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Lesotho

Disaster Risk Financing Diagnostic

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GFDRR
Global Facility for Disaster Reduction and Recovery

Building Disaster Resilience in Sub-Saharan Africa
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Lesotho

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Abbreviations

AFD	French Development Agency
ARC	African Risk Capacity
Cat-DDO	Development Policy Loan with a Catastrophe Deferred Drawdown Option
CERC	Contingent Emergency Response Component
CERF	Central Emergency Response Fund
CRW	Crisis Response Window
DDMT	District Disaster Management Team
DFID	U.K. Department for International Development
DMA	Disaster Management Authority
DRF	Disaster Risk Financing
ECHO	European Civil Protection and Humanitarian Aid Operations
EU-ACP	European Union–African, Caribbean and Pacific Group of States
GDP	gross domestic product
GoL	Government of Lesotho
GoM	Government of Mozambique
ha	hectare
HEA	Household Economy Approach
HIV	human immunodeficiency virus
IBRD	International Bank for Reconstruction and Development
IDA	International Development Association
INGC	National Institute of Disaster Management (Mozambique)
IPC	Integrated Food Security Phase Classification
LVAC	Lesotho Vulnerability Assessment Committee
MoF	Ministry of Finance
MoU	Memorandum of Understanding
NDVI	normalized difference vegetation index
NGO	nongovernmental organization
NISSA	National Information System for Social Assistance
NRSF	National Resilience Strategic Framework
PDNA	Post-Disaster Needs Assessment
PPP	purchasing power parity
SACU	Southern African Customs Union
SADP	Smallholder Agriculture Development Project
UN	United Nations
UNOCHA	United Nations Office for the Coordination of Humanitarian Affairs
USAID	U.S. Agency for International Development
VDMT	Village Disaster Management Team

Acknowledgments

This report was prepared at the request of the Ministry of Finance (MoF), Government of Lesotho (GoL). It was authored by Barry Maher (Senior Financial Sector Specialist, World Bank Group) and Alejandra Campero Peredo (Consultant), with inputs from Mareile Drechsler (Consultant) and Felix Lung (Consultant).

Country-specific guidance on the report was provided by Janet K. Entwistle (Country Representative). The report greatly benefited from peer review by Megha Mukim (Senior Urban Economist), Joachim Boko (Senior Social Protection Specialist), and Tatiana Skalon (Disaster Risk Finance Consultant).

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Executive summary

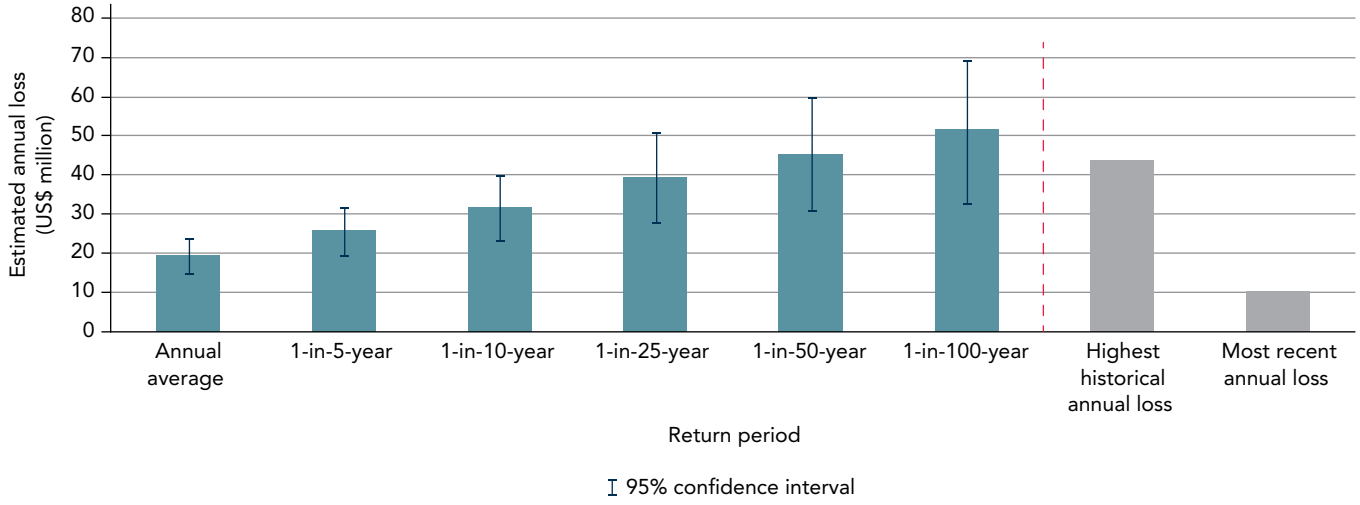
This diagnostic study is prepared at the request of the Ministry of Finance (MoF), Government of Lesotho (GoL), and aims to identify options to strengthen the country's financial resilience to disasters. It includes a review of disaster response costs and the current disaster risk financing (DRF) arrangements of the GoL, including institutional and legal frameworks, and proposes some recommendations.

Lesotho is prone to weather-related perils such as droughts, floods, and storms. Drought affects the largest number of people. For instance, a drought in 2015/16 affected almost half of the population. Over two-thirds of the population—71 percent—is involved in some form of agricultural activity. The majority of the rural population engages in subsistence agriculture, working on small rain-fed farms or are livestock producers. Disasters can severely impact agriculture, thus devastating livelihoods and increasing food insecurity in a country already characterized by low agricultural productivity and reliance on food imports.

Natural disasters in Lesotho jeopardize efforts to eliminate extreme poverty and boost shared prosperity. Poverty in the country is declining slowly, and as of 2017 remained high, at 49.7 percent (at the national poverty line). Disasters disproportionally impact poor and vulnerable households, pushing them back or further into poverty (Hallegatte et al. 2017). According to the World Bank (forthcoming) Poverty Assessment, without the 2015/16 drought, poverty in Lesotho would have decreased twice as fast over the past 15 years.

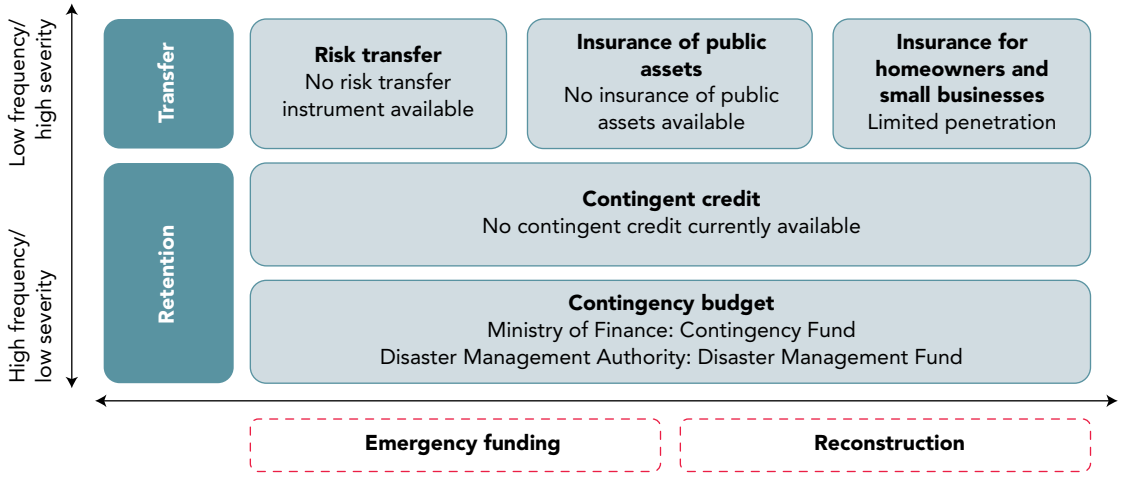
Natural disasters can also impact the macro-fiscal situation of the country. The average annual cost of disaster response is estimated at US$19.3 million, or 1.6 percent of the total budget expenditure in the 2019/20 fiscal year. For more infrequent and severe shocks, the costs can be much higher: US$31.8 million (or 2.6 percent of total budget) for shocks that occur every 10 years, and US$45.3 million (or 3.8 percent of total budget) for shocks that occur every 50 years (figure 1).

Figure 1: Estimated average loss due to disasters of different return periods



Source: World Bank calculations based on Lesotho Vulnerability Assessment Committee data.

Figure 2: Ex ante disaster risk financing instruments available to the GoL



Source: World Bank 2014.

Table 1: Estimated funding gap due to disasters, for various return periods

US$ million	Annual average	1-in-5-year event	1-in-10-year event	1-in-25-year event	1-in-50-year event	1-in-100-year event
Estimated loss	US$19.3	US$25.8	US$31.8	US$39.4	US$45.3	US$51.5
MoF contingency fund			US$6.5			
Disaster Management Fund			US$0.327			
Funding gap	US$12.5	US$18.9	US$24.9	US$32.6	US$38.5	US$44.7

The Government of Lesotho has taken steps toward stronger disaster resilience. It enacted the Disaster Management Act of 1997, which establishes the Disaster Management Authority (DMA). The act is supported by the Multi-Hazard Contingency Plan 2015–2018, which targets a variety of hazards threatening Lesotho. The National Resilience Strategic Framework (NRSF) has also recently been approved by the Cabinet.

The GoL does not have a comprehensive financial protection strategy. It has set up two contingency funds, one at the MoF and one at the DMA. These funds are often depleted early in the budget cycle, leaving the GoL exposed when disasters occur later in the fiscal year. The GoL often relies on budget reallocation; for instance, it mobilized US$21 million (M 318 million)[1] for the 2015/16 drought. This budget reallocation took considerable time to materialize and diverted resources from planned investments.

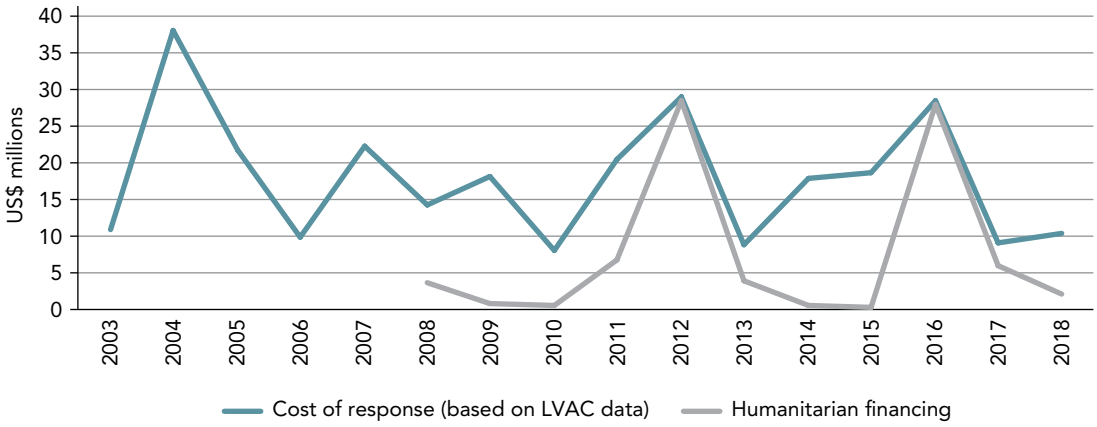
The GoL does not use risk transfer instruments to mobilize financing after disasters, although sovereign insurance options are available in the Africa region. Agricultural insurance is still in its infancy, and property catastrophe risk insurance has a very low uptake. Figure 2 shows the ex ante DRF instruments available to the GoL.

The GoL faces an estimated average annual funding gap of US$12.4 million, as pre-planned financial resources are less than the average annual cost of disasters. The funding gap would increase for more severe events (table 1).

The funding gap means that the GoL will have to rely on ex post financing, including budget reallocation and humanitarian funding, for disaster response.

[1] Based on 2016 exchange rate of 15.29 Lesotho maloti per U.S. dollar.

Figure 3: Estimated cost of response based on Lesotho Vulnerability Assessment Committee (LVAC) and humanitarian financing



Source: World Bank calculations based on data from Financial Tracking Service, https://fts.unocha.org/; and LVAC.

While donor support is critical after disasters, both the amount to be made available and the activities to be funded can be uncertain and slow to materialize. Donor support is usually mobilized only for extreme events, which may leave the GoL financially exposed, especially for more frequent disasters (figure 3).

The GoL may want to consider the following recommendations, in light of this diagnostic.

1. **Develop a national DRF strategy** to formalize policy priorities based on a risk layering approach and to address both budget mobilization and budget execution.

2. **Increase the amount and improve the timeliness of resources mobilized for disasters,** including through the following:

   - *Dedicated contingency fund* with clear rules for replenishment and disbursement targeted at recurrent natural disasters, building on the existing contingency funds;

   - *Contingent line of credit,* which could provide additional liquidity to the government to respond to disasters (for example, the World Bank Development Policy Loan with Catastrophe Deferred Drawdown Option, or Cat-DDO);

   - *Purchase of sovereign catastrophe risk insurance* to cover severe disasters.

3. **Strengthen budget execution systems for targeted support to affected households,** including through the following:

   - *Shock-responsive social protection* to deliver targeted early assistance to poor and vulnerable households after disasters;

   - *Strong operational rules* for the disbursement of disaster risk finance instruments.

4. **Explore the feasibility of agricultural insurance** to protect farmers and herders against disasters through a public-private partnership with domestic insurance companies.

1. Introduction and rationale

In December 2018, the Lesotho Ministry of Finance (MoF) requested the World Bank to conduct a diagnostic study and provide recommendations for improving the disaster risk financing (DRF) landscape in Lesotho. The World Bank reviewed the cost of responding to natural disasters in Lesotho, the current strategies of the Government of Lesotho (GoL) for financing them, the country's legal and institutional frameworks, and its existing DRF mechanisms. This review is the result of consultations with government agencies, as well as development and humanitarian partners. It also relies on data from (i) the EM-DAT International Disaster Database reporting impacts of major disasters; (ii) the Lesotho Vulnerability Assessment Committee (LVAC) on the annual number of food-insecure people; (iii) when available, Post-Disaster Needs Assessments detailing disaster impacts; and (iv) budget data as reported by the Ministry of Finance. The report lays out the results of this review and presents recommendations for improving the current system.

Lesotho's economy is vulnerable to shocks. Lesotho is a small, landlocked lower-middle-income country, with a gross domestic product (GDP) of US$2.6 billion, GDP per capita of US$1,318 as of 2017, and a population of 2.2 million people. Lesotho is among the poorest countries in southern Africa. It is also among the "least developed countries" according to the United Nations (UN) classification, meaning the country confronts severe structural impediments to sustainable development and is accordingly highly vulnerable to economic and environmental shocks.[2] The country's economy relies mainly on agriculture, the textile industry, water exports, mining, and remittances.

Over the past four years, Lesotho's economy has faced challenges emanating from political instability and a prolonged period of slow growth in South Africa, which has led to falling Southern African Customs Union (SACU) revenue and liquidity challenges. From 2015 to 2017, economic growth averaged 1.7 percent. In 2017/18, Lesotho faced a revenue contraction equal to 0.6 percent of GDP as a result of a contraction in agriculture output and fiscal challenges. Growth is projected to recover in the coming years, boosted by an increase in construction associated with the second phase of the Lesotho Highlands Water Project, a second compact from the Millennium Challenge Corporation, and diamond mining (World Bank 2019a). Earlier, in 2010/11, the country faced its largest-ever budget deficit—12.3 percent of GDP—as a result of the global economic crisis and the decline of SACU revenues, which at that time accounted for 50 percent of government revenues (Government of the Kingdom of Lesotho 2011). Dependence on SACU revenue has slowly declined, and in 2019 SACU revenues amount to 35 percent of government revenues (GoL 2019). Social factors pose further challenges to Lesotho's economy, including reliance on subsistence agriculture and high poverty rates (detailed in section 2).

Lesotho frequently experiences different natural disasters, most significantly droughts. Major droughts over the last decades have affected large parts of the population, making hundreds of thousands food insecure and triggering humanitarian response both from the international donor community and the government.[3] Beyond droughts, Lesotho is also exposed to heavy rainfall and floods, snowfall, hailstorms, strong winds, and early frost.

Financial resilience to these disasters is an important concern, because governments tend to shoulder most of the disaster-related costs. It is often the case

[2] United Nations, Economic Analysis and Policy Division, "LDCs at a Glance," https://www.un.org/development/desa/dpad/least-developed-country-category/ldcs-at-a-glance.html.

[3] Based on data from the UNOCHA Financial Tracking Service, https://fts.unocha.org/; and historical data on population affected by disasters from the Lesotho Vulnerability Assessment Committee (LVAC).

that these costs are financed ex post through budget reallocation and donor support. However, these sources of financing are often uncertain and take time. Budget reallocation can also move resources away from development projects, causing abrupt funding stops, shifts in government priorities, and potential harm to economic growth in the long term. These can augment disaster impacts on vulnerable people (Hill, Skoufias, and Maher 2019).

Prearranged financing can support more timely, cost-effective, and reliable disaster response. To meet the financial needs associated with disasters, governments can either arrange financial instruments in advance (ex ante) or arrange financing once a disaster has occurred (ex post). Prearranged financing has some important benefits:

1. **Timeliness of disaster response.** Response immediately after a disaster is important, but the process of raising resources to enable the response often takes time. By ensuring ahead of time that sufficient finance is in place to respond to a shock, governments can speed up the response. By contrast, arranging finance after a disaster can lead to costly delays, thus aggravating disaster impact.
2. **Cost-effectiveness.** Ex ante financing instruments can also be more cost-effective than ad hoc budget mobilization for disaster response. This is particularly true for slow-onset disasters such as drought that incur continuing losses over time. These go beyond agricultural production losses and can include reduction of productive assets, lower education enrollment, reduced food consumption, and ultimately loss of lives. Response costs decrease if financing is available immediately.
3. **Reliability.** When financing mechanisms that operate according to clearly predefined rules are established in advance, funding becomes more predictable. For vulnerable people, knowing that support will be provided—and provided at a certain time—can create more individual freedom to plan ahead.

This report aims to analyze how disaster response is financed and how it could be further improved in Lesotho. This analysis could be used to develop a comprehensive DRF strategy that would allow for a mix of policies and prearranged financing instruments to better respond to disasters.

The remaining report is organized as follows: Section 2 presents the economic and fiscal costs of natural disasters in Lesotho, including information on the vulnerability of the population and the occurrence of natural disasters. Section 3 offers case studies of two extreme events in Lesotho, the El Niño–induced drought in 2015/16 and the floods of 2010/11. Section 4 presents a statistical simulation of the costs of disaster response in Lesotho. Section 5 provides an overview of the institutional framework for disaster risk management in the country. Section 6 describes the financial instruments that are used in Lesotho to respond to disasters. Finally, section 7 provides policy recommendations to strengthen the country's financial resilience to natural disasters.

2. Vulnerability to natural disasters

2.1 Poverty and vulnerability of the population to disasters

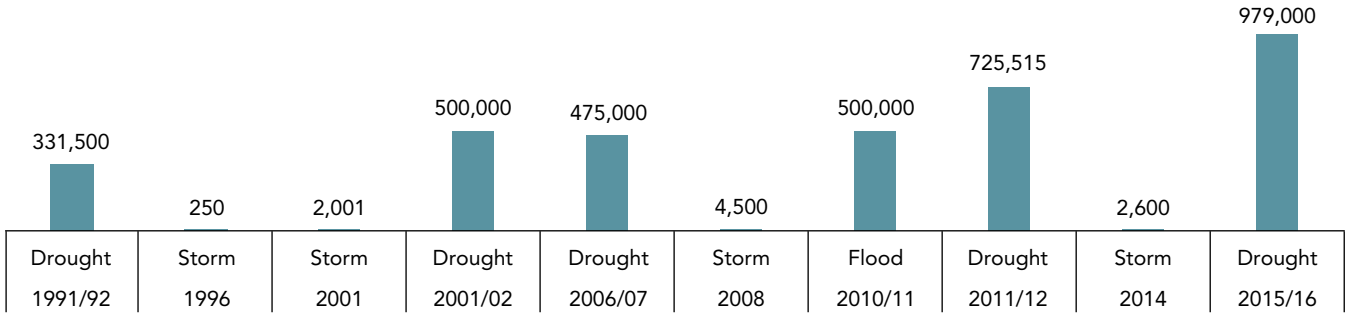
Half of the population in Lesotho lives under the national poverty line. Lesotho has been making slow progress in poverty reduction since the 2000s, lowering its national poverty rate from 56.6 percent in 2002 to 49.7 percent in 2017 (World Bank forthcoming a). The country's high HIV prevalence rate (24 percent) has created some particularly vulnerable groups, including orphans. Poverty is concentrated among children (the highest rate, 60.9 percent, is for those ages 6–14), followed by the elderly (52.0 percent). In addition, Lesotho is ranked in the top 20 percent of most unequal countries, with a Gini index estimated at 44.6 in 2017 (World Bank forthcoming a). In Lesotho as in countries around the world, the poor are the most impacted by shocks such as natural disasters. This is because their livelihoods depend on fewer assets, their consumption is closer to subsistence levels, they cannot rely on savings to smooth shock impacts, their health and education are at greater risk, and they may need more time after a shock to recover and reconstruct (Hallegatte et al. 2017). Natural disasters can send people into extreme poverty or cause people who are recovering from poverty to fall back into it, preventing poverty reduction.

In Lesotho, the poverty rate is highest in rural areas, where more than half of the population lives (World Bank forthcoming a). Rural households are largely dependent on agriculture for their livelihoods. Agriculture is dominated by small rain-fed farms of less than 1 ha per household (World Bank 2019a). This contributes to rural households' vulnerability to weather-related disasters. In addition, settlements in rural areas are scattered, impeding the provision of social services.

While agriculture matters for a large part of Lesotho's population, the sector contributes just 10 percent to GDP (World Bank forthcoming b). Livestock is an important source of income, representing around 30 percent of total agricultural outputs (World Bank 2017a). Livestock production focuses on sheep and goats for wool and mohair, as well as cattle and pigs (CIAT and World Bank 2018). More than 85 percent of cultivated land is used for growing maize, sorghum, and wheat. Productivity in Lesotho is low, averaging about US$70 per hectare annually, compared to the regional average of about US$120 per hectare. The sector's low productivity is largely a result of low investment in irrigation and other infrastructure, low uptake of new technologies and inputs, poor-quality extension and advisory services, and limited access to credit (World Bank forthcoming b). Climate change may further decrease the productivity of agriculture by reducing the crop yield, increasing the occurrence of crop failure, and decreasing livestock production.

On Lesotho's small rain-fed farms, irrigation is used for less than 1 percent of crop production (World Bank forthcoming b). Challenges to medium and large irrigation schemes include Lesotho's topography and geology, as well as the fact that irrigation may be expensive. While water is available, it is not yet being used productively for agriculture, and there are few water harvesting schemes (World Bank 2017a). Unsustainable land management practices in Lesotho increase soil erosion and decrease soil fertility, leading to decreased productivity (World Bank forthcoming b) and aggravating disaster risks. Domestic food production covers approximately 30 percent of the national food requirements, with the remaining 70 percent imported from South Africa (Kardan, O'Brien, and Masasa 2017).

Figure 4: Number of people affected by droughts, floods, and storms in Lesotho



Source: Government of the Kingdom of Lesotho 2011; EM-DAT Database (The Emergency Events Database—Universite catholique de Louvain—CRED, D. Guha-Sapir—www.emdat.be, Brussels, Belgium).

Rates of undernutrition remain high in Lesotho, increasing the vulnerability of the population to shocks. Around 33 percent of children under the age of five are stunted. Moreover, 27 percent of women and 14 percent of men ages 15–49 are anemic (Ministry of Health of Lesotho 2014). Undernutrition affects all wealth quintiles in Lesotho. While food insecurity is related to low income, other major causes include limited access to nutritious food and poor infant feeding practices. Undernutrition increases the vulnerability of the population to shocks, since it increases the likelihood of falling sick, the severity of disease, and the likelihood of death (World Bank 2015a).

Food insecurity is among the sources of vulnerability and often augmented by shocks. During the period between 2003 and 2018, 450,000 people were food insecure on average per year.[4] Due to the country's high reliance on rain-fed agriculture, climate change is likely to further threaten food security. Lesotho may therefore become more dependent on imports of most food commodities (World Bank 2018a).

Given the above, strengthening the vulnerable population's resilience to natural disasters is critical if Lesotho is to achieve the twin goals of ending extreme poverty and boosting shared prosperity.

2.2 Occurrence of natural disasters

Lesotho is prone to a variety of perils such as droughts, floods, storms, snowfalls, hailstorms, strong winds, and early frosts (GoL 2017). According to the EM-DAT Database, from 1990 to 2018 drought was the most frequent hazard and the one affecting the most people.[5] EM-DAT data show that severe droughts occurred in 1991/92, 2001/02, 2006/07, 2011/12, and 2015/16. Each of these severe droughts affected on average 603,000 people. The same database records that Lesotho has experienced two floods and four storms since 1990. Figure 4 presents the number of people affected by different disasters since 1990.

Climate change is expected to increase the frequency and severity of weather-related disasters. Analysis of past precipitation and temperature trends in Lesotho indicates a decrease in precipitation and an increase in temperature over the period 1981–2012. Climate projections for the country suggest that temperatures are likely to increase by an average of 2°C by 2050 and by as much as 2.4°C by 2070. The largest increase is expected to occur in the lowlands along the northwestern border of the country, which is the most drought-prone area in Lesotho (World Bank 2018a).

[4] Based on Lesotho Vulnerability Assessment Committee data. Estimates on the food-insecure population in the country have been collected annually since 2003 by LVAC through the yearly Vulnerability Assessment and Analysis. The LVAC is led by the Disaster Management Authority coordinating with other national and regional government institutions as well as development partner agencies.

[5] EM-DAT data on the number of people affected by disasters considers people who are injured, are homeless, or require immediate assistance during a period of emergency (i.e., require basic survival needs such as food, water, shelter, sanitation, and medical assistance). While EM-DAT collects data on large reported disasters by people affected, LVAC collects annual figures on people requiring food assistance. EM-DAT figures are used in this section, as LVAC does not differentiate food-insecure people by the type of disaster.

High levels of exposure and vulnerability to natural disasters create fiscal vulnerability and can impact Lesotho's development. Data on the cost of disaster response are not systematically recorded in Lesotho and were available only for two disasters, the El Niño–induced drought in 2015/16 and the floods in 2010/11. The resources needed to respond to these events were estimated to be around US$38 million (M 584 million) and US$67 million (M 462.7 million) respectively.[6] This is around 1.7 percent and 3.2 percent of GDP in the applicable years. The World Bank (forthcoming a) Lesotho Poverty Assessment found that the El Niño–induced drought significantly impacted poverty reduction: without this shock, it is estimated that poverty in Lesotho would have decreased twice as fast over the past 15 years. For detailed case studies of these two events, including their impact on households, the resources that the government and partners managed to mobilize in response, and the way these resources were allocated see section 3.

[6] Based on the 2011 and 2016 exchange rates of 6.90 Lesotho maloti per U.S. dollar and 15.29 maloti per U.S. dollar, respectively.

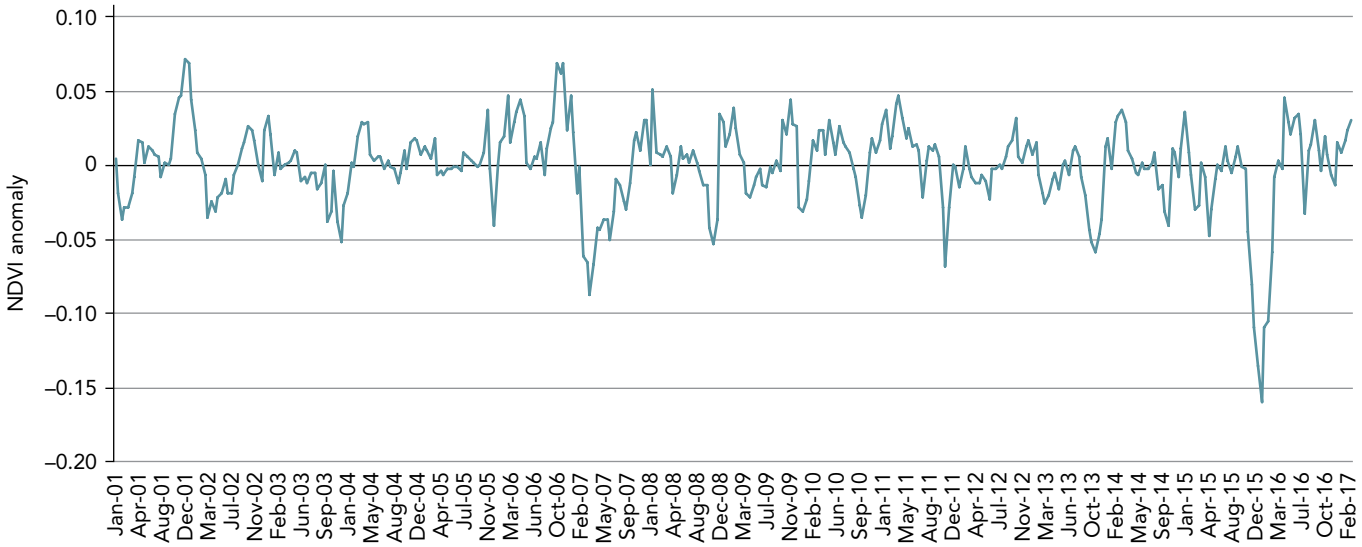
3. Case studies of natural disasters

3.1 Case study 1: Economic and fiscal impact of the 2015/16 El Niño–induced drought

The 2015/16 drought was the worst experienced in Lesotho in 35 years. The intensity of this El Niño–induced event is well captured by the normalized difference vegetation index (NDVI).[7] Figure 5 presents the NDVI anomalies or deviations from the historical average. The vegetation index anomaly around the end of 2015 and beginning of 2016 is the largest anomaly since the beginning of the record in 2001. At the peak of the drought in January 2016, the vegetation was 34 percent dryer than the historical average level. The index also shows how the 2015/16 drought compares to other major droughts such as those experienced in 2006/07 and 2011/12.

The 2015/16 drought affected 979,000 people (EM-DAT) and left around 709,000 people food-insecure (LVAC).[8] Cereal production fell by 66 percent. Food prices increased sharply: in April 2016, the price of a 12.5 kg sack of white maize meal was 58 percent higher than the five-year average (figure 6). At the same time, the need for external food assistance and imports rose (LVAC 2016). In rural areas, households' consumption

Figure 5: Vegetation index (NDVI) anomalies



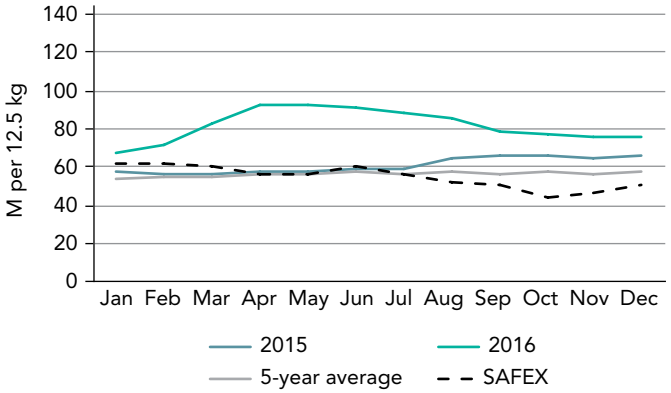
Source: World Bank calculations using data from MODIS.

Note: The NDVI anomalies were calculated as the deviations from the decadal average in the 2001–2017 period (historical average). Calculating the deviations using subsamples in this period did not alter the results. Negative values correspond with vegetation being dryer than the historical average, while positive values reflect vegetation being greener than the historical average.

[7] The NDVI is one of the most widely used measures for assessing vegetation conditions globally. It uses satellite images to measure the greenness of the vegetation.

[8] EM-DAT figures on people affected include people who require assistance during an emergency on a wide range of basic needs in addition to food.

Figure 6: Price of white maize meal in Maseru



Sources: Lesotho Bureau of Statistics; South Africa Futures Exchange.

dropped on average 23 percent (World Bank forthcoming a). Further, according to the United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA), poor and very poor households experienced a 44 percent decline in their food and cash income compared to normal conditions due to this drought (Office of the Resident Coordinator in Lesotho 2019).

The total funding mobilized to respond to the drought was US$82 million (M 1.25 billion), or 3.6 percent of GDP in 2016. GoL contributed US$21 million (M 318 million) of this amount; humanitarian contributions totaled US$40 million; and the World Bank mobilized US$20 million through the Crisis Response Window (CRW) and US$1.4 million through the Contingent Emergency Response Component (CERC) under the Smallholder Agriculture Development Project (SADP).

The US$21 million mobilized by the GoL was through budget reallocation and included US$10 million (M 155 million) for the response and an additional US$11 million (M 163 million) to provide a food price subsidy. The GoL declared a state of emergency in December 2015, which led to the development of a drought response plan, as well as the establishment of a drought response task force. The resources needed to respond to the drought were estimated to be US$38 million (M 584 million), or 1.7 percent of GDP, in December 2015, when the drought was in its early stages; of this amount, the government covered US$10 million (M 155 million). The majority of these resources (85 percent) were used to support water and sanitation, and the rest were used for responses in health, nutrition, agriculture, and food security. The MoF disbursed resources to line ministries for response six months after declaration of the emergency.

The food price subsidy encountered implementation challenges and was very costly. The introduction of the subsidy was designed to reduce the price of maize meal, sugar beans, and split peas by 30 percent for a period of one year. The subsidy lasted from June 2016 to May 2017, managed by the Ministry of Small Business Development, Cooperatives and Marketing in partnership with the Disaster Management Authority (DMA). The government published a national pricing framework gazette that legally set the prices of subsidized products. However, there were challenges in monitoring the implementation of the program along the supply chain, resulting in some suppliers selling above gazette food prices. The average decrease in maize meal prices between June 2016 and December 2016 was 12.9 percent at the national level, which was a small decrease compared to the 30 percent fall expected from introducing the food price subsidy. Furthermore, the subsidy's universal nature was put into question. The subsidy was offered to the whole population and was not targeted to the poorest and most vulnerable. In the short term, more-targeted assistance through social protection programs would have been more cost-effective. In the medium to long term, it is important to build farmers' resilience against climate shocks (World Bank, WFP, and FAO 2017).

Two existing contingency funds were already depleted at the time of the declaration of emergency. The GoL has two contingency funds, one in the MoF for unforeseen expenditure, and another—the Disaster Management Fund—within the DMA. Because both funds had already been depleted at the time of the declaration of emergency, they were not used to cover the costs of the drought response. The Disaster Management Fund was used to move the resources that the GoL had reallocated in the budget for the drought response from FY2015 to FY2016. But resources needed to be moved back from the Disaster Management Fund to the MoF for disbursement, since direct disbursements from the

Disaster Management Fund to the line ministries could not be made. More details on these two contingency funds are presented in section 6.

For Lesotho, as for many countries in Sub-Saharan Africa, international donor assistance plays a key role in financing disaster response.[9] During the El Niño event, more than US$40 million was raised from humanitarian partners, but this assistance was received more than six months after the declaration of emergency. Total commitments were US$52.6 million, but by June 2017 donations covered only US$40.7 million, or 77 percent, leaving a gap of 23 percent. Key donors were USAID (which provided US$10.6 million); DFID (US$8.1 million); ECHO (US$5.5 million); CERF (US$4.7 million); the Netherlands (US$1.9 million); AusAID (US$1.6 million); Germany (US$1.6 million); Switzerland (US$1.2 million); Canada (US$1 million); and the French Development Agency (AFD) (US$1 million). Other donors, notably Japan and Sweden, contributed a total of US$2.1 million (Humanitarian Country Team 2017). Most of the humanitarian assistance was received around June 2016, six months after the declaration of emergency in December 2015 and nine months after the first reliable forecast of the drought in September 2015. The recipients of these funds were United Nations agencies, in particular the Food and Agriculture Organization of the United Nations (US$4.8 million), World Food Programme (US$6.7 million), and UNICEF (US$1.7 million), as well as nongovernmental organizations (NGOs), including World Vison (US$8.8 million) and Catholic Relief Services (US$1.7 million).[10]

The World Bank contributed US$20 million through the CRW. The CRW provides International Development Association (IDA) countries with additional resources that help them respond to severe economic crises and major natural disasters and return to their long-term development paths. The World Bank Board of Directors approved the mobilization of such funding for Lesotho in December 2016. As of October 2019, US$13.79 million (68 percent) had been disbursed. A total of US$1.9 million was used to provide additional cash assistance to poor household beneficiaries of the Child Grant Program, one of the main social protection programs in the country. In addition, US$5.2 million was used as budget support to finance government's social protection emergency response. Remaining funding was used to improve administrative efficiency, equity and shock responsiveness of social assistance systems including the four key programs, Child Grant Program, Orphan and Vulnerable Children, Public Assistance and Old Age Pension, and related capacity building activities.

Through the CERC, the World Bank provided an additional US$1.4 million. With these funds, the GoL signed a US$1.1 million contract with FAO to (i) protect and improve agricultural livelihoods, (ii) engage in capacity development on climate-smart food production techniques, (iii) protect livestock assets through animal health, and (iv) address health and nutrition needs. The remaining funds were used by the GoL to replace 22 SADP beneficiary greenhouses that had been damaged by wind and hail and to rehabilitate two irrigation schemes identified by the Department of Crop Services at the Ministry of Agriculture and Food Security.

3.2 Case study 2: Economic and fiscal impact of the 2010/11 floods

In 2010/11, a series of heavy rains hit Lesotho, causing river floods, runoff from hill slopes, and rockslides. Additional damages were caused by strong winds and localized hailstorms. The disaster affected 500,000 people, or about 28 percent of the total population, including displacement of 3,360 people. The floods severely impacted crops, washed away fields, damaged transport infrastructure, affected or destroyed many houses, and increased food insecurity.

Following the disaster, the GoL conducted a Post-Disaster Needs Assessment (PDNA), which estimated total damages and losses at US$67 million (M 462.7 million), equivalent to 3.2 percent of the country's GDP.[11] The disaster affected both the public

[9] On average, according to the Financial Tracking Service, Lesotho received a yearly average of US$7.28 million in total donor assistance over the period 2002 to 2018.
[10] Data are from UNOCHA Financial Tracking Service, https://fts.unocha.org/.
[11] The PDNA (Government of the Kingdom of Lesotho 2011) is also the source for other figures in this section.

and private sectors; destroyed assets were split nearly evenly between the two. With regard to production losses and higher cost of services, 90 percent fell on the population and private sector. Forty-five schools were damaged, affecting a total of about 9,841 children. Drinking water supplies were contaminated in rural areas. Three health posts were destroyed, and community access to many facilities was interrupted for up to 20 days due to transport disruption and closure of some of these facilities. In total, between 2,000 and 2,500 houses were damaged or destroyed. In addition, nearly 75,000 ha of crops were lost and over 44,000 head of livestock died.

Some sectors incurred higher damages and losses than others. The PDNA estimated that the sector sustaining the highest damage due to floods was road transportation (33.3 percent), followed by livestock (18.6 percent), water, sanitation, and hygiene (15.7 percent), and education (11.7 percent). The largest share of losses was in the agriculture sector (46.7 percent), followed by road transportation (25.9 percent), livestock (13.5 percent), and commerce (9.2 percent).

The disaster increased the vulnerability of the population, especially of the poor. The impacts varied across the country, with higher impacts in the north. The districts with higher losses and damages were Maseru, Mokhotlong, Leribe, Butha Buthe, and Berea. The PDNA found that the impact of the disaster was most severe in districts with the lowest Human Development Index (HDI) values.

Short-term recovery needs made up over half of the estimated post-disaster needs. The agricultural sector had the highest needs (with food imports making up the largest share of these needs), followed by the transport sector. Medium- and long-term recovery and reconstruction needs—calculated to include the "building back better" principle and priorities in disaster risk management—were highest in the transport sector, followed by housing, water and sanitation, and education.

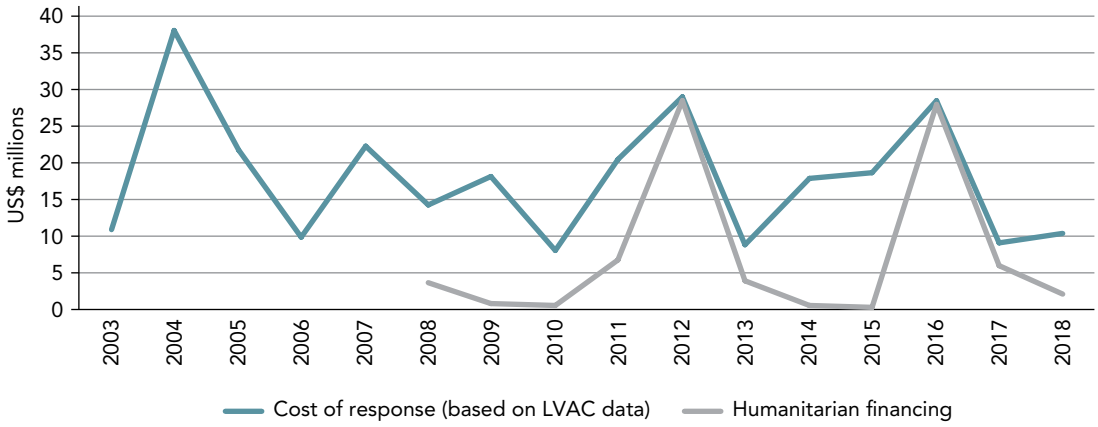
The PDNA estimated that without any external support, damages and losses due to the disaster would reduce GDP growth by 0.5–3.1 percent. This estimate indicates the GoL's lack of capacity to deal with the disaster on its own.

4. Statistical simulation of disaster response cost

The simulation was conducted in two steps. A first statistical analysis of the cost of response to disasters in Lesotho was conducted using LVAC data. Specifically, annual LVAC data on the number of people who require food assistance were used to estimate the frequency and severity of shocks in Lesotho.[12] The estimation assumes that the average cost of providing assistance per person affected by a disaster in Lesotho is US$40. This assumption is based on the number of people in need of assistance and the amount of humanitarian funding received in 2016 during the El Niño–induced drought. Based on this assumption about cost and using vulnerability assessment data on the number of people affected, figure 7 presents the estimated annual cost of disaster response in Lesotho from 2003 to 2018.

Using the estimated cost of response based on LVAC data, further statistical analysis was conducted to estimate the frequency and severity of disaster and climate shocks in Lesotho. Using Monte Carlo simulations,[13] average annual cost of disaster response was estimated at US$19.3 million (figure 8). Given that the analysis is based on the vulnerability assessment data, those estimates are not specific to a type of disaster but rather are applicable to any disaster that leaves people in need of assistance in the country. It was also estimated

Figure 7: Estimated cost of response based on Lesotho Vulnerability Assessment Committee (LVAC) and humanitarian financing

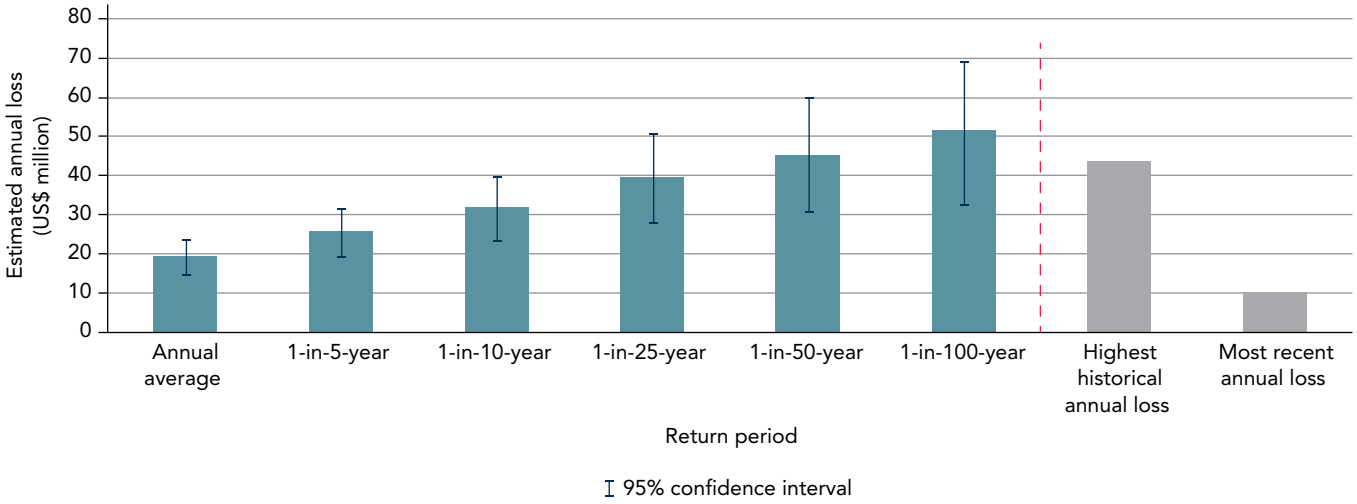


Source: World Bank calculations based on data from Financial Tracking Service, https://fts.unocha.org/; and LVAC.

[12] LVAC data were used for this analysis, as EM-DAT data on the number of people affected by disasters had gaps in some years. This is mainly because the EM-DAT Database includes information on severe disasters as reported by various organizations, while LVAC captures food needs every year. LVAC data also have the advantage of reflecting the number of people who require food assistance, the most basic need that government should address when disasters occur, while EM-DAT includes a wider range of needs. A limitation on using LVAC data is that it is not disaggregated by disaster type and includes food insecurity also due to other events.

[13] Five distributions were considered based on their goodness of fit, and the log normal distribution was chosen as providing the best fit.

Figure 8: Estimated average loss due to disasters of different return periods



Source: World Bank calculations based on LVAC data.

that the costs associated with the 2015/16 El Niño event would occur approximately every five years—i.e., approximately every five years, as many people would be in need of assistance as during the El Niño event.

It is important to note the limitations of this estimation, which were driven by available data on disaster losses in Lesotho. LVAC collects annual information on the number of people who require food assistance. LVAC does not capture data on food insecurity related to disasters but general food requirements in the country. In addition, estimations on frequency and severity of shocks should ideally also consider other losses from disasters such as related to infrastructure. There is, however, no systematic data collected on disaster losses or disaster spending in Lesotho.

5. Institutional and policy frameworks for disaster risk management

Lesotho has in place legal and policy frameworks for disaster risk management. The Disaster Management Act of 1997 provided the foundation for disaster risk management in Lesotho. Lesotho's National Strategic Development Plan 2012/13–2016/17 recognized the need for adaptation to climate change. Further, the Budget Strategy Paper for 2018/19 to 2020/21 recognizes the adverse impacts of disasters on the budget outlook, and identifies climate change as one of the cross-cutting issues within Strategic Goal 3 ("Promote peace, strengthen democratic governance and accountability systems") (Kingdom of Lesotho 2018a). In 2019, the Cabinet approved the National Resilience Strategic Framework (NRSF) and Theory of Change. The NRSF recognizes that increasing resilience is a crucial first line of defense against disasters, and it guides the process of building the country's resilience in the face of challenges posed by climate shocks. The NRSF includes a pillar on the need to prepare financially for disaster response by developing financial instruments that allow the public and private sector to retain and transfer risks. Finally, Lesotho also has a Multi-Hazard Contingency Plan 2015–2018 (GoL 2015b), which identifies standard operating procedures for a variety of hazards. At present, a new contingency plan is being developed that focuses initially on drought.

Lesotho does not currently have a DRF strategy. A DRF strategy would allow the government to identify and plan where resources for responding to future disasters will come from. Given that disasters will increase in severity and frequency due to climate change, population growth, urbanization, and environmental degradation, it is important for the government to assess the economic and fiscal impacts of disasters and ensure the timely availability of financial resources for disaster preparedness, response, recovery, and reconstruction. A DRF strategy sets a legal framework to strengthen the financial management of disaster risks by outlining an optimal combination of risk financing instruments, including both risk retention and risk transfer instruments, making response to different types of disasters more cost-effective. Having certainty about what resources are available for government response to disasters, and about where these resources will come from, can greatly reduce financial distress and ultimately reduce the human and economic cost of disasters. A DRF strategy would support the National Strategic Development Plan II cross-cutting topic *Environment and Climate Change* and particularly the fourth strategic objective, *Improve Environmental and Climate Change Governance.* Details on the Malawi National DRF Strategy are presented in box 1.

Disaster risk management within Lesotho is coordinated by the Disaster Management Authority, which leads the response to emergencies and coordinates among agencies in the event of disasters. The DMA, which is within the Office of the Prime Minister, was created through the Disaster Management Act of 1997 and is responsible for prevention, mitigation, preparedness, response, and recovery activities associated with disasters (Kardan, O'Brien, and Masasa 2017). The DMA coordinates eight technical working groups that monitor disaster situations in different areas to

Box 1: Malawi's National DRF Strategy

Malawi is exposed to a variety of natural hazards, with droughts and floods having the greatest impact on the country's economy and infrastructure and on people's livelihoods. The Government of Malawi (GoM) is working to strengthen its financial resilience to the impact of natural disasters by introducing different financial instruments that can be used to respond to disasters of different severities and frequencies. More specifically, the GoM is working to set up a Contingency Fund for Disasters, a Cat-DDO, and sovereign insurance, and to expand the penetration of private catastrophe insurance and agricultural insurance in the country.

Malawi's Ministry of Finance, Economic Planning and Development is seeking to guide the adoption of such instruments and with technical support from the World Bank has drafted a National Disaster Risk Financing Strategy. This was adopted and signed by the Ministry in May 2019. The strategy outlines the actions the GoM needs to take to adopt or strengthen different DRF instruments. It increases the transparency of, and strengthens decision making on, different potential financial instruments that will help cover the costs of disaster response and reconstruction, while taking due account of costs and benefits (GoM 2019).

The National Disaster Risk Financing Strategy in Malawi has helped government define its priorities regarding financial planning for disaster response and understand the steps needed to strengthen the government's financial resilience.

ensure preparedness.[14] These groups include representatives of UN agencies, NGOs, the private sector, and government.

The prime minister has the authority to declare an emergency; once an emergency is declared, the deputy prime minister convenes the National Disaster Response Task Force. The task force is made up of ministers from relevant sectors. At the district and village levels, District Disaster Management Teams (DDMTs) and Village Disaster Management Teams (VDMTs) support the coordination and response to disasters. The DDMTs and VDMTs are supported by local staff of other government line ministries as well as community volunteers. Since 2003, declarations of emergency and disaster response have been informed by the annual Vulnerability Assessment and Analysis exercises conducted by the LVAC, which estimate the number of people in need of food assistance.

After a declaration of emergency, the Ministry of Finance has the task of mobilizing resources to cover the costs of government response to the event. Line ministries submit requests for supplementary resources to the MoF to cover the costs of response activities in each sector. The MoF then reallocates the budget away from other projects to meet these supplementary demands. Shifting resources away from ongoing or planned projects is a lengthy process and often faces resistance from ministries whose resources are being reduced.

[14] The sector working groups are (i) training; (ii) water and sanitation; (iii) health and nutrition; (iv) agriculture and food security; (v) early warning system; (vi) food and logistics; (vii) information; and (viii) LVAC assessment.

6. Existing ex ante mechanisms to finance disaster response

Following disasters, governments have a range of options for financing disaster-related needs. However, raising sufficient finance once a disaster has occurred can take time, and how much financing can be obtained is often uncertain. To access finance after a disaster, governments often rely on reallocating the government budget to meet urgent needs, appealing for international donor assistance, and arranging for emergency credit.

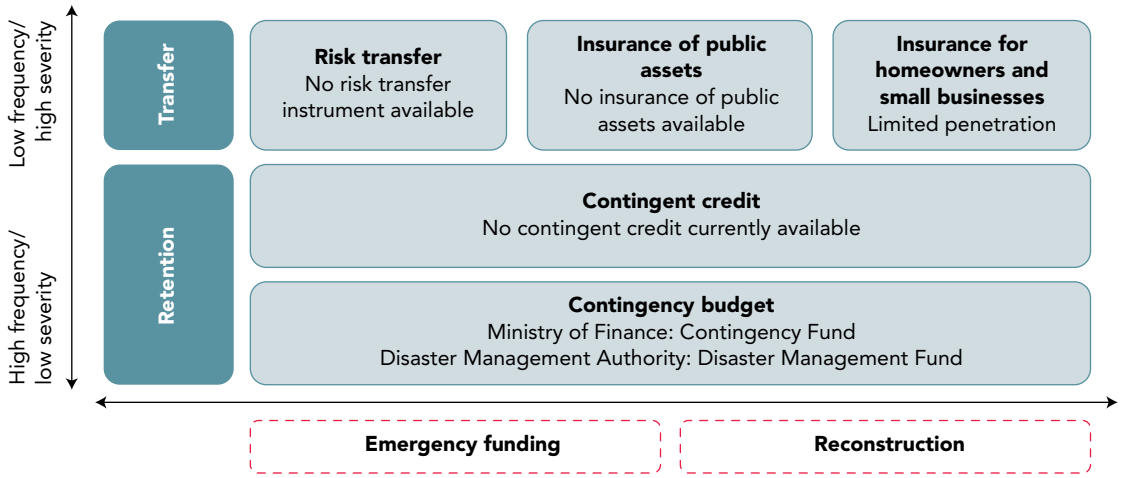
Ex ante DRF instruments can help governments respond to different types of disasters in a timely manner. There are several instruments that could be used for this purpose, such as contingency funds, contingent lines of credit, and risk transfer instruments. The GoL has two contingency funds in place that could potentially be used to respond to recurrent disasters (see figure 9).

6.1 Budget mobilization

Contingency funds

Lesotho has a contingency fund managed by the MoF, as well as a Disaster Management Fund overseen by the Disaster Management Authority. Generally, contingency funds are used to cover the needs associated with high-frequency, low-intensity events. Contingency funds require governments to set aside funds that could otherwise be spent in development projects. Given this high opportunity cost, governments typically have contingency funds of moderate size to cover the costs of responding to events that are frequent and not very severe.

Figure 9: Ex ante disaster risk financing instruments available to the Government of Lesotho



Source: World Bank 2014.

The contingency fund managed by Lesotho's MoF is not specifically designated to cover disaster-related needs, but rather is used to meet needs for a broad range of different purposes, such as additional expenses of line ministries. For the past five years, the contingency fund has had a constant annual allocation of US$6.5 million (M 100 million) (figure 10, left). Before that, the amount was highly variable. Allocations to the fund must be spent within the fiscal year, which runs from April 1 to March 31. The rainy season in Lesotho, from October to March, falls toward the end of the fiscal year. Given that resources are not dedicated to disasters, by the time droughts or floods strike there are generally very few resources left in the contingency fund.

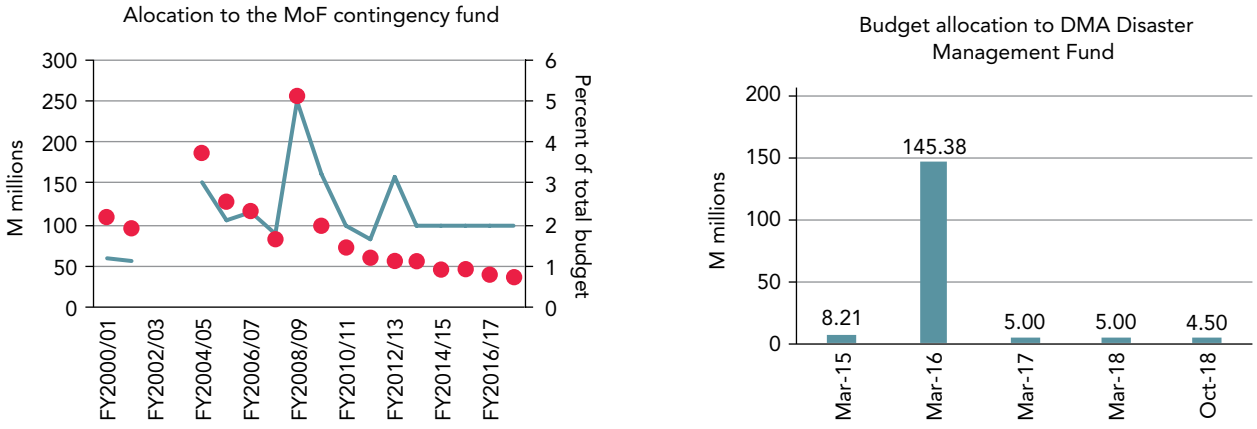
The Disaster Management Fund differs from the contingency fund in that its resources are designated to meet disaster-related needs only and they can accrue over years; however, funding has been declining. While in 2014/15, over US$523,000 (M 8 million) was allocated to the Disaster Management Fund, in recent years, budget allocations to the fund have been decreasing (figure 10, right). During the El Niño event in 2015/16, the GoL used the Disaster Management Fund to shift resources for the drought response from FY2015 to FY2016; this was possible given the revolving nature of this fund. The Disaster Management Fund cannot, however, be used to disburse resources directly to other line ministries to finance their disaster response activities. This adds a major constraint to its use. Decreasing annual allocations to the fund and the challenges for its disbursement affect Lesotho's financial preparedness for disasters.

The use of contingency funds is increasing in Sub-Saharan Africa, providing governments with immediate access to funds to respond to shocks. In Mozambique, for example, the government has set up the Disaster Management Fund to increase the availability and predictability of resources for emergency preparedness and response and to make room for financing of recovery. The World Bank provided the Government of Mozambique (GoM) with technical support to elaborate the regulations governing the Disaster Management Fund, as well as financial support to top up the government's resource allocation to the fund (see box 2).

Contingent credit

Following a disaster, governments could obtain an ex post emergency loan. Lesotho's public debt was estimated to be 41.6 percent of GDP in 2018, up from 36.6 percent in 2017. Lesotho has a moderate risk of debt distress (IMF 2019) and therefore could have room for additional borrowing. While significant resources

Figure 10: Allocations to contingency fund and Disaster Management Fund



Source: MoF, Budget Speeches, various years, http://www.finance.gov.ls/official_documents.php?id=budget_documents&div=budget_speeches (left); DMA (right).

Note: No data on allocations to the MoF contingency fund are available for FY2002/03 or 2003/04,

Box 2: Mozambique's Disaster Management Fund

Mozambique is heavily exposed to multiple natural hazards, especially floods, cyclones, droughts, and earthquakes. The annual average damage caused by natural disasters between 2000 and 2014 was estimated to be US$188.3 million. The negative impact of climate and disaster shocks is exacerbated by high levels of poverty; in 2014, the country's poverty rate stood at 62.9 percent (based on the US$1.90/day 2011 PPP poverty line).

Recognizing the magnitude of climate and disaster risks, the GoM has taken various steps to increase financial protection against disasters. Until recently, an annual contingency budget allocation of around US$2 million was the only ex ante financial instrument for disaster preparedness and response. The limited size of this allocation allowed the GoM to respond to small- or medium-size events only. Moreover, the amounts allocated each year were not predictable. For the financing of emergency response to larger events and post-disaster recovery and reconstruction, the GoM had relied on ex post instruments, such as ad hoc budget reallocations and mobilization of donations or loans from the donor community, which are usually slow to materialize and remain insufficient to cover post-disaster recovery needs.

Recognizing this challenge, the GoM approved the creation of the national Disaster Management Fund (Fundo de Gestão de Calamidades) in October 2017 and is working toward operationalization. This fund is a dedicated account managed by the National Institute of Disaster Management (INGC). It is expected to receive annual budget allocations of at least 0.1 percent of the state budget (a minimum annual allocation of about US$4.5–5.0 million). The World Bank will top up the fund's allocation with an additional annual amount of US$9 million in the fund's first two years and with US$5 million in the following three years. The goal is to increase the availability and predictability of resources for emergency preparedness and response and make room for financing of recovery.

With technical assistance from the World Bank, the GoM has elaborated draft regulations that will govern the Disaster Management Fund. The fund will be able to support only immediate disaster preparedness and response activities. This support will be provided in kind and will be procured through pre-agreed contracts to speed up response to disasters. The fund has been designed so that it can purchase a sovereign parametric catastrophe insurance product, which could eventually provide an important backstop to the fund in the event of a large disaster. The regulations also specify, among other things, the mechanism for triggering the use of fund resources; the rules for requesting resources from the fund; requirements of pre-negotiated contracts for the delivery of specified goods; requirements for auditing the use of funds and transparency; and the concentration of fiduciary responsibility for the fund at INGC.

The GoM is complementing the consolidation of financial protection against disasters with other interventions. These include (i) improving the understanding of risk through acquiring and processing high-resolution spatial and topographic data to improve risk maps for all major perils at the national level; (ii) strengthening capacity for disaster preparedness and response by creating, equipping, and training a network of disaster risk management committees at local levels and strengthening early warning systems for cyclone and river flooding; and (iii) mainstreaming disaster risk management in public investments and territorial planning by approving a decree requiring that new public buildings comply with resilient design standards and environmental requirements.

Source: World Bank 2019b.

can be mobilized through emergency loans, these can take a long time to negotiate and can contribute to already high debt ratios (World Bank 2014). Moreover, interest rates might be higher during a crisis than in normal times, since macroeconomic conditions deteriorate in a crisis and borrowers have more limited negotiating power.

Setting up ex ante contingent lines of credit enables governments to access finance at competitive borrowing rates immediately after a disaster to meet emergency needs. Contingent credit, such as the World Bank Development Policy Loan with Catastrophe Deferred Drawdown Option (Cat-DDO), allows governments to access significant financial resources in the event of an emergency. In most cases, a Cat-DDO disburses funds based on the declaration of a state of emergency due to a natural disaster. Countries are eligible for a Cat-DDO if they are in the process of preparing, or already have, a disaster risk management framework and if an appropriate macroeconomic framework is in place (World Bank 2018b). The Cat-DDO has a country limit of US$250 million or 0.5 percent of GDP, whichever

Box 3: World Bank's Development Policy Loan with Catastrophe Deferred Drawdown Option

The Cat-DDO was developed in 2008 for International Bank for Reconstruction and Development (IBRD) countries. In 2017, IDA countries also became eligible for Cat-DDOs. Since the introduction of the instrument, the World Bank has approved 16 Cat-DDOs for a total value of US$3.1 billion.

Cat-DDOs have proved to be effective liquidity instruments, providing countries with needed cash in the immediate aftermath of a natural disaster. Funds may be drawn upon declaration of a state of emergency in the borrower's territory. The Cat-DDO funds act as a fiscal buffer that reduces disaster impact and provides critical bridge financing immediately after a disaster until other domestic funds can be reallocated or international aid is received.

The experience of the Philippines suggests the benefits of this instrument and shows how a Cat-DDO can be part of a proactive approach to DRF. In 2011, the Government of Philippines signed a Cat-DDO with the World Bank, and that same year the country suffered catastrophic human and economic losses when Tropical Storm Sendong struck. The storm killed 1,268, injured 6,071, and left 181 missing. The overall recovery and reconstruction needs were estimated at US$621.4 million. After a national state of emergency was declared, the Philippine Ministry of Finance made a request to withdraw funds, and two days later the World Bank disbursed US$497.5 million to the Government of Philippines—clearly demonstrating the effectiveness of the fast-disbursing instrument. The Philippines signed a second Cat-DDO with the World Bank in 2015 (World Bank 2015b).

Now that IDA countries are eligible for Cat-DDOs, the World Bank is seeing interest in developing them grow rapidly. In June 2018, the first IDA Cat-DDO was approved by the World Bank Board of Directors; this was for Kenya—the first IDA country in Africa to develop a national DRF strategy—in the amount of US$200 million. The World Bank has also recently approved a Cat-DDO for Malawi, and more are currently under preparation in Africa.

is lower. IDA clients with limits below US$20 million may request a Cat-DDO up to this amount. Lesotho currently does not have contingent credit to meet disaster-related needs. Given that 0.5 percent of GDP in Lesotho would be around US$13 million, the maximum amount of a Cat-DDO in Lesotho would be US$20 million. More details on the Cat-DDO instrument are in box 3.

The World Bank can also provide governments with additional liquidity for responding to shocks through Contingent Emergency Response Components (CERCs). CERCs can be included in World Bank projects during the project preparation stage. Under a CERC, in the event of an eligible crisis or emergency, funds may be reallocated from other project components and used to respond to the crisis. Details on the use of CERC funding are predefined between the World Bank and the client country, including coordination and emergency procurement arrangements, time of disbursement, and measures to address potential environmental and social safeguards risks. In Lesotho, seven ongoing World Bank projects include CERCs: (i) SADP, (ii) SADP II, (iii) Social Assistance Project, (iv) Lesotho Transport Infrastructure and Connectivity Project, (v) Lowlands Water Development Project–Phase II, (vi) Agricultural Productivity Program for Southern Africa, and (vii) Education Quality for Equality Project. As of October 2019, these projects totaled US$281.3 million, with US$62.3 million disbursed (22.15 percent). Additionally, two pipeline projects include CERCs: (i) Nutrition and Health System Strengthening Project, and (ii) Renewable Energy and Energy Access Project.

Sovereign insurance

Sovereign disaster risk insurance can provide countries with rapid access to liquidity in the event of severe disasters. This financing mechanism enables ministries of finance to transfer part of the financial burden of disaster response to the private sector through an insurance contract. When such a contract is in place and a sufficiently large insured event (such as drought) occurs, a payout is triggered under the insurance contract and paid to the ministry of finance as budget support. Box 4 offers examples of sovereign disaster risk insurance contracts, looking specifically at how sovereign insurance against drought has benefited governments in Senegal, Niger, and Mauritania and enabled them to provide affected households with food, cash, and livestock feed.

Box 4: Sovereign Insurance in the Sahel

The Sahel's generally dry climate and low and irregular rainfall can have a significant economic impact on the region. Repeated drought cycles and the consequent degradation of natural resources have a profound effect on the revenue sources of the Sahel's population. Poor rainfall in the Sahel in 2018 sparked acute pasture and water shortages, raised food costs, and caused livestock prices to fall, leaving almost 6 million people—across Burkina Faso, Chad, Mali, Mauritania, Niger, and Senegal—in need of food and livelihoods assistance to survive. Responding to droughts in the Sahel can require substantial resources. During the 2018 drought, for example, the UN launched a humanitarian appeal for US$1.37 billion. However, only 26 percent of the appeal had been funded by June 2018 (UNOCHA 2018).

To manage the risk from drought, governments in Sahel countries have purchased drought insurance from ARC. Governments can customize the drought insurance policy according to their needs by choosing the levels of risk retention and risk transfer as well as other parameters. To support a quick response to disasters, ARC provides technical assistance to governments to develop contingency plans that identify how the resources from potential insurance payouts could be spent. Since 2014, four Sahel countries—Mali, Senegal, Mauritania, and Niger—have purchased drought insurance from ARC.

In 2015 the governments of Mauritania, Niger, and Senegal received payouts that provided needed liquidity to respond to a severe drought. These countries had purchased insurance and paid an annual premium that amounted to US$8 million for the three of them. A payout from ARC to the three countries totaling US$26 million was triggered by the drought.[a] ARC's payout arrived earlier than food security contributions by other donors. These funds were then used by the governments to deliver relief to the affected populations. The payout covered the costs of food distribution in the three countries, as well as cattle feed support in Senegal and Mauritania and conditional cash transfers in Niger. The relief activities benefited an estimated 1.3 million people. In Mauritania, the early support prevented drought- affected households from resorting to negative coping strategies, such as migrating, reducing the number of meals per day, and selling livestock, which could have had a long-term impact on their future income.

An important lesson from the ARC payout in 2015 is that to ensure a timely response to a disaster, establishing ways to channel resources to beneficiaries is as important as mobilizing these resources. In the case of Senegal and Niger, activities were delayed because funds were blocked in the national treasury of each country, for several possible reasons: government financial systems were not in place to receive funding from ARC, processes for procuring food were inefficient, or the distribution of food and cash to affected households was not well organized (Kimetrica 2016).

Sahel countries complement insurance with other DRF and budget execution instruments. In Senegal, for example, the government complements sovereign insurance by subsidizing agricultural insurance at a micro level so that farmers can transfer risks to the private sector. The government is also developing a disaster risk finance strategy that includes establishment of different instruments to enhance its financial resilience to natural disasters. In addition to mobilizing resources, countries in the Sahel are strengthening budget execution in case of disasters by developing adaptive social protection systems that can expand to provide support to affected households when disasters strike. This is the case in both Niger and Senegal.

Source: Kimetrica 2016.

a. Senegal received US$16.4 million, Mauritania US$6.3 million, and Niger US$3.3 million.

Sovereign risk pools are also emerging as useful mechanisms to support countries in accessing cost-effective risk transfer solutions. Sovereign risk pools can (i) build regional reserves to finance losses from small- and medium-size events; (ii) attract donor support to capitalize a fund; (iii) pool country-specific disaster risks into one diversified portfolio, thus allowing access to international reinsurance markets on better terms than if each country approached the markets individually; and (iv) build up a better foundation of risk information and management (World Bank 2017a). In Africa, the African Risk Capacity (ARC) is a sovereign risk pool that offers governments insurance against droughts. ARC is a Specialized Agency of the African Union established to help African governments improve their disaster planning, preparation, and response capacities. ARC uses satellite weather surveillance to estimate and trigger payouts to countries hit by severe weather events. Because severe events do not happen at once across the continent, pooling risk among different countries can significantly reduce the cost of financing emergencies and decrease the reliance on external aid. Note that

insurance is not considered an appropriate instrument to meet the needs associated with recurrent and low-severity disasters, since the insurance premiums would be relatively costly in these cases.

At present, Lesotho does not have sovereign disaster risk insurance in place. Lesotho signed a Memorandum of Understanding (MoU) with the ARC in 2012. Through the MoU, both ARC and the government have committed resources to provide government officials with capacity development, which includes training in the software used by ARC to monitor droughts in Africa, training in different levels of risk transfer, and training in the preparation of operations plans to ensure optimal use of any insurance payout. Lesotho has not participated in any of the ARC risk pools, however.

Agricultural insurance

The insurance sector in Lesotho is small but growing rapidly. In 2013, there were seven insurance companies operating in the country. Insurance penetration was 4.76 percent in 2017, which is above the African average excluding South Africa (PwC 2018). The main driver of insurance penetration in the country is funeral policies. Non-life insurance penetration remains low. In 2009, total gross written premium for non-life insurance in the country was US$15.66 million, or about 0.84 percent of GDP; and gross written premium per capita was US$7.87 (Africa Information Highway 2016). Moreover, around 2 percent of businesses have insurance (FinScope 2016).

Agricultural insurance could help households and businesses manage disaster risks, but the development of this market is still in the very early stages in Lesotho. In 2017, Alliance Insurance, a private insurance company and the only company offering agricultural insurance products, piloted a livestock insurance program for the wool and mohair industry. The product covered livestock against mortality due to accidents, diseases, and theft. The pilot was rolled out in the districts of Mokhotlong, Butha Buthe, Thaba Tseka, and Qacha's Nek. In Mokhotlong, around 100 farmers were covered, while only around 30 farmers were covered in all the other districts combined.

Expanding the penetration of agricultural insurance against weather-related shocks has been seen to de-risk farmers' production, leading to increasing productivity and access to financial services. With insurance, farmers might be more willing to use higher-quality—and usually more expensive—agricultural inputs (e.g., seeds, fertilizer, machinery, etc.), which could lead to productivity and income increases. In addition, de-risking agricultural production could encourage financial institutions to expand their agricultural lending portfolios, given that farmers would be less likely to default on loans due to unfavorable weather conditions. Agricultural insurance could help transfer farmers' risk, currently retained by the farmers or the government, to the international markets.

Other countries in the region have adopted policy actions to expand the penetration of agricultural insurance. In Zambia for example, the government has bundled weather index insurance with the Farmer Input Support Programme (FISP) that reaches around 1 million farmers. In Kenya, the government has put in place a 100 percent premium subsidy for livestock insurance in arid and semiarid counties and a 50 percent premium subsidy for crop insurance. The Government of Lesotho could carry out a feasibility study to explore the potential for agriculture insurance in Lesotho.

6.2 Budget execution

Social safety nets

Systems to channel post-disaster emergency response to the affected households are as important as prearranged financing. Using the existing infrastructure of social protection programs, governments can provide poor households with rapid, timely, predictable, and targeted assistance during and after a disaster (see box 5 for the example of Uganda). Social protection programs can be scaled up in at least two ways: (i) by providing additional grant money to existing beneficiaries during a disaster (vertical scale-up), or (ii) by adding newly eligible beneficiaries who have become temporarily vulnerable due to disasters (horizontal scale-up).

Lesotho is working on a shock-responsive social protection system. Lesotho has an extensive social protection system that makes regular transfers to its beneficiaries, covering vulnerabilities throughout the life cycle. As indicated in section 3.1, Lesotho used its Child Grant Program to provide additional assistance to existing beneficiaries (vertical scale-up) during the El Niño event in 2015/16 and is currently strengthening its social protection system to provide assistance to additional vulnerable beneficiaries who are not part of the regular program (horizontal scale-up) in response to shocks.

As part of its effort to scale up its social protection system in response to disasters, Lesotho is currently seeking to update, extend, and strengthen the National Information System for Social Assistance (NISSA) database. This would allow the GoL to identify the poor and vulnerable households affected when disasters happen, in turn allowing more efficient targeting of the people in need of assistance. In order to build a shock-responsive social protection system, however, other areas need to be strengthened, particularly payment systems and coordination between the social protection and the disaster management agencies. Payment systems for social protection programs in Lesotho remain relatively expensive, in part as a result of Lesotho's topography, which includes hard-to-reach areas. In 2017, 45.6 percent of the population ages 15 and over had an account at a financial institution or access to mobile money. Strengthening its payment systems and in particular mobile money would offer Lesotho two advantages: the ability to transfer benefits to recipients at lower cost, and the flexibility to increase the caseload in response to disasters. While Lesotho's National Social Protection Strategy recognizes the need to strengthen shock-responsive social protection (GoL 2015a), the need to strengthen coordination between social protection and disaster management agencies remains. Closer coordination will be key in enabling shock-responsive social protection, which will in turn promote good integration of responses to chronic food insecurity through regular safety net transfers and temporary assistance through vertical and horizontal expansions of safety nets.

Box 5: Using Shock-Responsive Safety Nets to Build the Resilience of Rural Households against Natural Disasters in Northern Uganda

Background. Uganda's rural population is predominantly smallholder farmers and pastoralists who are subject to several production constraints and have limited capacity to cope with recurrent shocks. Vulnerable households in Uganda face considerable climatic risks, primarily related to drought.

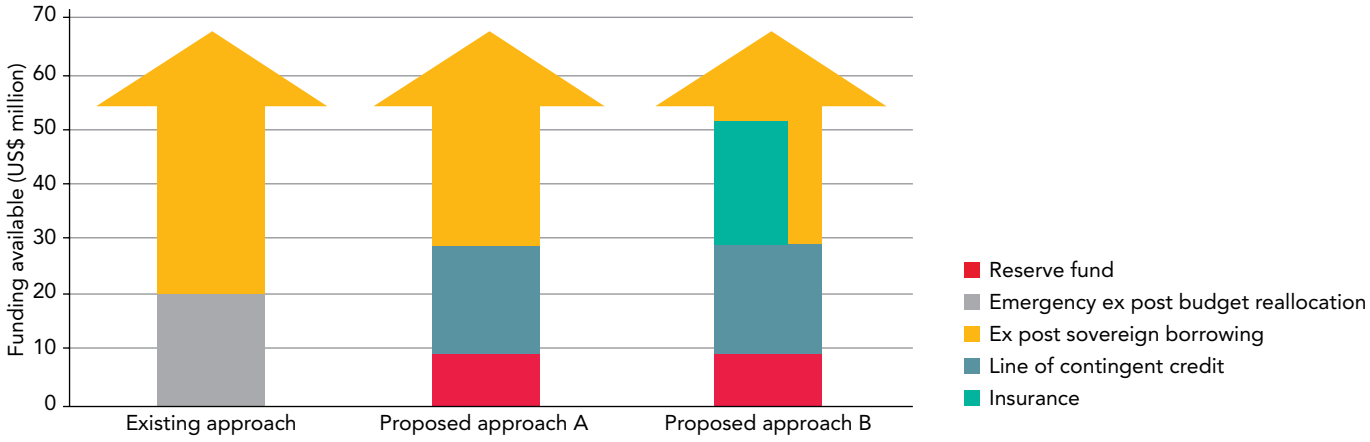
World Bank engagement. The US$130 million Northern Uganda Social Action Fund (NUSAF) III project has a US$12 million DRF component. This component provides additional post-disaster support to vulnerable households through an automatic expansion of the NUSAF III Labor Intensive Public Works (LIPW) activities. The component seeks to develop and test a system for rapidly scaling up LIPW in response to shocks in order to build the resilience of beneficiary households.

The DRF component was initially piloted in Karamoja, where households are acutely vulnerable to drought. The World Bank Group team worked closely with the Government of Uganda to (i) streamline data collection and analysis to help officials better understand drought conditions in Karamoja and develop an appropriate index to monitor drought; (ii) establish clear triggering rules for disbursement of funds from the DRF mechanism; and (iii) establish a US$10 million reserve fund (using project resources) that can be drawn down to finance the expansion of LIPW.

Impact. The 2016 El Niño caused widespread drought in the Karamoja region. The parametric index developed under the NUSAF project captured the drought and triggered a scale-up of LIPW. As a result, US$4.1 million was disbursed to finance disaster assistance to approximately 30,000 households, or 150,000 people, in Karamoja. These numbers were in addition to the core beneficiaries of approximately 5,000 households—or nearly 25,000 people—who were already receiving assistance. Over the life of the operation, the DRF component of NUSAF III is estimated to finance the cost of scaling up LIPW to a total of 80,000 additional households (400,000 people).

Source: World Bank 2017b.

Figure 11: Government disaster risk financing approaches: Existing vs. proposed



6.3 Comparing disaster risk financing approaches

The GoL faces a significant funding gap in case of disaster shocks. If the most recent disaster, the El Niño event in 2015/16, is taken as an example of the GoL's existing approach, no more than US$21 million could be mobilized through a budget reallocation to respond to disasters. Based on the estimated costs of response to shocks with different return periods, there would be a funding gap for shocks that happened every 10 or more years. For a 1-in-25-year disaster, approximately US$39.4 million would be required to respond, leaving a US$14.4 million funding gap to be addressed by the GoL or donor partners.

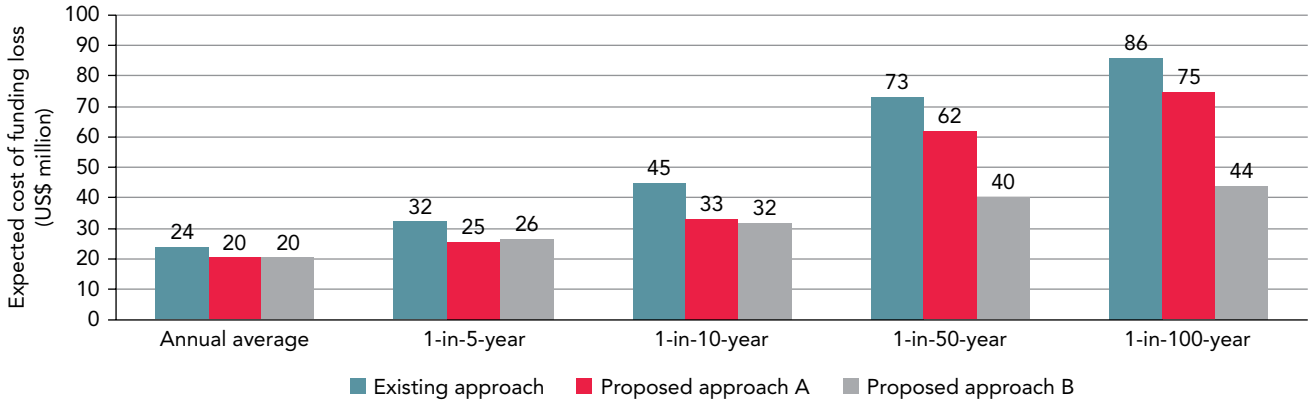
Figure 11 compares Lesotho's existing approach with two proposed approaches, A and B. The *existing approach* considers that GoL can mobilize only US$21 million through budget reallocation. The *proposed approach A* includes a contingency fund of US$10 million (exclusively for disaster response) and a contingent line of credit of US$20 million. The *proposed approach B* further considers sovereign insurance on top of the contingency fund and contingent line of credit. The sovereign insurance instrument assumes that the GoL transfers 70 percent of the risk to capital markets and retains 30 percent for potential losses over US$30 million. With these characteristics, the sovereign insurance would have an estimated cost of US$1 million per year and an average annual payout of US$0.7 million. For severe shocks, the sovereign insurance payout would increase—for example, up to US$5.3 million for a shock that occurs on average once every 20 years. It is assumed that the government could borrow resources after a disaster when other available resources are depleted.

Figure 12 presents the expected costs of funding disaster response under the *existing* and *proposed approaches* for different return periods. The expected costs of funding shown in figure 12 are higher than the estimated average losses due to disasters (shown in figure 8), due to the costs associated with the financial instruments used to mobilize resources for funding the response. Under the *existing approach*, the analysis assumes that budget reallocations carry a high opportunity cost by pulling resources away from other planned investments that would otherwise have a return.[15]

The GoL could achieve significant cost savings under the proposed approaches. Based on the evaluation framework developed by the World Bank for risk financing instruments (World Bank 2014), both proposed approaches would lead to an average savings on disaster response costs of US$4 million per year. Furthermore, for extreme shocks, the proposed approaches would

[15] The analysis assumes a social rate of return on investments of 12 percent.

Figure 12: Expected costs of funding disaster response (US$ millions)



Source: World Bank calculations based on LVAC data.

lead to even more significant cost savings: US$11 million and US$42 million under proposed approach A and proposed approach B, respectively, for a 1-in-100-year event. These saving arise in part by avoiding budget reallocations and in part by limiting ex post borrowing, which is costly during disaster scenarios.[16] Furthermore, introducing insurance under proposed approach B reduces funding costs significantly for extreme and infrequent shocks (see figure 12).

[16] The analysis assumes an ex post borrowing rate of 12 percent.

Key recommendations

The GoL largely relies on post-disaster government budget reallocation and donor assistance to finance post-disaster response. This approach has often resulted in uncertain and insufficient funding, as well as delays in response. The following recommendations are designed to help improve Lesotho's financial resilience to disasters:

1. **Develop and adopt a national disaster risk financing strategy.** Such a strategy could formalize the policy priorities of the GoL for financing disaster response. Based on these policy priorities, the GoL could then seek to establish both budget mobilization and budget execution systems to protect the relevant stakeholders from the impacts of shocks. To mobilize funding, GoL could explore the appropriateness of different financing instruments as part of a risk layering strategy. This work could be led by the Ministry of Finance with support from international partners.

2. **Increase the amount and improve the timeliness of resources mobilized for disasters,** including through the following means:

   - ***Setting up a dedicated contingency fund for disasters so it can provide timely resources in response to recurrent natural disasters.*** *A contingency fund could be used to meet the costs of response to frequent, less severe disaster shocks. Lesotho has made significant progress in setting up contingency funds and now has such funds both in the MoF and in the DMA. These funds are a solid foundation to build upon, but their resources are often not enough to cover disaster-related costs. The GoL could consider setting up a disaster-dedicated contingency fund within the Ministry of Finance with clear rules for the replenishment and disbursal of the resources. Specifically, regular budget allocations could be made to the fund to ensure sufficient funding is available in the event of a disaster. Resources not used in a given year could be rolled forward for future use. Drawing on its experience in other countries in the region, the World Bank could offer technical assistance to the GoL in setting up this fund.*

   - ***Accessing a contingent line of credit.*** *The GoL could consider complementing the contingency fund by establishing a contingent line of credit, such as a World Bank Cat-DDO. Through a Cat-DDO, the GoL could have access to a contingent line of credit of up to US$20 million, which could provide immediate liquidity to address shocks related to natural disasters. Funding mobilized through a Cat-DDO could help meet the needs associated with more severe disasters that exceed the budget of the contingency fund.*

   - ***Purchasing sovereign insurance.*** *Insurance can provide timely liquidity needed for response to infrequent and severe disasters that have the potential to cause large damages. An insurance policy could be structured to provide additional funding when the costs of responding to disasters exceed the GoL contingency fund and contingent line of credit. The GoL has already participated in exploratory discussions with the African Risk Capacity on sovereign insurance solutions.*

3. **Strengthen budget execution systems for targeted support to affected households,** including through these means:

   - ***Leveraging shock-responsive social protection to deliver early assistance to poor and vulnerable households after a disaster.*** *Unlike a food price subsidy, social protection could*

be used to deliver targeted assistance to the people who need it the most. This approach could leverage the existing social protection program systems. Further key steps in enabling shock-responsive social protection include designing a mechanism allowing social protection programs to scale up in response to disasters; developing supporting systems, such as NISSA and e-payments, to channel resources to affected beneficiaries; and making resources available to finance scale-ups. The Ministry of Social Development is already conducting some of these activities, in coordination with the DMA and with the support of development partners.

- ***Developing strong operational rules for the disbursement of disaster risk finance instruments.*** *The operational rules would clearly outline the eligible expenditures for immediate disaster preparedness and response. The rules could specify (among other things) the mechanism for triggering the use of fund resources; the rules for requesting resources from the fund; requirements of pre-negotiated contracts for the delivery of specified goods; requirements for auditing the use of funds and transparency; and the role that different government entities play in channeling assistance to end beneficiaries. Together with the DMA, the MoF could lead the development of the operational rules for disaster risk finance instruments such as a disaster-dedicated contingency funds and Cat-DDOs.*

4. **Explore the feasibility of agricultural insurance.** The GoL could explore the feasibility of agricultural insurance in Lesotho as part of a broader agriculture risk management and finance agenda. Through a feasibility study, the MoF could work with the Ministry of Agriculture to explore the potential for agricultural insurance in Lesotho.

By acting on the above recommendations, the GoL could ensure that sufficient and timely financial resources are available to meet the financing needs associated with disasters of different frequencies and severities.

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