alcohol and drug abuse; gender based violence; and cultural practices that expose vulnerable groups to HIV infection. Underlying some of these challenges are structural factors such as high population mobility, inequalities of wealth and some customary practices that continue to remain embedded in gender inequality.

### **Post Disaster Situation. Damages and Losses**

HIV and AIDS are a major cause of increased mortality, morbidity, distress and suffering, including food insecurity within a household. Crisis situations in a high HIV prevalence context bring about higher impacts on communities as people living with HIV may become more ill and die, putting more demands on already over-stretched health care delivery systems and community safety nets.

HIV and AIDS worsen the impact of an emergency situation and may lengthen recovery from the crisis. HIV/AIDS has undermined communities' capacities to cope with crisis situations. Overstretched community safety nets (due to having to cope with chronic illness and deaths among the most productive members of society and high number of orphans) and limited resources undermine traditional crisis coping mechanisms. The most vulnerable groups, i.e. women and orphans, may therefore resort to negative coping mechanisms such as transactional sex and/or marriage for survival.

In Lesotho the following were reported during the field visits:

Increase in HIV infection rates

- Reported increase in casual sex
- Reported increase in transactional sex
- Increase in Gender Based Violence and Gender inequality
- Lack of preventive services including condoms

Reduced access to Basic HIV and AIDS services

- Home Based Care (HBC) support services disrupted
- Prevention of Mother To Child Transmission (PMTCT) was also disrupted
- PLWHA (People living with HIV/AIDS) were unable to access ARV's for a number of reasons:
  - Unable to travel to health centres due to damaged infrastructure
  - Stock outs at health centres
  - Closure of health centres due to flooding and other damages

Increased Vulnerability of People Living with HIV and AIDS

- Lack of access to HIV and AIDS services as described above
- Loss of income

- Lack of access to nutritious food

## Responses

### Capacity Assessment

Capacity building is integral in any risk and vulnerability assessment project. One example of the key findings and recommendations of the capacity assessment included the following:

- Capacity at district level- District AIDS Committees (DAC) and Community Council AIDS Committees (CCACs )

The District AIDS Committees were established in 2006, following the adoption of the decentralization of dispensation by the Government of Lesotho. The Ministry of Local Government and Chieftainship (MOLGC) adopted the “Guidelines for Scaling up the Fight Against HIV & AIDS” which place Local Authorities as the gateway to HIV & AIDS interventions at District and Community levels. These guidelines informed the establishment of the District AIDS Committees (DACs) and later the Community Council AIDS Committees (CCACs) as the local coordination structures of the decentralized response to HIV & AIDS at District and Community Council levels. The key function of the DACs and CCACs is to provide coordination and oversee HIV & AIDS implementation strategies by stakeholders at district and community levels, respectively, through engaging and involving a representation of multi-sectoral players. These coordination structures play an important role in the HIV response at district level especially during an emergency situation.

In 2010, a capacity assessment was done on these structures. The key findings listed below give us an insight into some of the challenges:

- There has not been any formal training for the members of the DACs and CCACs to ensure a certain minimum level of competency around HIV & AIDS issues and relevant interventions and strategies. As a result there is a huge disparity between the levels of HIV competencies within the committees, with those from the HIV & AIDS sector being quite well versed with what is going on, while those from other sectors who are supposed to be mainstreaming are quite uninformed around basic issues relating to HIV & AIDS, e.g. the value of HBC, PMTCT, condom use in HIV prevention, etc. It is essential for a coordinating body to have this as a prerequisite to performing the coordination role effectively.
- The larger number of committee members are barely aware of the content of their terms of reference, and are also quite unclear on what “coordination” really entails. The coordination meetings have therefore not really functioned as such, but rather as an information-sharing platform that has not gone beyond making each other aware of what the other is doing. There is therefore a great need for capacity building around HIV coordination, including setting up of task teams and allocating roles and responsibilities, resource allocation and distribution, stakeholder accountability, etc., in order to ensure that the committees add value to the response in their districts and community councils.

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- None of the districts had developed joint district strategies or plans, and therefore the opportunity to create synergies between the stakeholders has not been exploited. Linked to this is the need to also develop monitoring systems that capture progress and impacts. These are essential for meaningful coordination to take place, and will ensure that the efforts at district level are aligned to the national framework and feed into the national response.
- Capacity around the area of project and programme management was again found wanting, with only a few individuals in the committees being competent in understanding of project cycles, etc.
- In the majority of the five districts (Mafeteng, Mohale's Hoek, Berea, Thaba Tseka, Mokhotlong) in the sample, there were specific organizations and/or individuals with the required competencies in the areas that had capacity gaps. There is therefore room for quite a lot of the capacity strengthening to take place within the districts, essentially as part of the collaboration that should be characteristic of a well-coordinated response. However, attention needs to be paid to the quality of the capacity strengthening interventions, as well as ensuring a degree of standardization of the interventions.
- District Health Management Teams (DHMT) improvement of decentralized response. There is a need for more decentralized community based services eg. dispensation of medicines at community levels.

### Overview of the disaster response in relation to HIV and AIDS

The HIV response is multi-sectoral and closely interlinked to that of the Ministry of Health and Social Welfare. The following were found during the field visits:

- Health centers mobilized community health workers to inform patients on ART to come for their supplies once the rains started subsiding.
- Health centers increased amount of ARTs from one month's supply to two months for patients travelling long distances.
- Community Health Workers requested chiefs and community councillors to ask communities to do minor repairs to the roads to facilitate outreach services.
- Chiefs and community councillors were requested by MOHSW to provide temporary facilities for outreach services where health posts were partially damaged.
- Treatment for Opportunistic Infections was provided.

### Risk and vulnerability

In an emergency or disaster situation risky behaviour greatly increases as the breakdown of society increases power struggles and gender violence as well as stress. Lack of resources can exacerbate the need to 'buy' or obtain food through sex. Therefore people's vulnerability to contracting HIV can increase in disaster contexts. People who are already living with or affected by HIV will also find it harder to cope. During and after an emergency, gender inequalities may increase, infrastructure is destroyed, family and community structures often break down, access to safe water and sanitation facilities can be denied and food security may be affected.

## Recovery strategy

### Recovery considerations

The capacity gaps identified require various interventions as recommended, with training being a key one. This capacity assessment also served to inform the development of a training curriculum to address those gaps that required training as an intervention. The curriculum is available from the National AIDS Commission as a related publication to this report.

HIV should not be viewed as only a health issue; it has a ripple effect on all sectors. This should be recognized and there is a definite need to strengthen the HIV response in an emergency setting by ensuring that HIV is mainstreamed in all sectors. HIV mainstreaming is a process of reshaping and redesigning the core sectors of a programme to reduce people's vulnerabilities towards HIV and help people with HIV to be able to cope better. Addressing HIV in an emergency setting requires a multi-sectoral approach as it is a cross-cutting issue. An effective response needs to integrate prevention, treatment and care and impact mitigation. In addition to the work related to capacity gaps, the following areas require preparedness for emergencies and disasters situations:

- Ensure that there is no increase in HIV prevalence rate (i.e: no new infection).
- Strengthen civil society capacity to deliver prevention messages in times of emergency
- Intensify community awareness and leadership on HIV and AIDS issues
- Ensure condom distribution at community level during disaster period, and at all times avoid stock outs.
- Establish grant facilities to create income generating activities, within communities, in order to reduce vulnerability
- Distribute food for PLWHA and other vulnerable population
- Psycho social support needs to be provided to OVC's and PLWHA
- Increase in Home Based Care services (HBC)
- Identify most at risk populations in emergency situations (as they may differ) and develop appropriate interventions
- Strengthen capacity of District AIDS Committees and Community Council Aids Committees to have adequate knowledge of HIV response in emergency situations
- Provide temporary schooling, and ensure education facilities are reconstructed, as these can provide safe spaces for vulnerable children, including orphans and children living with HIV, with access to key services (such as school grants, guidance and counselling, or feeding programmes)
- Ensure the availability of Post Exposure Prophylaxis (PEP) in affected areas for rape victims
- Provide additional HIV testing and counselling during post disaster period.
- Ensure that Health posts have adequate ARV's and that there are no stocks outs
- Development of contingency plans in relation to the distribution of ARV's to remote areas or affected areas during emergency situations
- Ensure no increase to the vulnerability of PLWHA by providing food and psycho social supports
- Mainstreaming of HIV across the sectors that are accountable for emergency responses.

### **ANNEX 13: ENVIRONMENT**

#### **Pre disaster situation**

The recent floods in Lesotho have caused damage and loss to environmental assets. Environmental degradation and its effects already were a challenge in Lesotho. Principal among the environmental challenges faced by the country are accelerated soil erosion, loss of arable land, pollution of land and water courses; a low level of environmental awareness among policy and decision makers, and the general public; low level of institutional capacity to deal with environmental problems; and biodiversity loss.

Nationally Lesotho has shown its commitment towards protection of the environment through a number of initiatives over the years. The country first showed its commitment to the process of sound environmental management in 1989 with the formulation of a National Environmental Action Plan (NEAP). The NEAP document provides for increased awareness of environmental concerns in sectoral planning and programming. The commitment of the country is further distinguished by its mandate on the Constitution of Lesotho (1993), Section 36, which states: *“Lesotho shall adopt policies designed to protect and enhance the natural and cultural environment of Lesotho for the benefit of both present and future generations and shall endeavour to assure all citizens a sound and safe environment adequate for their health and well-being”*.

Bearing in mind that environmental problems are products of many uncoordinated human activities and natural processes, a National Environmental Policy was developed in 1998 as a response to environmental challenges. The objective of the policy is to address a broad range of environmental problems that Lesotho faces.

Lesotho is a mountainous country, located in the tropics, with a fragile ecosystem, which makes it highly vulnerable to climate change (SOER, 1997). It is exposed to various types of natural hazards such as snow and heavy rainfall, which can lead to disasters. The Department is mandated to ensure biodiversity conservation, Environmental Data Collection, the dissemination of environmental information, to ensure that present and future developments of Lesotho are socio-economically and environmentally sustainable through EIA process, and to ensure the implementation of international environmental conventions which Lesotho has ratified.

#### **Biodiversity conservation**

Lesotho has a variety of plants, animals, well established parks and game reserves. Changes in biodiversity are manifested through changes in flora, fauna and through losses of habitats such as the disappearance and reduction in number of wetlands. Their occurrence in the past is still reflected in the place names, for example, Tsakholo in the Mafeteng district.

Lesotho has a very small proportion of its land legally declared as protected areas under which strict biodiversity practices can be applied. A large proportion of the land is utilized by the inhabitants, and biodiversity in these areas is considered to be under threat. Natural pressures

such as abnormal climatic conditions, global warming, heavy rains, drought, lightning induced fires as well as pests and diseases have been observed as threatening biodiversity, but more serious courses are human induced. Habitat degradation, fragmentation, the impact of introduced species and altered regimes are all human induced threats to biodiversity in Lesotho. Amongst all these, habitat destruction is considered to be the most damaging. In particular threats related to overgrazing and extensive land clearing have resulted in the loss and fragmentation of habitat across the country. Additionally, there is the overexploitation of medicinal plants, since a large portion of medicines used by Basotho people come from traditional knowledge of herbs and plants.

Large dams have also played a role in threatening Lesotho's biodiversity. The effect large dams have had on Lesotho's biodiversity was studied when considerations for the in stream flow requirement were undertaken. The construction of large dams resulted in the reduction of most fish populations, with some species like Maloti minnow and trout reaching the point of extinction.

In an effort to solve problems related to biodiversity outlined above, Lesotho embarked on a process towards the production of a National Strategy of Biological Diversity. The country has also joined the international community in signing and ratifying the United Nations Convention on Biological Diversity, committing itself to the principles under this convention. The country has further embarked on a number of projects to halt the deterioration of the biodiversity. There are completed projects such as Conserving Mountain Bio-diversity in Southern Lesotho (CMBSL) and ongoing projects such as Maluti Drakensburg Transfrontier Projects (MDTP) that the government undertook to conserve biodiversity.

In order to strengthen environmental education initiatives, Lesotho embarked on the production of the Environmental Education strategy in 1999. The purpose of this strategy is to provide a framework for enabling comprehensive and inclusive education for sustainable living and a solution for environmental issues and challenges. One of the objectives of the strategy is to promote political will and government support for budgeting and mobilization of resources for environmental education activities, and support local government structures, which are already in place.

**Post disaster situation. Damages and losses**

Floods are one of the most common types of natural hazards that can be caused by several different naturally occurring events such as thunderstorms, hurricanes, tidal waves and melting ice or snow. Floods can cause huge amounts of damage to man-made structures, but floods can also have several positive and negative effects on the environment. The following are the environmental impacts caused by the floods in Lesotho:

**Physical damage.** The Ministry of Tourism has, as its assets, protected areas which are mainly used as tourist attraction centers. These areas include but are not limited to Sehlabana – Thebe National Park, and T'sehlanyane and Bokong Nature reserves. Walking trails within these areas are the ones that were mostly affected.

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Figure: Damaged trail at Ts'ehlayane National Park

**Animals.** Land-based animals face many of the same threats from flooding as humans. Large floods can trap animals and potentially cause them to drown. Flood waters can displace animals like snakes, fish and rodents.

**Pollution.** One problem that flooding presents to the environment is the potential to spread pollution. When cities and other areas used by humans are flooded, it is likely that various contaminants will be washed away by flood waters and spread into the environment. Solid waste in farmland with livestock can be washed away with the flood.

**Crop damage.** Flooding can potentially damage crops and other plants that become oversaturated with water. Moreover, people opt for wild vegetation during floods since access to basic services is cumbersome.

**Wetlands.** Wetlands are important to the society as subjects of scientific research and educational initiatives as well as recreational activities (i.e. photography, bird watching and art). They are also sources of peat, fish, wild rice species, and wild animals or game animals. However, wetlands are already at risk, as their ecological, economic and socio-cultural value is not fully appreciated (Cox and Campbell, 1997). Wetlands play an important role in water supply and river flow.

### **Risk and vulnerability**

#### **Waste management and pollution control**

Solid waste management provides a huge challenge for many urban areas in Lesotho. The waste management hierarchy, which involves reduction, reuse, recycling, composting, treatment and land filling, is currently the key driver for developing solid waste management strategies. Lesotho faces a big challenge for solid waste management because waste management has been receiving little attention in the country due to lack of comprehensive waste management policies and laws. Therefore waste has been dealt with in various separate pieces of legislation in the country. Invariably the executive whose responsibility is spread over a variety of public authorities also compounds the problem of waste management in the country.



The Ministry of Local Government is mandated to oversee the overall management of waste in Lesotho. In Maseru, the collection and disposal of solid waste is done in selected residential areas, commercial areas, government offices, institutions such as schools, hospitals, prisons, banks and industrial areas based on the municipal demarcation. In other districts the collection of waste is done in government offices and commercial areas only and disposed to unprotected dumping sites which pollute the environment. The frequency of collection ranges from daily to monthly.

Table: Waste Management Challenges

Problem	Result
1. Congestion a) Vehicular b) Pedestrian and street vendors	<ul style="list-style-type: none"> <li>• Lack of proper traffic flow including waste management vehicle</li> <li>• Congestion within the Central Business District (CBD) which results into an increase in littering and illegal dumping</li> </ul>
2. Congestion of informal markets on pavements, road reserve and narrow roads	<ul style="list-style-type: none"> <li>• Unsafe streets for pedestrians and street vendors because they walk and sell very close to the road</li> <li>• Unhygienic surroundings resulting from overflowing bins</li> </ul>
3. Lack of parking spaces	<ul style="list-style-type: none"> <li>• Congestion within the CBD as cars are parked on the street reserve. This is a problem for the truck when loading waste</li> </ul>
4. Passive open spaces are occupied by shacks and taxis as informal taxi-ranks	<ul style="list-style-type: none"> <li>• Congestion within the CBD leading to increasing illegal dumping, littering thus making the town to look very unclean</li> </ul>

The government does not have proper facilities for waste treatment before disposal, especially hazardous waste. A study carried out by the Ministry of Health and Social Welfare (MOHSW, 2004), indicated that available incinerators in the hospital were not operating at recommended temperatures for treatment of medical waste. Because there is no segregation of waste before disposal, the report further stated that waste dumped in landfills in the city also includes medical waste. As a result, the decaying organic waste generates methane, which results in continuous and spontaneous combustion, exposing people living within the radius of the disposal site to hazardous emissions.

### Water pollution sources in Lesotho

Previous studies show that medical waste in Lesotho is disposed of in open pits, pit latrines, dongas and at the official disposal site. The Maseru landfill site is an open dump located in the peri-urban area called Ha-Ts'osane, on the east of the city. The landfill caters for all waste collected in the city and is free. The location of this site has been found to be very critical for contaminating a water reservoir behind a dam called Maqalika, which supplies drinking water to the whole city. The Department of Water Affairs (DWA), which is responsible for the overall planning, management, and monitoring of water resources, carried out tests to assess the level of contamination in the water from the boreholes (Ministry of Tourism, Environment and Culture, 2005). The water samples showed positive results, which means the water was contaminated and there is high possibility that leaking from the Ts'osane dump site have also contaminated water in

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the Maqalika Dam due to the recent floods. Accurate data can be obtained from the Ministry of Health and Water affairs.

Pollutants affect water quality by changing its physical, chemical and micro-biological characteristics. Surface water resources are the most abundant in Lesotho, however these resources are liable to point and point source pollutions. Stream flow is liable to non-point source contamination. Overflowing septic tanks and ruptured sewage systems have become an environmental nuisance in Lesotho and a common sight in most places. The ground water pollution sources effluents pollute potable water resulting in water-borne diseases. The most prevalent incidences are diarrhea, stomach ache and vomiting. The frequency of these diseases is prevalent in people getting water from unprotected springs. The absence of toilets within the community becomes disastrous in terms of the levels of faecal contamination into the water resources especially during floods. Major pollution surface and ground water sources that need to be taken into consideration in Lesotho include:

- Waste dumping sites which are not properly managed
- Sewage works and untreated effluent
- Denim factories, emitting a blue effluent which is discharged into Caledon River without proper treatment
- Agricultural run-off and dipping practices
- Filtering through latrine water
- Leaching from landfill as indicated earlier
- Uncontrolled urban drainage

### Recovery Considerations

**Environmental Awareness.** Environment is intricately linked to the livelihoods of the people of Lesotho. The floods affected communities because of their dependence on the natural resources. In Lesotho, a number of sectors rely on the sustainable management of the natural resources.

Thus, environmental education plays a key role in equipping people with knowledge, skills, values and attitudes that will help them contribute towards the improvement of the quality of the environment. The importance of environmental education cannot be overemphasized. Public awareness on the issues of environmental protection can assist the communities to develop pre-disaster strategies. Building of houses on wetlands is very common in Lesotho. The people need to be made aware of wetlands areas to avoid displacement during floods. The statistics of displaced people for the recent floods can be obtained from the housing sector.

The cost estimates for awareness on environmental conservation are:

- M20 000 for public gatherings in ten districts
- M10 000 for herders workshops in ten districts
- M50 000 for production of educational materials

The damaged environmental assets are associated with non-tradable environmental services, which are often impossible to readily monetize. The monetary damages to other environmental assets are presented in other sectors, e.g. transport and agriculture and health.

In view of the recent floods the following recommendations are made:

- Implementation of Environment Act, 2008. This would harmonize Environmental Management approaches through improved coordination of different role players.
- Harmonize all existing laws with the Environment Act, 2008 and ensure that regular reports such as State of Environment reports are aligned with important national objectives embodied in the long term development objectives

Development of pre-disaster preparedness strategy