



LESOTHO

TERRITORIAL DEVELOPMENT

A REPORT ON THE TERRITORIAL DEVELOPMENT APPROACH TO ACCELERATE
ECONOMIC GROWTH AND DEVELOPMENT IN THE KINGDOM OF LESOTHO



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Abbreviations

BOS	Lesotho Bureau of Statistics	MoFDP	Ministry of Finance and Development Planning
CIWA	Cooperation in International Waters Africa	MoLG	Ministry of Local Government, Chieftainship, Home Affairs and Police
CMA	Common Monetary Area	MoPWT	Ministry of Public Works and Transport
CPF	Country Partnership Framework	MoTI	Ministry of Trade, Industry, Business Development and Small Business
CSAIP	Lesotho Climate Smart Agriculture Investment Plan	MoTISAC	Ministry of Tourism, Sports, Arts and Culture
DA	District Administration	MSME	Micro, Small and Medium Enterprises
DER	Distributed Energy Resources	MT	Medium Term
DMA	Disaster Management Authority	NDC	Nationally Determined Contribution
DMSP/OLS	Defense Meteorological Satellite Program/Operational Linescan System	NPP/VIIRS	National Polar-Orbiting Partnership/Visible Infrared Imager Radiometer Suite
EP&R	Emergency Preparedness and Response	NSDP II	Second National Strategic Development Plan
EU	European Union	NTRI	Nighttime Lights Intensity
EWS	Early Warning System	PMO	Prime Minister's Office
FAO	Food and Agriculture Organization	PPP	Purchasing Power Parity
GDP	Gross Domestic Product	SACU	Southern African Customs Union
GHG	Green House Gas	SADP	Smallholder Agricultural Development Project
GIA	Gemological Institute of America	SADRI	Southern Africa Drought Resistance Initiative
GP	Global Practice (of the World Bank)	SCD	Systematic Country Diagnostic
HLO	Higher Level Objective	ST	Short Term
IFAD	International Fund for Agricultural Development	TA	Territorial Approach
KPA	Key Priority Areas	TTL	Task Team Leader
LEC	Lesotho Energy Company	UN	United Nations
LMS	Lesotho Meteorological Authority	UNFCCC	United Nations Framework Convention on Climate Change
LNDC	Lesotho National Development Corporation	WAMPP	Wool and Mohair Promotion Project
LNWMGA	Lesotho National Wool and Mohair Growers Association	WASCO	Lesotho Water and Sewage Company
LSL	Lesotho Loti	WB	World Bank
LT	Long Term	WSA	Water Service Authority
MCC	Maseru City Council		
MoA	Ministry of Agriculture, Food Security and Nutrition		
MoE	Ministry of Environment		
MoFA	Ministry of Foreign Affairs and International Relations		

Document Roadmap

This report begins with an Executive Summary, which introduces the territorial development approach and the rationale for applying it in Lesotho's development context before going on to summarize key takeaways and recommendations. It is followed by four chapters:

- Chapter 1, *Introduction*, lays out the country context, presenting in brief Lesotho's economic and demographic situation, population projections, governmental structure, and poverty profile and the government's goals.
- Chapter 2, *Territorial Development Framework and Analysis in Lesotho*, discusses the territorial development approach, its objectives, and the challenges it aims to address before presenting a customized 2x2 territorial framework for Lesotho and explaining how it can be applied.
- Chapter 3, *Analyzing Lesotho's Challenges through a Territorial Lens*, lays out a spatial analysis centering on four development challenges: economic opportunities, internal connectivity and regional integration, access to basic services, and climate preparedness. To highlight the challenges, the chapter includes 4D heat maps linked to density, distance, disparity, and disaster risk. It also summarizes case studies and real-life applications of the territorial development approach in Lesotho. Full case studies are in an annex.
- Chapter 4, *Recommendations*, covers guiding principles and recommendations based on the territorial development approach and analysis.



Executive Summary

Figure E.1. 2x2 Territorial Framework

		Urban		
	<ul style="list-style-type: none"> • Population density: 465 per sq km • Population share: 2.8% • Land area share: 0.5% • GDP share: 0.3% 		<ul style="list-style-type: none"> • Population density: 801 per sq km • Population share: 26.5% • Land area share: 2.6% • GDP share: 66.5% 	Lesotho leading region
Lesotho lagging region	Highlands	Rural	Lowlands	
	<ul style="list-style-type: none"> • Population density: 32 per sq km • Population share: 31.5% • Land area share: 76.9% • GDP share: 23.2% 		<ul style="list-style-type: none"> • Population density: 152 per sq km • Population share: 39.2% • Land area share: 20.1% • GDP share: 10.0% 	

How to Implement the Territorial Approach?

Successful implementation of the territorial development approach calls for both national-level reforms and spatially targeted reforms and investments. National-level reforms are geared toward institutional strengthening and coordination to establish structures, including at the local level, conducive to the implementation of spatially differentiated actions and interventions.

There are five national-level reforms: (1) strengthening of local governance; (2) greater integration with South Africa; (3) integration of climate and disaster risk into economic planning; (4) improvement of the business environment; and (5) the building of Lesotho's statistical and spatial data capacity for evidence-based policy formulation and implementation.²

Recommendations for spatially targeted reforms cover three categories for each quadrant (table E.1): (1) access to services, (2) economic opportunities, and (3) climate resilience. The recommendations reflect the development challenges confronting each quadrant. With respect to access to services, for example, the urban lowlands should focus on livability, while the urban highlands should focus on access. On economic opportunities in rural areas, the focus in the lowlands is on supporting agricultural productivity, while the highlands require non-network solutions, as these areas do not have economies of scale for traditional service extension. To ensure implementation of the recommendations, they include expected timeframes in short term (ST, one year), the medium term (MT, two to three years), and the long term (LT, more than three years). Also, all recommendations are aligned with the CPF and/or the NSDP II.

² National-level reforms are described in more detail in chapter 4.

Table E.1. Summary of Spatially Differentiated Recommendations

Spatial Orientation	Urban Lowlands	Urban Highlands	Rural Lowlands	Rural Highlands
At a glance	Popn share: 26.5% GDP share: 66.5% Land area share: 2.6% Popn density: 801 persons/sqkm (p/sqkm)	Popn share: 2.8% GDP share: 0.3% Land area share: 0.5% Popn density: 465 p/sqkm	Popn share: 39.2% GDP share: 10.0% Land area share: 20.1% Popn density: 152p/sqkm	Popn share: 31.5% GDP share: 23.2% Land area share: 76.9% Popn density: 32 p/sqkm
Territorial characteristics (based on 4D analysis)	High density Low–medium distance Low–medium disparity High disaster risk of floods	Medium density Medium distance Medium disparity High disaster risk of urban floods and deep snow	Low–medium density Low–medium distance Medium–high disparity High disaster risk of droughts	Low density High distance High disparity High disaster risk of deep snow
Locations	Maseru City (Maseru District), Hlotse and Maputsoe (Leribe District), Teyateyaneng (Berea District), Mafeteng (Mafeteng District), and Mohale's Hoek (Mohale's Hoek District)	Thaba-Tseka Town (Thaba-Tseka District), Quthing/Moyeni (Quthing District), Butha-Buthe Town (Butha-Buthe District), and Qacha's Nek Town (Qacha's Nek District).	Rural areas outside lowland cities and towns in Maseru District, Leribe District, Berea District, Mafeteng District, and Mohale's Hoek District	Rural areas outside highland towns in Thaba-Tseka District, Quthing District, Mokhotlong District, Butha-Buthe District, and Qacha's Nek District.
Recommendations				
Improve access to services with a focus on . . .	ST/MT. . . livability, by strengthening the access to and quality of services in lowland cities and towns. Prioritize extending provision of lower cost services to underserved neighborhoods, and support low-carbon emission urban development.	ST/MT. . . a minimum level of livability in highland towns, as they have the highest populations within the districts and serve as nodes to improve services in the rural highlands. Improve access to neighborhoods where service extensions will be most cost effective.	MT. . . agricultural production and other key economic activities (e.g., mohair production, livestock management), based on population density, which is usually driven by proximity to urban lowlands.	MT. . . non-network solutions (e.g., mobile vans providing health care and education) and tourism. Explore private sector participation in service delivery (e.g., mini-grids for rural electricity).
Strengthen economic opportunities with a focus on . . .	ST/MT. . . competitiveness (particularly in export sectors), through the creation of higher value-added jobs, skills training, urban mobility for access to jobs, and greater private sector participation to push job creation.	MT. . . market access through improved connectivity and exploration of value chains that could be linked to the lowlands cities and towns, as well as the rural hinterland (particularly for off-farm agricultural jobs).	ST/MT. . . rural-urban linkages, to enable the movement of agricultural products and raw materials to other parts of the country for consumption and/or value addition.	MT/LT. . . selected sectors that are the most lucrative in the rural highlands (e.g., tourism, hydropower, horticulture).
Invest in climate resilience with a focus on . . .	ST/MT. . . with a focus on protecting people and assets, given the high population and GDP concentration. Prioritize risk-sensitive urban planning, flood defenses, and nature-based solutions to mitigate the impact of urban floods.	MT. . . sufficient flood resilience and the safeguarding of critical connective infrastructure to avoid isolation during deep snow. Prioritize risk-sensitive urban planning as well as emergency preparedness and response (EP&R) with respect to urban floods and deep snow.	ST/MT. . . the agricultural sector, through climate-smart agriculture, the use of drought-resistant seed varieties, and well-functioning irrigation systems to counter the risk of droughts.	MT/LT. . . critical connective infrastructure to ensure access to highland towns and/or other parts of the country. Prioritize community-driven early warning systems (EWSs) and EP&R for deep-snow emergencies.

Note: Because the elevation gradient causes some districts to fall under both lowlands and highlands, the categorization presented here is general rather than absolute. Semonkong, for example, a major tourist destination in Lesotho, is in Maseru District but is best classified as rural highland.



Introduction

1.1. Lesotho Economic and Poverty Profile

Lesotho, a small landlocked country of two million people, is one of the poorest in Southern Africa. Although it is categorized as a lower-middle-income country with a per capita gross domestic product (GDP) of US\$999.70, poverty varies substantially across it—a variation not captured by the national poverty rate of 49.7 percent in 2017.³ Because economic activities are concentrated and service delivery is cost effective, urban areas fare better than rural ones in terms of poverty rates and access to services. At the same time, the numbers of urban poor are growing, as people from rural areas migrate to cities and towns for better opportunities.

Economic growth is expected to pick up in 2023 due to internal factors. Of particular importance are the construction of Phase II of the Lesotho Highlands Water Project⁴ and associated spillover effects in the services sector. Also, likely to contribute to higher growth is the improved outlook for rough diamonds⁵ in response to an expected prolonged worldwide supply shortage, resulting from sustained demand, that will boost the crucial mining sector.⁶ Growth is estimated at 2.6 percent in the 2023 calendar year, 3.1 percent in 2024, and 3.3 percent in 2025.

Even with the prospect of raised economic growth, Lesotho remains in the top 20 percent of the most unequal countries in the world,⁷ although it has become less unequal than its neighbors. In addition to high inequality of outcomes, Lesotho faces high inequality of opportunity and relatively low intergenerational mobility. Maps 1.1 and 1.2 compare GDP concentration and population concentration throughout the country. They show how GDP is much more concentrated in urban areas relative to the distribution of the population. This is particularly true for Maseru City, Lesotho's capital, which has 17 percent of the country's population but 64 percent of GDP, showing strong agglomeration economies there.

Economic diversification is needed in Lesotho to reduce the unequal distribution of economic activity. Interviews with officials from the Lesotho National Development Corporation (LNDC) confirmed that economic diversification leading to more value-added production within Lesotho is a policy goal, especially within sectors like agriculture. This has proved challenging because of structural constraints, however, which LNDC and others have identified as lack of institutional capacity, lack of industrial focus, inadequate governance characterized by a poor policy and legal environment, and a lack of access to basic services that affects manufacturing capacity. To address them, LNDC's objectives include creating a better business environment, improving institutional capacity, improving infrastructure, improving the use of data, and introducing green investment practices.⁸ As part of efforts to reduce the structural constraints on its economy, Lesotho is attempting to transfer powers to local government from the central government. These efforts to introduce decentralization were begun but have stalled.

Another challenge to Lesotho's economic development is growing pressure on service provision as the country's current population of 2 million rises to a forecast 2.3 million by 2036. Maps 1.3 and 1.4 compare population density in 2022 with expected population density in 2036 by district. The darkest colored districts have the densest populations. Those on the western side—Maseru, Berea, and Leribe—are in the lowlands and have the most urbanized towns. Given the decrease in density the figures show for rural areas in the southwest, coupled with the expected growth in population, people will be even more concentrated in Maseru and the neighboring industrial districts by 2036.

3 The latest available household survey to measure poverty officially dates back to 2017/18. The national poverty line corresponds to LSL 648.88 (2017 prices) per adult equivalent per month.

4 The Lesotho Highlands Water Project is an ongoing undertaking comprising a system of dams and tunnels to supply South Africa with water from Lesotho.

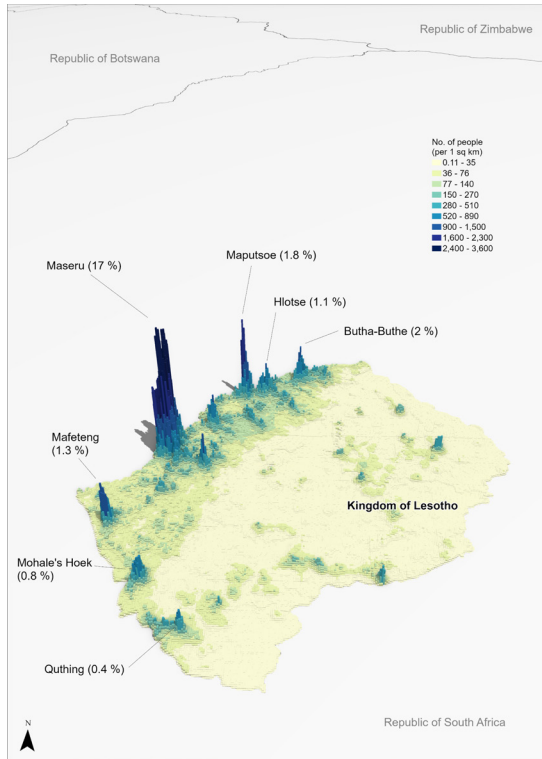
5 World Bank Lesotho Overview.

6 Bain and Company, <https://www.bain.com/insights/a-brilliant-recovery-shapes-up-the-global-diamond-industry-2021-to-22/>.

7 How Lesotho, one of the world's most unequal countries, became a lot more equal – World Bank article: <https://blogs.worldbank.org/african/how-lesotho-one-worlds-most-unequal-countries-became-lot-more-equal#:~:text=Duepercent20topercent20apercent20largepercent20urban,unequalpercent20countriespercent20inpercent20thepercent20Dworld.>

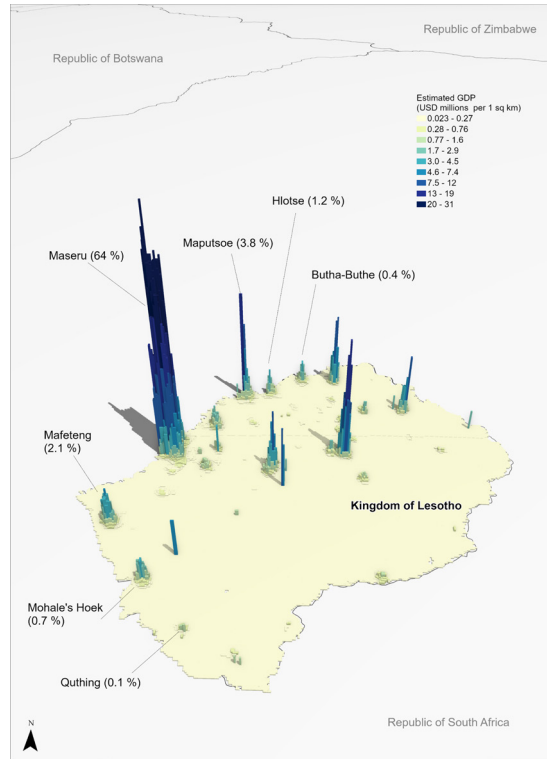
8 LNDC Strategy 2023/24-2027/28.

Map 1.1. Population Density in Lesotho



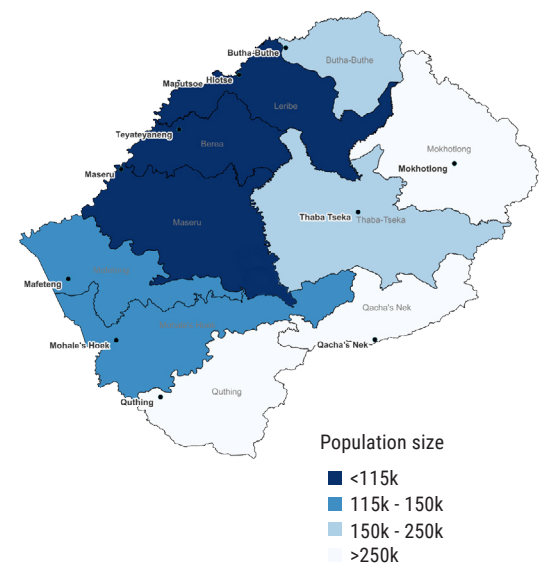
Source: World Pop. 2020.

Map 1.2. GDP Concentration in Lesotho



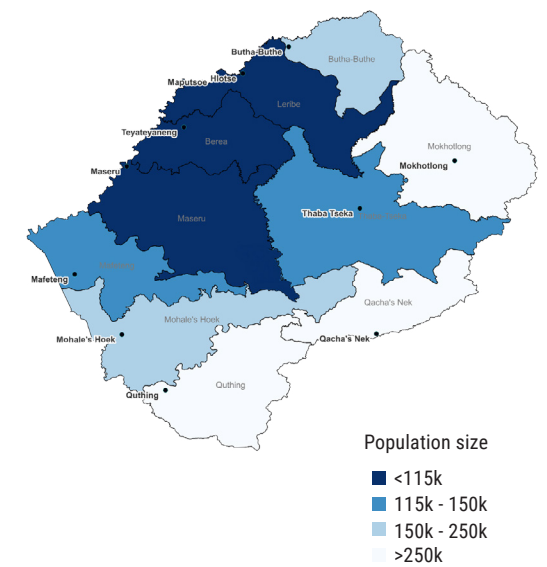
Source: Chen et al. 2019.

Map 1.3. Population Density, 2022

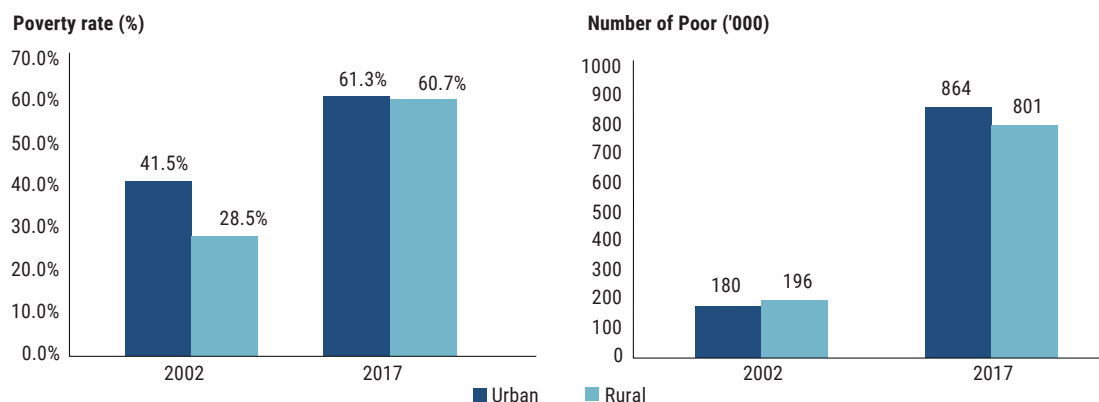


Source: Lesotho Bureau of Statistics.

Map 1.4. Expected Population Density, 2036



Source: Lesotho Bureau of Statistics.

Figure 1.1. Poverty Rate versus Number of Poor

Source: Mapping Subnational Poverty in Lesotho in 2017/18, WB and Lesotho Bureau of Statistics.

Note: Poverty measured at the official national poverty line.

Within the wealthier urban areas, rapid expansion resulting from migration has exacerbated poverty. The decline in Lesotho's poverty rates that occurred between 2002 and 2017 happened in urban areas, particularly Maseru, dropping from 41.5 percent to 28.5 percent in the cities and towns (based on the national poverty line) while remaining the same or rising in rural foothills, rural mountains, and the Senqunyane river valley area. The absolute number of poor, however, actually increased in urban areas from 180,000 to 196,000 because of internal migration to urban areas but decreased in the rural and mountainous areas from 864,000 to 801,000, implying a gradually increasing *urbanization of poverty* as the general population shifts to being more urban (figure 1.1). Given the changes in population distribution and density discussed in section 1.1, above, this trend will likely continue.

Contributing to increasing urban density are climate events, which are potential push factors for predicted internal migration to cities as food insecurity becomes more acute in rural agricultural areas. In 2019, more than 400,000 people in rural areas (or 20 percent of the rural population) were affected by drought.⁹ The lowlands in the west and south in their entirety are highly vulnerable to drought, with some areas in the northwest and southwest lowlands identified as high risk. At the same time, the growing population in urban areas, particularly the poor, are endangered by increased flooding. As the climate has become more variable, the frequency and severity of weather events have increased and had material impacts on the economy, the public finances, livelihoods, poverty, and inequality.

9 UN Central Emergency Response Fund (CERF) (2019). Lesotho Drought Situation Update.



1.2. Working toward Strategic Priorities

The territorial development approach and analysis presented in this report respond to three different sets of strategic priorities. These represent, first, the objectives of the territorial development approach, as summarized below and discussed in greater detail in section 2.1. The approach additionally offers an effective development planning tool to address Lesotho's development challenges, as described in the Country Partnership Framework (CPF) for FY24-28 and the extended Second National Strategic Development Plan (NSDP II).¹⁰

Finally, the territorial development approach will aid in the identification of a mixture of spatially agnostic and spatially differentiated reforms and investments to improve development planning in Lesotho. This report will introduce a customized 2x2 framework for Lesotho that is designed to help stakeholders think about resource allocation in terms of what should be done where. Along with the analysis that supports it, the framework will facilitate the shaping of responses to the strategic priorities presented above.

The next chapter discusses how a customized approach was developed for Lesotho, while a detailed definition of the territorial development approach and an account of how it has worked in other countries are available in the annex.

¹⁰ That is, to achieve inclusive, sustainable, and equitable growth and create private sector-led employment for Basotho.

Territorial Development Framework and Analysis in Lesotho



2.1. Bringing the Territorial Approach to Lesotho: The 2x2 Framework

The two main objectives of the territorial development approach are, first, to reduce inequality in living standards by enabling lagging regions to catch up to leading ones and, second, to identify opportunities for all regions to take advantage of economic potential and endowments. It is designed to help stakeholders think differently about development planning in Lesotho and to support their efforts to overcome development challenges and realize growth potential.

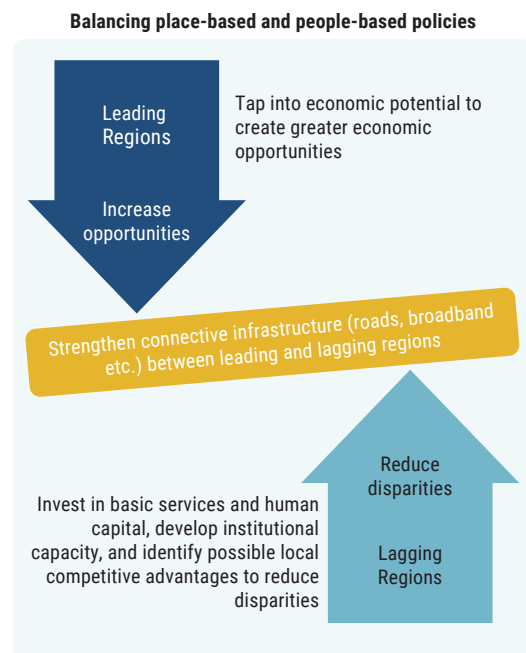
The territorial approach is also an important tool for ensuring a balance between people-based and place-based policies. Figure 2.1 provides a snapshot of how the territorial approach can be used to balance people- and place-based policies. Key to achieving this balance is ensuring sufficient connective infrastructure, such as roads and broadband access, to facilitate the movement of goods, labor, and knowledge between leading and lagging regions.

The first step toward developing a territorial framework in Lesotho is to define its leading and lagging areas by analyzing the variation in poverty and economic opportunity through a spatial lens (that is, by considering the strengths and weaknesses of leading and lagging regions) to inform the formulation of spatially differentiated actions and investments that offer better targeting and resource allocation through well-thought-out sequencing. The spatially differentiated actions should be consistent with actions at the national level that enable implementation through institutional strengthening.

Lesotho’s topography seems to be a driver of “lagginess”—that is, the extent to which districts and their constituencies lag leading areas. Constituencies are smaller regions within districts, and analysis at this level provides more granular insight than at the district level. Map 2.1 was created by overlaying a constituency-level poverty map based on data from the Lesotho World Bank Poverty Assessment with a digital land elevation model.¹¹ The result shows a strong relationship between elevation (shaded areas in the map are higher) and poverty rates (darker-colored areas are poorer). As elevation increases from lowlands to foothills to highlands, population density generally decreases, and access to services and infrastructure, including connective infrastructure such as roads and broadband, tends to drop.

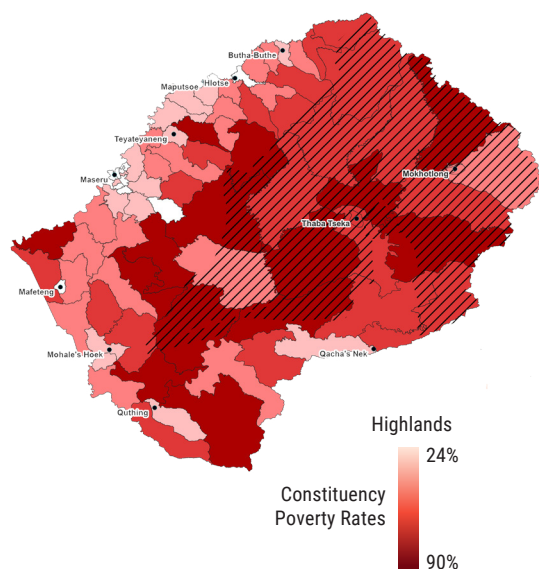
The differences in access to services based on Lesotho’s geography and urban and rural variations are particularly striking. Service delivery is best in the urban areas in the lowlands, followed by urban areas in the highlands, and then rural areas. The rural areas of the highlands, which have the highest costs for service provision and the lowest connectivity,

Figure 2.1. Snapshot of the Territorial Approach



¹¹ Mapping Subnational Poverty in Lesotho 2017/18, produced by World Bank Poverty team with Lesotho Bureau of Statistics, digital elevation model sourced Regional Center for Mapping of Resources for Development, Lesotho DEM 2023 <https://rcmrd.org/en/>.

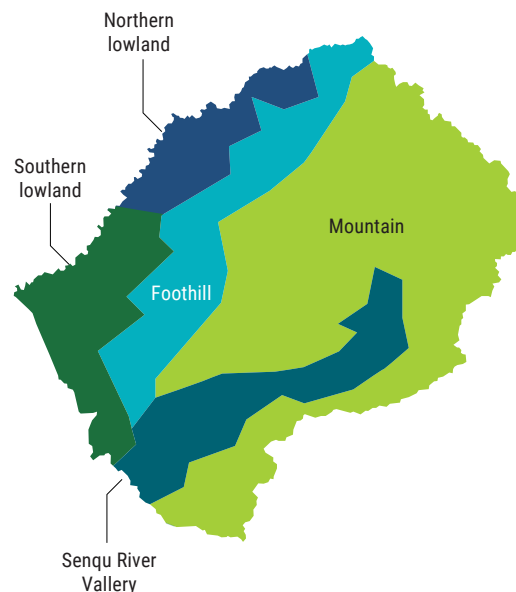
Map 2.1. Relationship between Poverty and Land Elevation in Lesotho



Source: World Bank Poverty Group data and World Bank staff calculations.

Note: Poverty measured at the official national poverty line.

Map 2.2. Lesotho Ecological Zones



have the worst service delivery rates in the country. An illustration of the effect of geographical barriers is Thaba-Tseka, Lesotho's most lagging district in terms of poverty. Although Thaba-Tseka is actually next to Maseru, Lesotho's leading district, it mostly does not benefit from the economic opportunities in Maseru. The Senquyane River at its border and its highly mountainous terrain create economic distance between Thaba-Tseka and both Maseru and the commercial border with South Africa.

Topography, in addition to being a driver of development, seems to be a key determinant of the country's ecological areas, along with the river system. These ecological zones (also shown in map 2.2), are defined as lowlands (northern and southern), foothills, mountains, and the Senquyane River Valley.

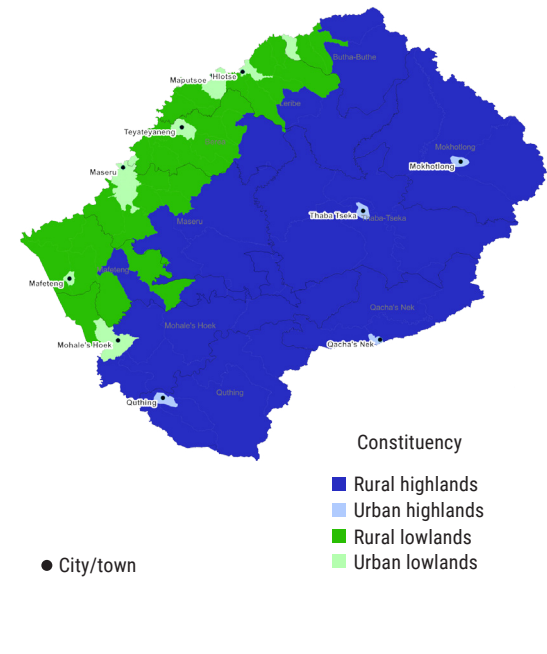
Combining the poverty and elevation overlays with the ecological zones suggests the country has two separate major divides: lowland-highland and urban-rural. The lowland-highland divide is driven by topography and the related issues of connectivity, while the urban-rural divide is driven by factors like economic density and access to basic services and infrastructure.

These ecological, topographical, and economic distinctions permit the identification of four distinct zones or quadrants on which can be based the development of a customized 2x2 territorial framework for Lesotho. Lagging and leading areas are defined in terms of, first, lowlands and highlands (including, for ease of analysis, the foothills and the Senquyane River Valley), wherein lowlands are leading and highlands are lagging; and, second, urban and rural areas, wherein urban areas are leading and rural ones are lagging. The four quadrants identified for the territorial development analysis are urban lowlands or lowland cities and towns; urban highlands or highland towns; rural lowlands; and rural highlands.

The combined effects of the lowland-highland and urban-rural divides (discussed in chapter 3) result in designation of the urban lowlands as the leading region and the rural highlands as the most lagging. The dynamics between them are interesting, with the urban-rural divide more pronounced than the lowland-highland divide. This means that, in general, the urban highlands perform better than the rural lowlands on poverty and economic metrics.

Map 2.3 presents the 2x2 framework in terms of geography. The lowlands are marked in green, with dark green indicating rural and light green urban areas. The highlands are depicted in blue, with dark blue rural and light blue urban. The framework itself is presented in figure 2.2, with key population and GDP statistics presented for the four quadrants. Together, the lowlands (both urban and rural areas) constitute 22.6 percent of the country's land area but are home to 65.7 percent of the population and generate 76.5 percent of GDP (of which 62 percent is generated directly by Maseru City). The highlands constitute 77.4 percent of the country's land area, are home to 34.3 percent of the population, and generate 23.5 percent of GDP.

Map 2.3. Lesotho 2x2 Framework in Terms of Geography



A few points should be noted with respect to the geographical representations in maps 2.2 and 2.3. First, since official city extents for lowland and highland towns are not defined or available, satellite imagery was used to define their areas. Second, some districts in Lesotho could span more than one quadrant. The elevation gradient, for example, might cause a district to fall under both lowlands and highlands. Maseru District, for instance, which is largely considered a lowland district, also includes the tourist destination of Semonkong, which is best classified as rural highland. For ease of analysis and interpretation of results, districts are here assigned to one quadrant or another, with key exceptions, like Semonkong, noted.

Figure 2.2. The 2x2 Framework

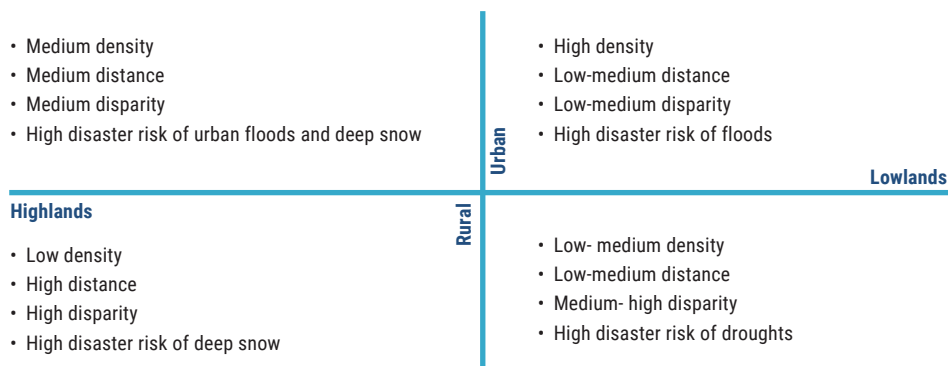
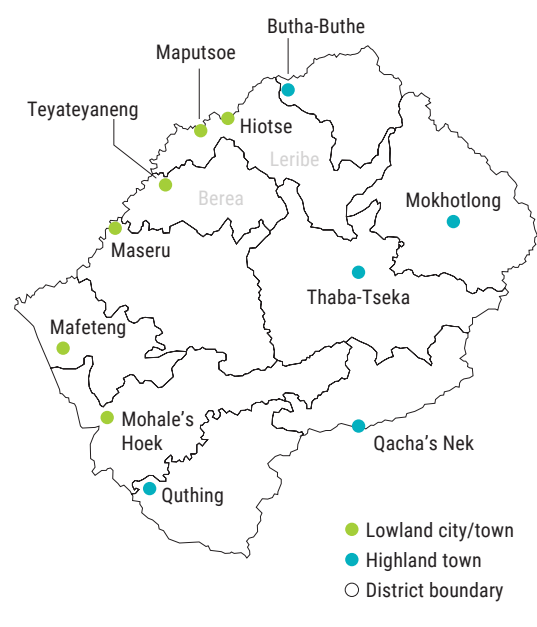


Table 2.1. Key Locations in Each Quadrant

Quadrant	Border	Non-Border	Type of Rural Settlement
Urban lowlands	Maseru (primary city) Butha-Buthe Town Hlotse Town Maputsoe Mafeteng Town Mohale's Hoek Town	Teyateyaneng	N/A
Urban highlands	Thaba-Tseka Town Quthing Town Qacha's Nek Town	Mokhotlong Town	N/A
Rural lowlands	Rest of Butha-Buthe Rest of Leribe Rest of Mafeteng Rest of Mohale's Hoek	Rest of Berea	Small rural towns Rural settlements/villages
Rural highlands	Rest of Thaba-Tseka Rest of Quthing Rest of Qacha's Nek	Rest of Mokhotlong	Small rural towns Rural settlements/villages

The locations of the country's key urban and rural areas in each quadrant are represented in table 2.1, with key towns also shown in map 2.4. A distinction is made between towns on the border and towns not near the border (non-border towns) because of the importance of connectivity with South Africa in determining development outcomes.

In the next chapter, deeper analysis will supplement the 2x2 framework presented here, enabling the identification of policy reforms and investments to spur economic growth and development in Lesotho. While the 2x2 framework is designed to furnish a high-level overview of leading and lagging regions in Lesotho, the more granular analysis in chapter 3 will support the development of recommendations by providing a better understanding of the spatial characteristics and underlying constraints of each of the quadrants.

Map 2.4. Location of Urban Areas in Lesotho



Analyzing Lesotho's Challenges with a Territorial Lens

3.1. Analysis Using the Parameters of Density, Distance, Disparity, and Disaster Risk

Challenges to economic growth and development in Lesotho continue to be significant. The 2021 Systematic Country Diagnostic (SCD) Update that built on the 2015 SCD proposed a reorientation of Lesotho's growth model away from public-led consumption toward a private sector-led economy. Continued lack of access to basic services, however, and a lack of investment in infrastructure and skills have prevented the private sector from adding value and stimulating inclusive growth. The analysis in this report seeks to reveal the underlying development challenges by region and by constituency to generate spatially targeted recommendations for the 2x2 framework.

Based on the challenges and desired outcomes stated above, the territorial development analysis focuses on four key issues:

- Lack of economic opportunities
- Lack of internal connectivity and integration with South Africa
- Lack of access to basic services
- Lack of preparedness for climate events

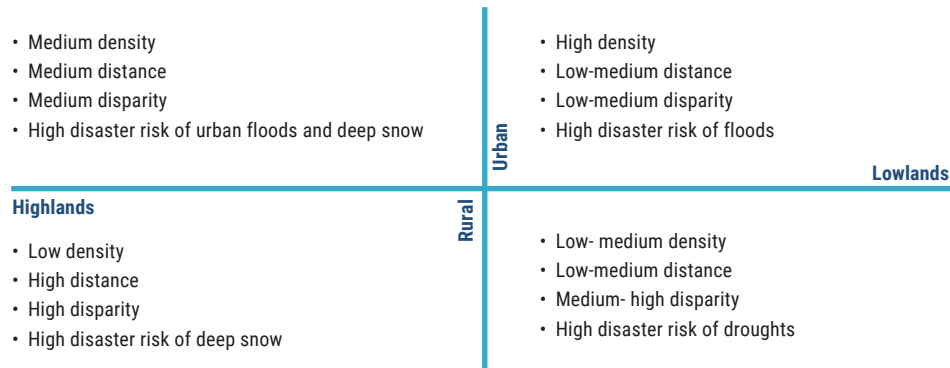
These challenges will be further assessed using four parameters: *Density, Distance, Disparity, and Disaster Risk*, or the “four Ds.” These support the development of a more granular spatial analysis at the Lesotho constituency level (one administrative level below the district) that shows the *extent* to which different parts of the country lag within and across the areas defined in the 2x2 framework. Figure 3.1 below shows the relationship between the 2x2 framework and the 4Ds.

The four “D” parameters are defined as follows:

- *Density* measures the concentration of economic activity in each constituency.
- *Distance* measures the economic distance of each constituency from major urban centers, evaluating the level of internal connectivity and integration with South Africa.
- *Disparity* measures the level of access to services, both as an agglomerated measure and broken out into levels of access to electricity, secondary education, sanitation, and piped water.
- *Disaster risk* measures the risk of exposure to disruption and disaster from climate-related events. The most comprehensive data currently held are on flood risk, so maps developed by World Bank staff have incorporated these data. Supplemental mapping, produced by the Southern Africa Drought Resistance Initiative, is available on drought risk. More information is needed on increased incidents of heavy snow in the highlands and on landslides, as reported to World Bank staff by multiple government agencies while on mission.

Data on each of these four D parameters have been used to produce constituency-level maps that identify leading and lagging regions based on relative performance. The maps summarize how each constituency scores on each parameter, providing its relative ranking within Lesotho. Each map is normalized to obtain a value between 0 and 100. A lower score, shown on the maps in a lighter color, indicates a region that is leading relative to the overall distribution of constituencies.

An advantage of the “four-D” (abbreviated here as “4D”) analysis is that it demonstrates the relationships of the challenges in each area with those in the others. Lack of access to services, for example, such as water and electricity, has a

Figure 3.1. Relationship between the 2x2 Framework and the 4Ds

knock-on effect on economic opportunities, as it limits options for adding value and raising incomes in the area. Efforts to improve, say, tourism will be hindered by lack of electricity to power hotels, as currently happens in Semonkong. This chapter will demonstrate the interplay of development challenges by combining the various territorial analyses in section 3.1.5 and presenting them in maps 3.12 and 3.13. Map 3.14 will combine all four analyses into a 4D index that identifies leading and lagging areas across all four development challenges.

3.1.1. Density, or how to address the lack of economic opportunities

“Density” refers to economic density, or how concentrated GDP is over a particular geographical area. It represents the level of output per unit area analyzed and, therefore, represents both economic activity in the area and the income generated therein. Density is the hallmark of urban areas—that is, cities and towns—where the geographical concentration of both capital and labor is higher than in rural areas. For this reason, economic density is correlated with both population density and jobs. Rural areas, which are less dense, can also make a significant contribution to the economy as well. The mining industry is an example of a concentrated area of economic activity in a rural area (Box 3.1). Rural agriculture on the other hand is a key example of a significant economic contribution made cumulatively over a larger, less dense area (see Box 3.2).

The capital, Maseru City, is home to 17 percent of the country’s population but generates 62 percent of the national GDP. This is neither surprising nor undesirable; primary cities typically benefit from spatial efficiencies and strong agglomeration economies to generate a significant portion of national GDP. At the same time, beyond Maseru City and its surrounding industrial area in the neighboring Berea District, economic density declines sharply. Analysis shows that Lesotho’s urban system in terms of economic density comprises one strong primary city and weak secondary towns. This indicates uneven urban growth, as well as room to strengthen a few key towns that could act as anchors of economic growth in Lesotho’s districts. This strengthening of selected towns to promote growth, however, should not come at the cost of Maseru City, where market forces¹² and proximity to South Africa have interacted to deliver economic growth and jobs.

12 These market forces can be understood in terms of agglomeration economies, specialization in value chains like those for garments, and migration from rural areas, as well as from highland towns.

A territorial analysis of economic density across Lesotho was developed for this analysis using data on “night-time lights intensity.” NTLI uses remote sensing technology to help map out the level and extent of human economic activity. Such activity is particularly discernible in urban areas, where a higher intensity of nighttime lights indicates greater economic density. The analysis for Lesotho presented in map 3.1 is based on the NTLI data (DMSP/OLS and NPP/VIIRS images)¹³ from Chen et al. (2019).

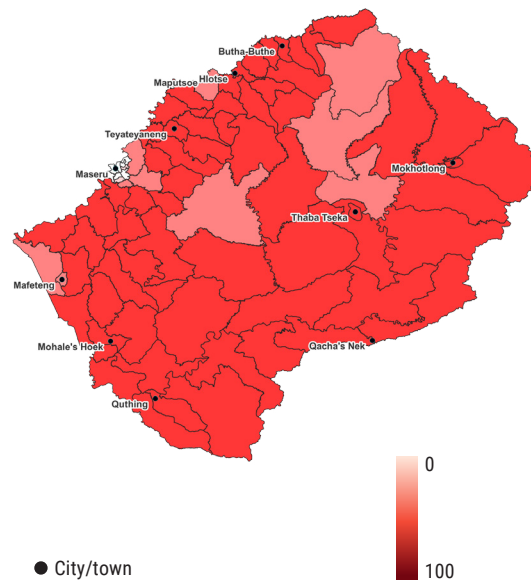
The density map (map 3.1) is designed so that economic density decreases as one moves from lighter to darker areas. Given its economic significance, only Maseru City and its surrounding areas are white. The rest of the country appears red, with little variation. The lighter areas within the red areas are more economically dense than the darker ones, but, overall, they are much less dense than Maseru City.

The analysis of territorial density is complicated by the availability of data only down to the constituency level.

The lack of city- or town-level data makes it impossible to pinpoint economic density more precisely. In addition, except for Maseru City, the administrative structure related to towns is undefined. In fact, to help capture the urban-rural divide for the purpose of this analysis, the town limits had to be determined by using satellite data to examine the extent of settlement building to allow for some distinction between each town and the remainder of its district. Given the crucial role urban areas play in economic activity, however, one can assume that the presence of key secondary towns and industrial activity make the lighter-red areas relatively economically dense. Table 3.1 indicates that Hlotse, the capital of Leribe District, together with Maputsoe on the border with South Africa, contributes 8.4 percent of the national GDP. Mafeteng Town, which is also in a constituency bordering South Africa, contributes 1.3 percent of GDP. Each of the other towns contributes less than 1 percent of national GDP, indicating weak density and few opportunities for economic growth.

It is possible that the GDP contribution of highland towns like Thaba-Tseka Town or Qacha's Nek Town is undercounted because of the limitations of the NTLI methodology, which relies on electrification rates and generally underestimates GDP related to agriculture. The economic role of the highland towns may be undercounted in the analysis because of lower rates of electrification and access to energy in Lesotho's highlands (see section 3.1.3). Also contributing to this effect may be the closer relationship between highland towns' economies and the rural highlands compared to that between the urban and rural lowlands. It is important to remember that, despite their low density, the highland towns offer some economies of scale in terms of both economic activities and costs of service delivery. Their economic importance could be strengthened by improving their connectivity to Maseru City and/or parts of South Africa. The highland towns will, therefore, remain essential to the economic growth of their respective districts, as well as to the extension of services to rural highlands—which have the lowest populations and economic densities—whether as bases for mobile service delivery or as places for rural highlanders to travel or migrate to in search of better services, like health care and education.

Map 3.1. Density of Economic Activity



Source: World Bank staff calculations using Chen et al. (2019) calibrated nighttime lights data (DMSP/OLS and NPP/VIIRS images).

13 Defense Meteorological Satellite Program/Operational Linescan System and National Polar-Orbiting Partnership/Visible Infrared Imager Radiometer Suite.

Box 3.1. Economic Density Outside the Urban Lowlands: Diamond Mining in Lesotho

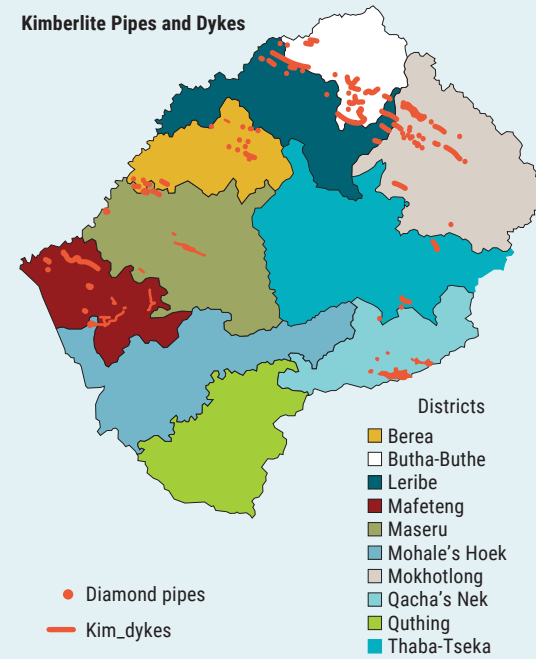
Diamond mining accounts for 41.9 percent of Lesotho's exports by value (see chapter 1). Map B3.1.1, which illustrates the locations of deposits of diamond and kimberlite (a mineral that can contain diamonds), shows the greatest concentration in the rural highlands in the north of the country.

As shown in map B3.1.2, commercial mining takes place only in the north, where the deposits are commercially viable.

The presence of the diamond mines helps explain the higher economic density of northern constituencies, as shown in map 3.1. Those same constituencies also have greater access to electricity and sanitation and higher levels of secondary school completion than neighboring constituencies (maps 3.5, 3.7, and 3.6). The combined 4D index (map 3.14) shows that the constituency containing the mines ranks closer to the urban lowlands than its neighboring rural highland constituencies. While the activity of the mines raises the aggregate rating of the whole constituency, however, this should not be taken to mean that economic benefits are widely felt in the constituency beyond the mines themselves.

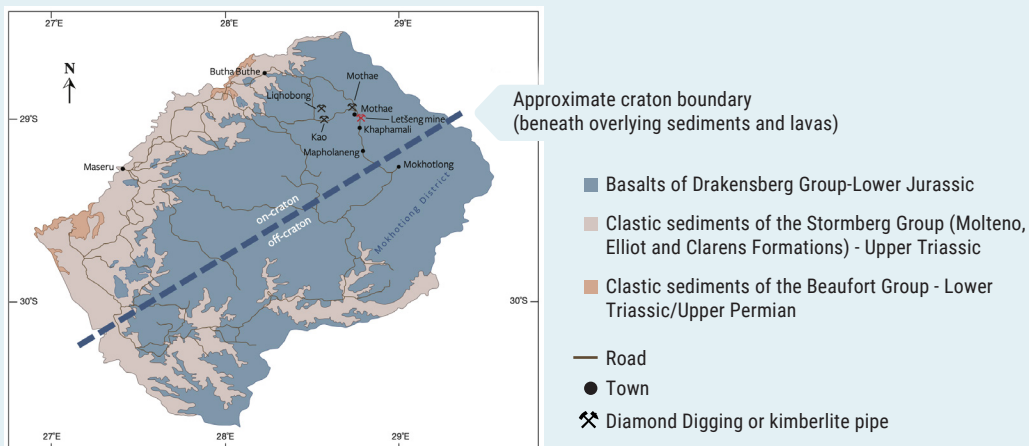
Diamonds in Lesotho are transported by air to South Africa directly from the mines, with some potential to add value in initial processing before they are moved.

Map B3.1.1. Kimberlite and Diamond Deposits in Lesotho



Source: Lesotho Ministry of Mines.

Map B3.1.2. Diamond Mines in Lesotho



Source: GIA 2010.

Table 3.1. City and Town Contributions to Lesotho's GDP

District	Anchor City	Population	GDP Concentration (percent)	Population Concentration (percent)
Table				
Maseru	Maseru City	376,321	62	17
Leribe	Maputsoe	84,080	5.7	3.8
Leribe	Hlotse	26,551	2.7	1.2
Mafeteng	Mafeteng	28,781	1.3	1.3
Mohale's Hoek	Mohale's Hoek	17,710	0.7	0.8
Berea	Teyateyaneng	31,200	0.4	1.4
TOTAL		564,643	72.8	25.5
Highland towns				
Butha-Buthe	Butha-Buthe Town	44,273	0.4	2
Mokhotlong	Mokhotlong Town	10,023	<0.1	0.5
Quthing	Quthing/Moyeni	8,854	<0.1	0.4
Qacha's Nek	Qacha's Nek Town	8,200	<0.1	0.4
Thaba-Tseka	Thaba-Tseka Town	5,900	<0.1	0.3
TOTAL		77,250	<0.8	3.6

Source: Chen et al. 2019, except for population, which is from 2020 WorldPop.

Recommendations toward increasing economic density should, therefore, concentrate on investments that increase access to services in ways that support the local economic priorities of an area. In the urban areas this means concentrating manufacturing or processing capacity, while in rural areas it means enabling more commercialized agriculture and ensuring a minimum level of services. Connectivity between urban and rural areas and between urban highland areas and their immediate rural vicinities is also key to linking economic activity. Investments in these areas would help promote private sector-led growth.

3.1.2. Distance, or addressing internal connectivity and integration with South Africa

“Distance” refers to economic distance, or how connected an area is to a large population center. The parameter represents how easily areas are connected to the benefits of economic activity and growth. The greater the economic distance from a center of economic activity, the more likely the area is to lack access to basic services and be less economically dense (see Box 3.3).

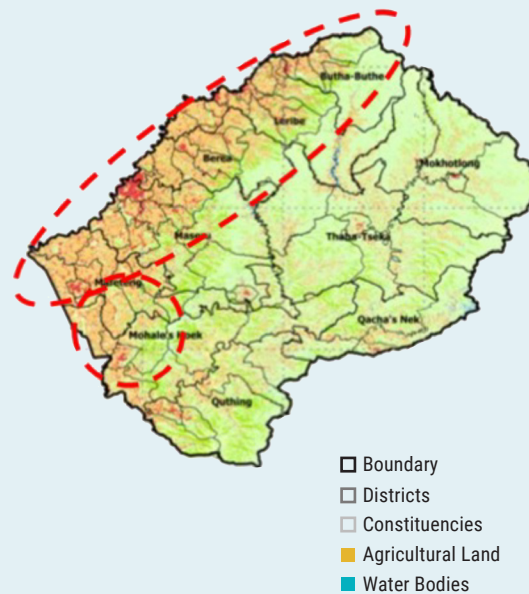
Box 3.2. Economic Density versus Economic Contribution: The Case of the Rural Lowlands

The rural lowlands of Lesotho lack economic density, but as the country's primary agricultural areas they still have an important role to play in its economy. According to World Bank estimates, the agricultural, forestry, and fishing sector contributed 5 percent to GDP in 2022 and employed 44 percent of the country's workforce.

Map B3.2.1 shows the land in Lesotho, in brown and circled in red, that qualifies as agricultural, according to World Bank calculations. It comprises 19 percent of all land in the country. Almost all of the agricultural land is concentrated in the lowlands, and 72 percent is concentrated in five districts. This concentration indicates there may be room to strengthen urban-rural linkages, particularly as they relate to off-farm agricultural jobs—for example, in terms of value addition and processing of raw agricultural products in lowland towns.

Opportunities exist to raise farmers' efficiency, enabling them to engage in commercial horticultural farming and meet the demand of supermarkets in urban areas. This could be achieved either by expanding the activities of those who have enough land or by establishing partnerships among farmers so they can achieve sufficient scale and take advantage together of any improved enabling financial products and infrastructure services, such as access to water and electricity. Currently, most fresh produce sold in urban supermarkets is imported. Investments that enable farmers to produce crops more reliably, store them for longer periods of time without spoiling, and transport them more cheaply would raise levels of trade between the rural and urban areas within the country.

Map B3.2.1. Lesotho Agricultural Productivity Map



Source: FAO 2020.

Note: Agricultural land is circled in red.

The proximity to South Africa is key to Lesotho's economic performance, but it also exposes Lesotho to vulnerabilities. Lesotho is highly dependent on access to South Africa's economy through the commercial border posts between the two countries. Connectivity on both its western and eastern borders is better than internal connectivity between the more prosperous west and the poorer east of Lesotho. The country's topography makes improvement of internal connectivity a challenge, but in the event of closed borders, as happened during the COVID-19 pandemic, the lack of internal connectivity is exposed as a key vulnerability, with economic distance on the eastern side of the country increasing dramatically.

A territorial analysis of economic distance was conducted for this report using data from Resource Watch, which compiled travel times in 2015. Two maps were developed covering two scenarios: one in which the borders are closed (map 3.2), the other in which they are open (map 3.3). As distance increases from a population center of sufficient size, one moves from lighter to darker areas on the maps. The threshold for "sufficient size" is 50,000 people, assuming such a population center is sufficiently economically dense. The closed-border scenario, which uses only Maseru City as its reference point, demonstrates the effect on economic distance of a situation such as the COVID-19 pandemic. For the

Box 3.3. The Importance of Urban-Rural Connectivity for Development in Africa

Globally, 28 percent of the rural population live within one hour's travel time to a city with a population of one million or more. Another 27 percent live within an hour of a secondary (or intermediate) city with a population between 250,000 and one million, while a further 27 percent live within an hour of a town with a population of less than 250,000.^a

These global statistics are in stark contrast to the equivalent numbers for low-income countries. The proportion of rural population in low-income countries who live within one hour of a town rises to 43 percent, while another 20 percent live within two hours of a town. Only 13 percent live within an hour of a secondary city, and the proportion of population living within one hour of a city falls to 7 percent.^b

Because of this disproportion, the United Nations' New Urban Agenda^c calls for balanced territorial development policies and plans that strengthen the role of urban areas. Connectivity to urban areas is, therefore, vital. Two barriers stand in the way of African cities becoming engines of economic growth and poverty reduction. Not only do they need to generate virtuous agglomeration economies similar to those of higher-income countries by becoming more economically dense (as opposed to merely being more crowded),^d they need to overcome comparatively worse connectivity to areas where the majority of the poor live.

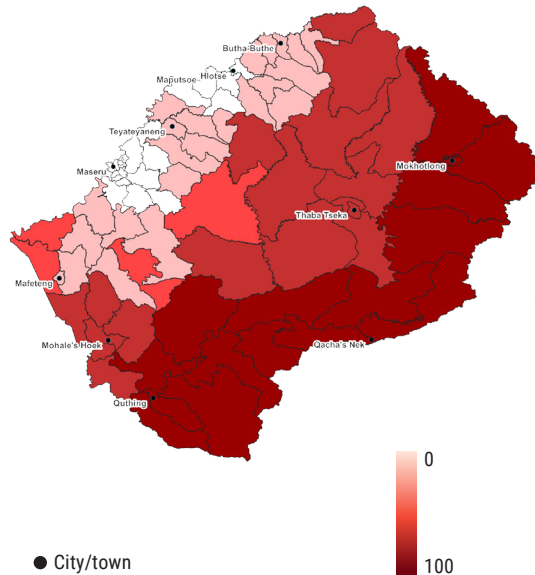
- a. Cattaneo, Nelson, and McMenomy, "Global Mapping of Urban-Rural Catch Areas Reveal Unequal Access to Services," 2021, cited in World Bank Policy Research Working Paper, De Weerd, Christiaensen, and Kanbur, "When Distance Drives Destination, Towns Can Stimulate Development," April 2021.
- b. Ibid; UN New Urban Agenda, 2017.
- c. UN New Urban Agenda, 2017.
- d. Lall, Henderson, and Venables 2017, cited in "When Distance Drives Destination, Towns Can Stimulate Development," April 2021.

open-border scenario, the city of Matatiele in South Africa is also used for measuring distance from the eastern side of Lesotho. Travel times are used as a proxy for economic distance, although the two are distinct.

When borders are closed (as in map 3.2), economic distance steadily increases from west to east as distance increases from Maseru City. Economic distance is likely exacerbated because the topography becomes more challenging for travel. As a result, the eastern part of the country becomes more economically distant from a major population center, as the travel time to the nearest one in this scenario, Maseru City, is more than three hours. Better understanding of this increase in distance is needed to facilitate crisis response preparedness in a future scenario where the borders are closed. Both these issues—increased economic distance and degraded crisis response capability in the event of closed borders—highlight the need for better internal connectivity between the east and west of Lesotho, which could reduce the dependence of the eastern side on access to South Africa and improve response times for disaster relief.

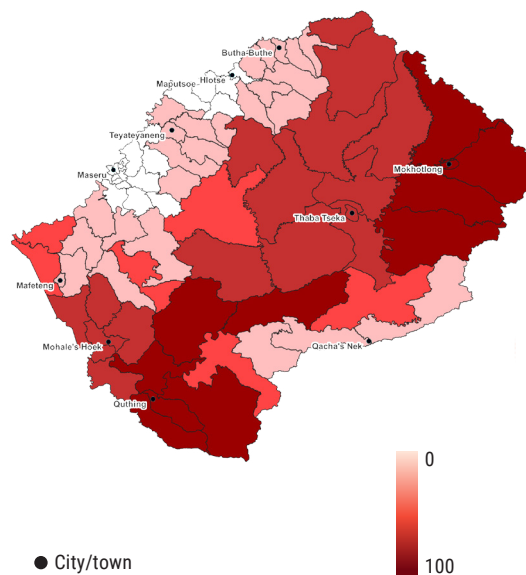
The COVID-19 pandemic highlighted the importance of distance in a crisis when the borders are closed. The loss of regional connectivity to South Africa meant Qacha's Nek District could not rely on established supply lines for access to some services and instead had to rely on internal connectivity to the western side of Lesotho, corroborating the risk identified in map 3.2. In the latter part of the crisis, 61.9 percent of the people in Qacha's Nek District struggled to buy staple grains, as compared to 32.5 percent in Maseru district and 28 percent in Leribe District. In general, the inability to buy staple grains and tubers rose with increasing economic distance— a sign of the effect distance has on food security and agriculture (see

Map 3.2. Travel Time to Nearest Major City within Lesotho (closed borders)



Source: World Bank calculations.

Map 3.3. Lesotho Travel Times with Regional Integration through Commercial Border Posts



Source: Resource Watch 2015.

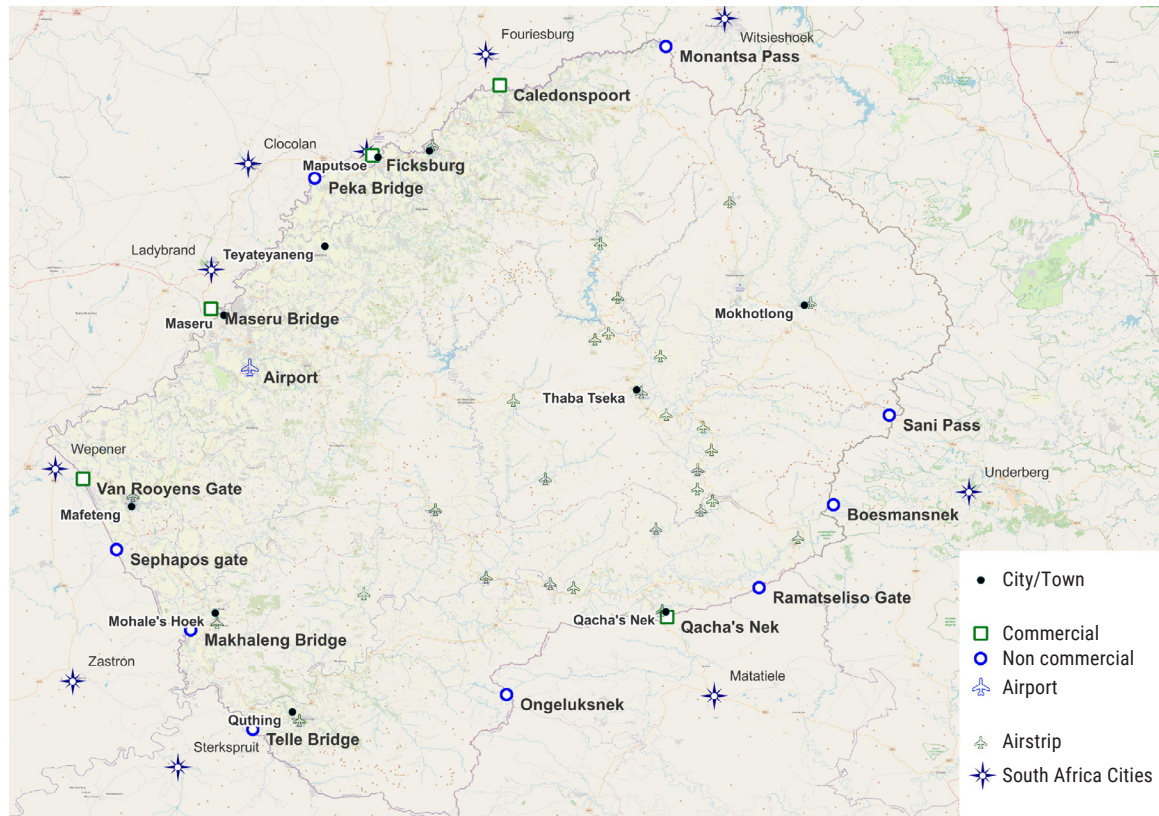
Note: Distance to the nearest city outside the country was considered for the constituencies in the east.

Box 3.4).¹⁴ The revelation of the vulnerability of Qacha's Nek in particular suggests the district should be prioritized in efforts to maximize the passage of trade through commercial border posts, with a focus on Qacha's Nek Town.

With the border crossings open, economic proximity to South African cities on Lesotho's eastern side reduces economic distance (map 3.3) and brings benefits. These are limited, however, by the single commercial border post in the east and the lack of internal connectivity between east and west. Less economic distance is clearly beneficial to the part of the country near Qacha's Nek, since it has the only commercial border post on the eastern side. This allows access to South African markets that present opportunities for trade in goods and services. The city of Matatiele, in particular, is only an hour away, much less than the three hours needed to travel to Maseru. As section 3.1.3 will show, that smaller distance to South Africa is important in terms of providing better access to services along the eastern border than in the rest of the eastern part of the country. The economic distance remains equally bad in both the closed- and open-border scenarios, however, in the rural highlands in the east and the Senqunyane river valley, limiting how far economic benefits can reach. This highlights the need for more commercial border posts on the eastern side, alongside improved internal connectivity.

There is a stark imbalance in the distribution of commercial posts on the border between Lesotho and South Africa. There are fourteen border posts between Lesotho and South Africa. Five are on the eastern side, but only one, at Qacha's Nek, is a commercial post. All four remaining commercial border posts are on the western side, which is more prosperous (see map 3.4). This is one of the drivers of the country's spatial variation in poverty rates. Lesotho is, however, dependent on agreement with South Africa to convert any of the nine remaining border posts into commercial posts or to extend

14 Lesotho Bureau of Statistics Covid 19 Survey 2020.

Map 3.4. Commercial and Noncommercial Border Posts in Lesotho

Source: World Bank analysis, SARS, SA Home Affairs.

the operating hours of the current commercial posts. Further analysis could demonstrate how more commercial border posts (starting with the eastern side) would allow for greater access to South Africa's ports, in particular the major ports of Durban and Cape Town. More options could mitigate delays in crossing through the current commercial posts, reducing the amount of time needed to get shipments to ports.¹⁵ Further analysis could also provide a better understanding of changes in internal and external migration flows triggered by improved connectivity and how they might put pressure on service provision.

The government of Lesotho may wish to engage in dialogue with South Africa to increase the number of commercial border crossings and extend the operating hours of the current crossings, where appropriate. Consideration could be given to prioritizing the conversion of the Tele Bridge border crossing near Quthing (map 3.4). It is the one closest to the Senqunyane valley—the only part of Lesotho other than the eastern highlands with a population that registers visibly on the density map (3.1) but is not close to a commercial border post. A road already exists from Quthing through the river valley and to Qacha's Nek, with only a short segment from Quthing to Tele Bridge in need of upgrading. The area is home to some of the most lagging constituencies in Lesotho, and, considering how access to the commercial post at Qacha's Nek seems to contribute to economic activity in the constituencies near it, conversion of the Tele Bridge border post may be worthwhile.

¹⁵ Conversation with officials from Lesotho National Development Corporation, January 2023.

Box 3.4. Economic Distance: The Case of Increased Connectivity for Agriculture

The rural highlands, especially in the east in Mokhotlong and the south and southwest to either side of the Senqunyane river valley, are the most economically distant parts of Lesotho (see map 3.3). Tackling this distance challenge will be key to improving the standard of living in these areas, as they also have some of the lowest levels of access to services in the country (see map 3.12).

One industry that would benefit greatly from improved physical and digital linkages is agriculture, which is under-developed, especially in the rural highlands. Currently, poor access to markets is compounded by poor infrastructure, including a lack of feeder roads in rural areas. Physical inaccessibility in turn reduces access to electricity and clean water. Moreover, remote areas are largely excluded from access to credit and investment capital, as the lack of network coverage prevents the establishment of digital solutions to poor financial access, such as M-PESA.

Alongside separate interventions in the agricultural heartlands of the rural lowlands, the improvement of feeder roads in the rural highlands would help reduce the costs of transporting horticultural produce from the rural to urban highland areas, which could also allow for some value addition from the conversion of highland horticultural produce. Berries, for example, could be made into jams and preserves that could be sold locally or on to shops in the urban lowlands.

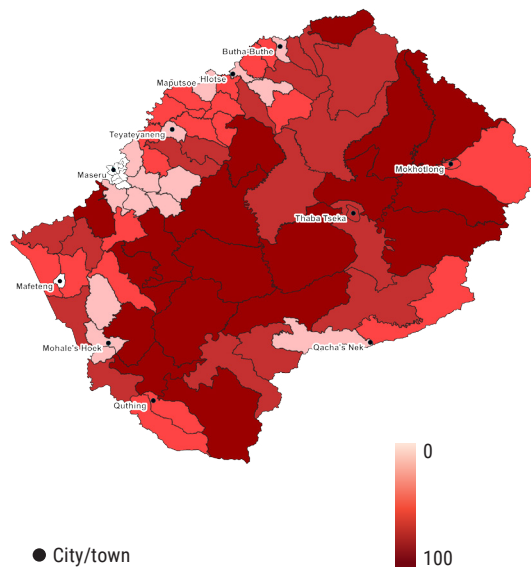
The expansion of network coverage in the rural highlands would increase digital connectivity, providing farmers with access to payment and credit services, as well as broader and more reliable communication. The intervention would include installing masts to expand coverage, with subsequent efforts to widen sustainable mobile phone usage in the rural highlands, taking into account how this has been accomplished in other remote areas in the region.

The analysis shows that improving internal connectivity is key to reducing Lesotho's vulnerability to the closing of borders by South Africa. Recommendations should concentrate on how connectivity between the leading areas of the urban lowlands and the lagging areas of the highlands can reduce not only travel time, helping different parts of the country work together, but the costs of delivering services across the country. This can be achieved both with improved physical infrastructure for travel, such as roads, and by enhancing digital connective access and capabilities.

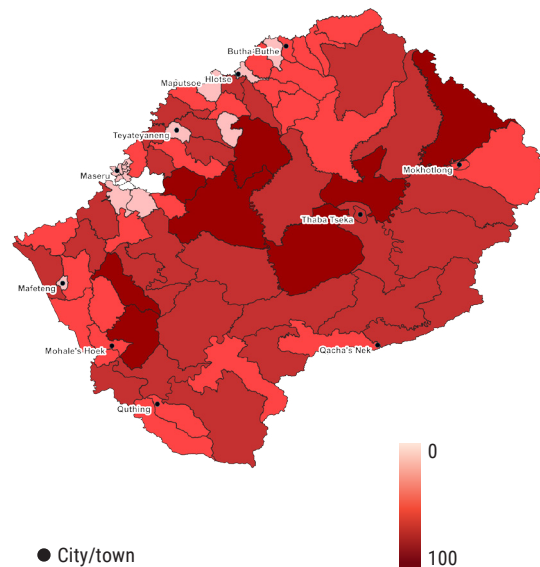
Increased regional connectivity to South Africa, especially in terms of raising the total amount of cross-border commercial traffic, is a priority. Recommendations should focus on keeping commercial border posts open longer where they shut early and on the sequenced conversion of noncommercial border posts into commercial ones, starting in Quthing and Sani Pass.

3.1.3. Disparity, or how to improve living standards in Lesotho

“Disparity” refers to the variation in access to services across Lesotho and is essential to understanding the differences in living standards across the country. Disparity in access to services is expected in highly unequal countries, where the rates of access are significantly higher in urban areas than rural ones. Analysis of disparity allows for the determination of other factors affecting access to services, such as topography and proximity to commercial border posts.

Map 3.5. Access to Electricity

Source: World Bank staff calculations using Census (2016) and Household Survey (2017/18).

Map 3.6. Levels of Secondary School Completion

Source: World Bank calculations.

In Lesotho, access to services is worst in rural highland areas. Access increases markedly from rural to urban areas, although urban areas still experience a service deficit and face a rising challenge in providing services to the growing population of urban poor. Moving from a rural area to an urban one is associated with 45 percent better access to water, 35 percent better access to sanitation, and 50 percent better access to electricity.¹⁶ Despite improvement since 2005, however, 28 percent of the urban population have no electricity, and 52 percent do not have basic sanitation services. In Maseru City, which has the best access to services in the country, improvement is hindered by increasing population growth (see section 1.1) and urban poverty, causing it to be worse in this regard than peer cities in South Africa.

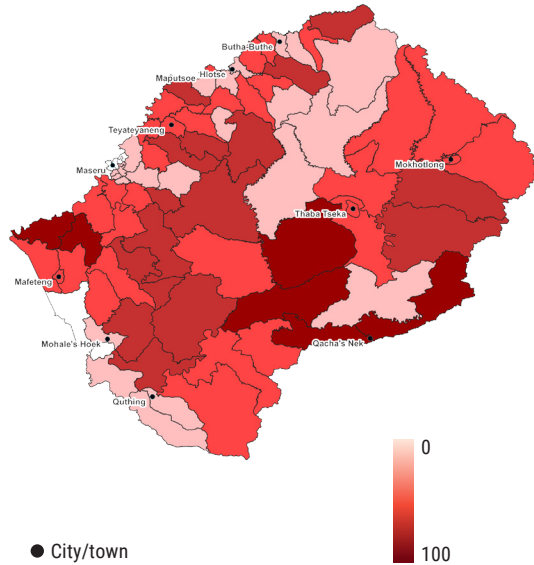
Improving access to services is also hindered by weak institutional and administrative capacity, as well as governance challenges, such as political turnover and corruption. District administrations are dependent on the central government for funds and decision making, and own-source revenue collection at local levels is severely limited. The quality of local service delivery is poor, particularly in the more isolated areas, like the rural highlands. Despite efforts beginning in 1995 to advance the decentralization agenda, led by the ministries of local government and public works, empowerment of institutions at local levels has not yet been implemented, although a decentralization bill was introduced in 2015. Pilots across five ministries are planned, however.¹⁷

A territorial analysis of disparity in access to services was developed using data from the 2016 Lesotho Household Survey, conducted at the constituency level by the Lesotho Bureau of Statistics. The data cover four distinct services: electricity (map 3.5), secondary education (map 3.6), sanitation (map 3.7), and water (map 3.8). These are combined to create a disparity index (map 3.9). The color in each map moves from lighter to darker as access to services worsens. Data

16 Hommann, K., and S. V. Lall. 2019. *Which Way to Livable and Productive Cities? A Road Map for Sub-Saharan Africa*. International Development in Focus. Washington, DC: World Bank Group.

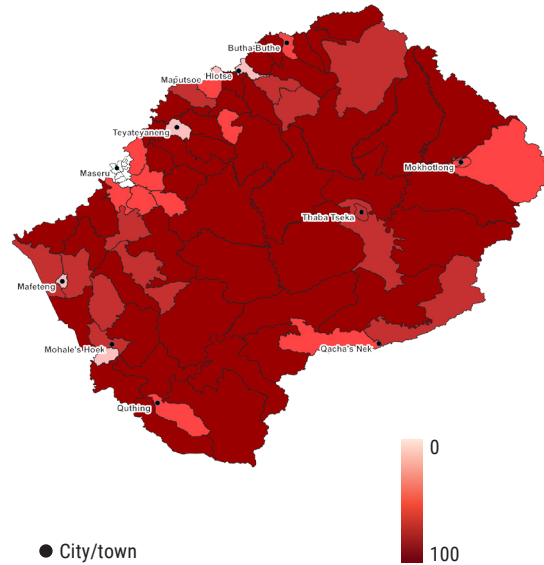
17 Ministries of local government, public works, health, environment, and natural resources.

Map 3.7. Access to Sanitation



Source: World Bank calculations.

Map 3.8. Access to Piped Water



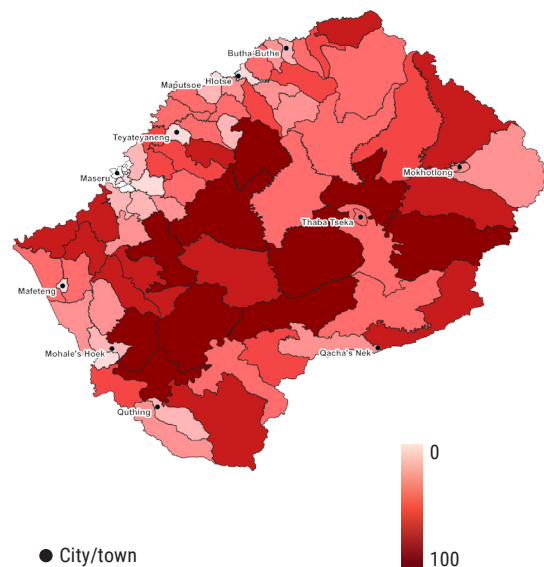
Source: World Bank calculations.

from the four services were converted into z scores across all variables to allow for comparison and combination and create the composite disparity index. Each service in the disparity index has a 25 percent (equal) weighting. Taking the services independently, variations in access are mostly driven by the urban-rural divide or the high-land-lowland divide.

The rural highlands have the least access to electricity (map 3.5). The most lagging constituencies in Lesotho in this respect are Qaqatu, Mosalemane, Mashai, Hloahlong, Ketane, and Makhaleng, all in the rural highlands. The topography in these areas is some of the most challenging in the country, which drives up the costs of traditional (that is, grid-powered) electricity provision and leads to some of the most acute lagginess of any of the services analyzed. Electrification there may be better served by pursuing distributed energy resources (DERs), such as solar power and small-scale hydropower; this is being investigated by World Bank projects in-country, as well as by others that include the sector in their work.

The rate of secondary school completion in the lowlands is more than double that of the highlands. As shown in

Map 3.9. Disparity Index Combining All Four Development Challenges



Source: World Bank staff calculations using Census (2016) and Household Survey (2017/18).

Note: The disparity index combines access to electricity, completed secondary education, improved sanitation, and water.

map 3.6, it correlates well with economic density (see map 3.1). This is not unexpected, as higher numbers of people with more skills would be expected in the most economically dense areas, even if some have been educated elsewhere; this suggests the rate of secondary school completion is only partially effective as a measure of access to secondary education. Policies for raising secondary education completion rates should be prioritized in the rural and highland sections of the country over urban ones, with further study conducted on how to retain higher-skilled workers in rural areas, tying in with other spatially targeted policies aimed at promoting economic development in rural areas.

Sanitation appears to have moved farther toward convergence between leading and lagging areas than the other services. Improved sanitation exists in pockets across the lowlands and highlands (see map 3.7). Thaba-Phechela and Kolo in the rural lowlands and Hloahloeng and Tsoelike in the rural highlands are the most lagging constituencies. Five constituencies in Mafeteng District, which has the least access to improved sanitation in the country at the district level overall, outperform Mosalemane, Malimong, and Tsoana-makhulo constituencies in Berea District, despite Berea District's having some of the best access to improved sanitation. These variations highlight the importance of the urban-rural divide in determining access to sanitation. Further improvements should take into account the lagging nature of rural areas in the highlands and lowlands, while bearing in mind that increasing urbanization will put greater strain on access to sanitation in urban areas.

Rural areas, both highland and lowland, lag urban areas in access to piped water (map 3.8). Only Maseru City is at the highest level of access. Urban areas of the highlands, such as Thaba-Tseka Town and Mokhotlong Town, have better rates of piped water than their surrounding rural highland constituencies. This would suggest that urbanization and economic density are more important than topography in access to piped water, the most widespread lagging service. While bearing in mind that increasing urbanization will put urban water provision (as well as sanitation) under strain, the stark urban-rural divide in access to water suggests investments should prioritize access to water in the country's rural areas in both the lowlands and highlands.

The disparity index (map 3.9), which combines the four component services discussed above, shows that access to services is worst in the rural highlands along the Senqunyane river valley and parts of Mokhotlong, as well as in the section of the foothills in Maseru District bordering Thaba Tseka District, facing the rural lowlands to the west. Most of these areas are also among the most economically distant (see maps 3.3 above and 3.12 below). The biggest challenge, therefore, is in the rural highlands; this will be difficult to resolve, as the environment there lacks economies of scale for service expansion, as well as the capacity required to strengthen service delivery. Tradeoffs are inevitable.

The analysis suggests access to services should be prioritized in different ways, depending on the quadrant. The disparity index in map 3.9 shows how difficult delivering services to the remote rural highland parts of the country can be, and, as mentioned above, tradeoffs will have to be made in the allocation of resources among the four quadrants. Investing in services in highland towns is, therefore, essential to bring services as close to people as possible in the rural highlands while still leveraging some economies of scale and local capacity. This would reduce the distance rural highland residents need to travel for access to services that cannot be viably delivered directly to them. Service provision in the urban highlands should also aim to enable greater private sector activity to create jobs. Private sector involvement should be considered as well in delivering services such as electricity in the rural highlands. In the lowlands, investments in rural areas should prioritize enabling expanded agricultural operations and, in urban areas, service provision for the urban poor, as well as capacity for manufacturing, warehousing, and other value-added functions.



3.1.4. Disaster risk, or how to improve preparedness for climate events

“Disaster risk” measures Lesotho’s vulnerabilities to climate shocks. Lesotho’s agricultural sector is its biggest employer, making the exportation of water to South Africa of critical importance. In addition, biodiversity and tourism are significant to the country’s plans for continued economic development. Without adequate preparation and investment, climate shocks, to which these key industries are particularly exposed, will reduce food security and cause damage to economic infrastructure and homes in Lesotho.

Forecasts for the next few decades show deteriorating climatic conditions. By 2070, maximum precipitation is predicted to have risen by 8 mm per day over current levels. Temperatures are expected to rise 3.5°C over the same period. These two major contributors to the increased disaster risk that endangers development in Lesotho have different effects in different parts of the country. In the highlands, increased rainfall raises the risks of heavy snow and landslides, while in the lowlands flooding and drought are more likely. Soil degradation, experienced in both highlands and lowlands, is especially detrimental to agriculture, including the growing of arable crops, and it limits the grazing potential for angora goats, from which mohair is taken for export.

Exposure to flooding is rising in urban areas as they expand. Since 1985, Maseru City has had four major flooding events. Combined, they displaced 11,000 people, of whom 45 percent were displaced in the last major flood in 2011. Two of the floods were extreme flood events, which typically have a recurrence interval of more than 100 years. Urban sprawl of Maseru City into flood-prone areas has been happening at a rate of 3 percent a year, while the area exposed to rainwater flooding doubled from 1985 to 2015. Presently, the total land area exposed to possible flooding is 10 percent, and predicted rapid population growth is likely to raise the risk of fatalities and displacement as large-scale floods become more common.¹⁸

18 WB Maseru City Scan, October 2022.

Box 3.5. Improving Disaster Resilience

Lesotho's ability to manage disaster risk is hampered by low institutional, technical, and financial capacity. Institutionally, disaster management is governed by the 1997 Disaster Management Act. In common with similar legislation in other states in the region, this act prioritizes disaster response over disaster preparedness. As a result, disaster risk management is insufficiently integrated into national and local development planning and investment. Key agencies are understaffed and remain underskilled. Funding for disaster management is limited, and both hardware and software for efficient early warning of climate events are in dire need of upgrading. Most of the country's 50 rainfall stations, for example, are inoperative, and software for weather forecasting cannot make predictions with sufficiently granular detail to be of use.^a

At the national level, the amendment of legislation (which is under consideration) can be facilitated to allow for better resource allocation to prevent and manage climate disasters and reduce vulnerability. This would include the ability to fund early warning systems from disaster risk management funds. Other national-level investments include taking advantage of expertise at the National University of Lesotho to help train and upskill more staff at both the Disaster Management Authority and Lesotho Meteorological Services and improving the capacity of local authorities to respond to disasters and make decisions on disaster preparations.

Spatially targeted investments would include the following: improved urban planning enforcement of development controls to manage drought risk better (including water management, introduction of more drought-resistant crop varieties, and better training on soil management to prevent erosion); provision of snow clearance infrastructure and equipment in the urban highlands for heavy snow events; and training for small-scale farmers in the rural highlands on farming methods that prevent soil erosion.

a. Interview with Lesotho Meteorological Services, Maseru City, January 30, 2023.

Substantial parts of the rural lowlands are at high risk of drought, which is expected to continue destroying crops. Although data were unavailable at the constituency level, the general trend suggests significant impacts of drought on agriculture and food security. In 2019, over 400,000 people (20 percent of the population) in rural areas were affected.¹⁹

The highlands are greatly affected by snowfall in winter, though lack of data prevents detailed study. Beyond the low recorded temperatures that affect day-to-day activities, including classroom attendance, the crop yield, mostly from subsistence farming, incurs significant damage, raising local food insecurity. Moreover, road closures have been reported as cutting off the lowlands from the highlands; this can affect the tourism industry, including winter sports, as well as general connectivity, including the ability to commute in and out of Maseru City.²⁰

Strong winds pose a risk to buildings. In certain parts of the country, poorly built homes constructed in exposed areas suffer damage from high winds. The difficulty of predicting such strong winds in Lesotho makes early warning difficult, as well.²¹ A spatial understanding of vulnerable areas can lead to targeted changes in regulations and assistance with house building to ensure appropriate resilience to wind. Better approaches to roofing that have proved successful in some areas can be replicated in parts of the country most at risk.

19 CERF (2019). Lesotho Drought Situation Update.

20 Snow in Lesotho causes road closure, 2018, <https://www.tourismupdate.co.za/article/snow-lesotho-causes-road-closure>.

21 DMA Hazard Vulnerability Assessment 2023.

Box 3.6. Helping Lesotho Achieve its Nationally Determined Contributions (NDCs)

In 2015, Lesotho, along with all other member nations of the United Nations Framework Convention on Climate Change (UNFCCC), agreed to the Nationally Determined Contributions (NDCs) relating to climate action specified in the Paris Agreement. NDCs are the specific actions a country has agreed to undertake to reduce its emissions and mitigate the effects of climate change.

The territorial development approach allows for the incorporation of wider spatially targeted development strategies that contribute to the achievement of Lesotho's NDCs. Strategies to improve the connectivity of the rural highlands to urban towns can help stimulate local agriculture by reducing the cost of transporting crops. Enabling the highlands and lowlands to stay connected during increasingly adverse weather simultaneously allows for better access to services and contributes toward more sustainable tourism and the implementation of programs to promote alternative livelihoods, all of which are in the NDC.

For adaptation NDCs, spatially targeted investments can help Lesotho prepare for the effects of a changing climate and achieve specific goals. Strategies for agricultural improvement as listed in Lesotho's NDC can benefit from spatially targeted interventions to deliver a whole-country approach that takes into account climate variation throughout the country. To improve the wool and mohair industry, for example—a target industry listed in the NDC—the highlands would benefit from having goat breeds specialized for highland weather, while the lowlands could benefit from better access to services and climate-smart husbandry techniques to increase and maintain herds by protecting against worsening drought (see also box 3.7 and section 3.2.1).

To meet its mitigation NDCs, mitigation investments can also be targeted using the territorial approach. The transition to renewable energy, for instance, can be broken down into strategies focused on mini-grids in rural highland areas and on grids in urban lowlands, as also discussed in section 3.1.3. Further analysis on GHG emissions mitigation using the territorial framework can be found in Annex Part 4.

The NDC also sets out cross-cutting issues, citing the need for improved institutional capacity and robust data, including emissions data and baselines. Alongside enhanced disaster risk management and better data, the territorial approach identifies cross-cutting areas, as well, including empowered local government, better regional integration with South Africa, and an improved business environment.

Weak institutional capacity also hinders disaster risk management. Funding for disaster management is limited, and both hardware and software for efficient early warning of climate events—for example, the country's rainfall stations and its weather forecasting software—are in urgent need of upgrading.²² Even the limited data available from current systems are subject to flawed interpretation due to lack of skills and training.²³ The Disaster Management Authority has lacked the capacity to understand and map key climate vulnerabilities, although progress is being made (see Box 3.5). In the past the authority has tried to use rural models to assess urban vulnerabilities, and it is presently working with the Bureau of Statistics to collect data from new urban indicators at the next census.

22 Interview with Lesotho Meteorological Services, January 30, 2023.

23 DMA Hazard Vulnerability Assessment 2023.

Box 3.7. Spatially Differentiated Climate Policy that Creates Value: The Mohair Industry

Lesotho's many ecological zones face different climate threats, as discussed above. Such variation calls for spatially differentiated responses that are needed not only to protect existing infrastructure, homes, and livelihoods but to enable key industries to move up the value chain.

One such industry is mohair and wool, which generates more than half of all agricultural exports and involves over 250,000 households. It is, however, struggling to go up the value chain, which, in Lesotho, currently does not include any value-added activities, such as processing or manufacturing. Climate events have been especially harsh on the mohair industry, with droughts in particular contributing to reductions in the size of herds and the numbers of farmers in traditional areas as a result of the degradation of grasslands and water for livestock (see map 3.15).^a

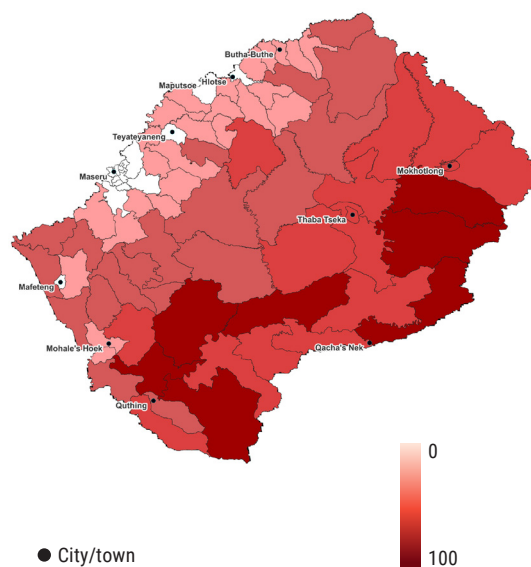
A spatially differentiated climate-focused policy can help capture more value in the mohair industry and aid its recovery. Introducing training and support in husbandry practices that are adapted to different parts of the country can increase the overall size of goat herds. In the rural highlands, for instance, the introduction of higher-yield and cold-resistant species will be vital to increasing volume, while in the rural lowlands climate-smart practices that allow farmers to manage better through drought and reduce calf mortality will help protect and rebuild herds. In addition, better protection of industrial land in the lowlands from flooding would enable the eventual establishment of facilities to process wool for export, with the reliability and sustainability of supply chains strengthened by investments that prevent landslides and heavy snow from cutting off key roads.

a. Lesotho Poverty Assessment 2019.

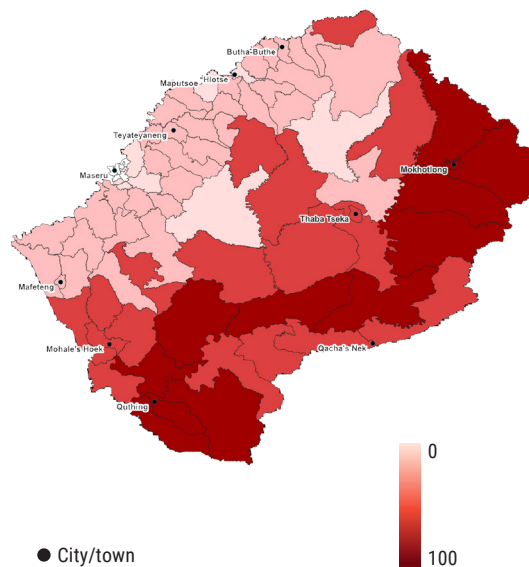
Contrary to the other areas of analysis, the most lagging area for disaster risk is in the most economically dense areas of the urban lowlands, and recommendations should prioritize directing resources to protecting the urban lowlands, particularly Maseru, from flood damage. Spatially specific recommendations should also include, where possible, preservation of connectivity between highlands and lowlands in periods of heavy snow and adaptation of farming practices to ameliorate drought risk to agricultural productivity. Climate-smart irrigation infrastructure and methods and soil conservation in the rural lowlands will help preserve food security, and variegated animal husbandry practices, depending on climatic differences among the quadrants, will help protect herds, in particular herds of mohair goats, and increase their yields. Such investments would primarily address the development challenges brought by climate change but would also help increase economic opportunities.

3.1.5. Developing a composite 4D index and heat maps

To provide further insights, some or all of the four territorial analysis maps for density (map 3.1), distance (maps 3.2 and 3.3), disparity (map 3.9), and disaster risk (map 3.10) can be combined. Combining scores and producing new values that essentially measure more than one "D" at a time can show how the development challenges affect each other. In a combined disparity and distance map, for example, the darkest areas would be those that are the most lagging in terms of both distance and disparity (see map 3.12), making it easier to understand how much distance affects access to services in each constituency. Similarly, combining density and distance, as in map 3.13, also emphasizes the effect economic distance has on economic density. Combining all four Ds allows us to understand which areas are the most lagging across all four

Map 3.12. Overlay of Disparity and Distance

Source: World Bank calculations.

Map 3.13. Overlay of Density and Distance

Source: World Bank calculations.

development challenges (map 3.14). Such insights can help decision makers determine how best to design actions that address as many development challenges as possible while maximizing the efficiency of limited resources.

Thus, the territorial development approach supports the targeting of the most lagging areas to raise living standards. It will contribute to the achievement of the CPF's higher-level objectives by helping the World Bank begin aligning World Bank-financed projects with the recommendations in this report where appropriate (in the domains, for example, of health, education, social protection, and infrastructure) at selected geographical areas on a pilot basis.

As map 3.12 shows, specific constituencies in the rural highlands have the worst combined disparity and distance scores. These are located amid some of Lesotho's harshest landscapes, suggesting the economic distance created by the difficult topographical conditions is a critical factor in their laggingness. Investments in support of connectivity development that include these areas could also help address challenges related to access to services, in particular electricity. Connectivity investments that enable greater access to services as well as reduce economic distance should, therefore, be prioritized in the rural highlands and, where possible, in specific constituencies. Further development could also be achieved by improving the connectivity of these areas to highland towns to bring them closer to other services, in particular secondary education.

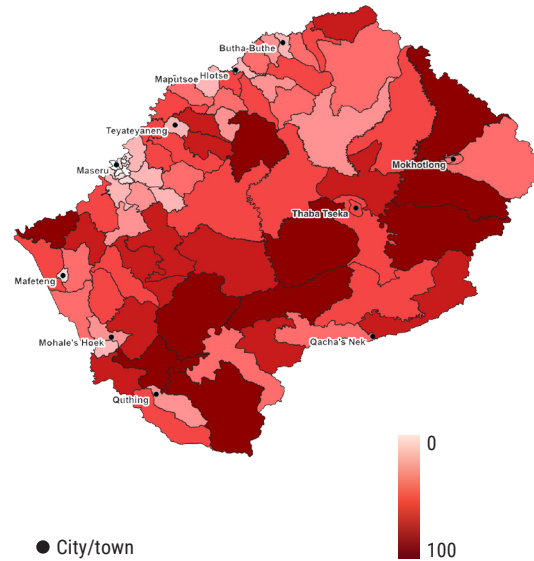
Combining density and distance (map 3.13) further confirms that some of the most lagging areas in the country are in the eastern part of the highlands in Mokhotlong and along the Senqunyane river valley. Together with map 3.12, this indicates that resolving the distance development challenge will be crucial to raising the standard of living in the most lagging areas.

Ultimately, data from all four parameters can be combined to produce the 4D index (map 3.14), which shows the most lagging regions are the most isolated. Again, some of the same constituencies in the highlands of the east and southeast

of Lesotho (the darkest areas) have the lowest scores. The 4D index also corroborates the conclusion that the most lagging constituencies are all located in districts with the worst internet access—Mokhotlong, Quthing, and Thaba-Tseka. These districts were also among the highest recipients of social assistance during the COVID-19 pandemic, as well as those that had significant difficulties in getting access to financial services by the end of the pandemic.²⁴ The corroborating data depicted in map 3.14 also highlight the compounding effect of laggingness—that is, the tendency of areas that lag in one metric to lag in others. Along with the previous overlays, the 4D index supports the hypothesis that challenging topography, along with lack of economic density, is a key driver of laggingness.

Altogether, these conclusions corroborate the analysis of the individual “Ds”: that connectivity will help raise economic density and assist with the provision of a minimum level of services in the most lagging areas of the country. Recommendations should, therefore, concentrate resources according to desired outcomes based on the priorities of each area. Figure 3.2 returns to the 2x2 framework to summarize the conclusions of this analysis and provide recommendations for spatially targeted investments in each quadrant.

Map 3.14. All Four Parameters Overlain: The 4D Index



Source: World Bank calculations.

Figure 3.2. Recommendations Framework for Spatially Targeted Investments

<ul style="list-style-type: none"> • Enable private sector growth by increasing access to services that businesses need to establish and grow • Increase proximity of services for rural highland residents for whom direct service delivery (eg schools, hospitals) is not viable • Enhanced connectivity with lowlands to reduce economic distance and ensure connectivity during adverse weather 	Urban	<ul style="list-style-type: none"> • Establish urban planning that improves intracity connectivity and better prepares for climate related shocks such as planning • Improve service provision in areas that are seeing growth in urban poor • Create the right business environment and infrastructure for value-add private sector activity
Highlands	Rural	<ul style="list-style-type: none"> • Prioritize scalability of commercial agriculture by increasing service provision that would enable this • Improve connectivity to urban areas • Improve food security and agricultural productivity by introducing climate smart agricultural practices that protect against drought and increase yields

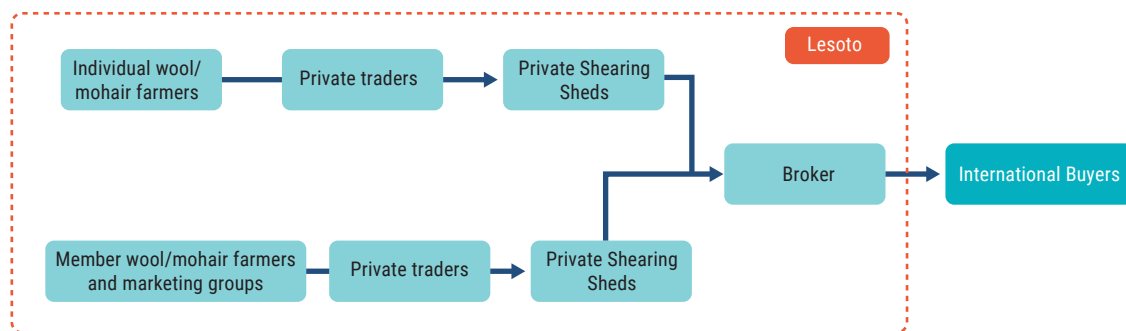
24 Lesotho Bureau of Statistics, Covid 19 Survey 2020.

3.2. Applying the Territorial Development Approach: A Summary of Case Studies from Lesotho

3.2.1. Mohair production value chain in Lesotho: Approach and recommendations

The mohair and wool industry is of great importance in Lesotho. As mentioned above, mohair comprises more than half of the country's agricultural exports, and its production involves over 250,000 households. The current mohair value chain (figure 3.3) in Lesotho does not include any value-added activities, such as processing or manufacturing. In general, the sector faces several key constraints, among them mistrust and limited value chain coordination; a paucity of data for management, policy, and planning; suboptimal management of critical public assets, such as the shearing sheds; lack of improved breeds for survival in highland climates and better wool yield; and a need for improved husbandry, especially with regard to feed.

Figure 3.3. Lesotho's Mohair Value Chain



Source: WAMMP/IFAD 2020.

Note: LNWGMA = Lesotho National Wool and Mohair Growers Association.

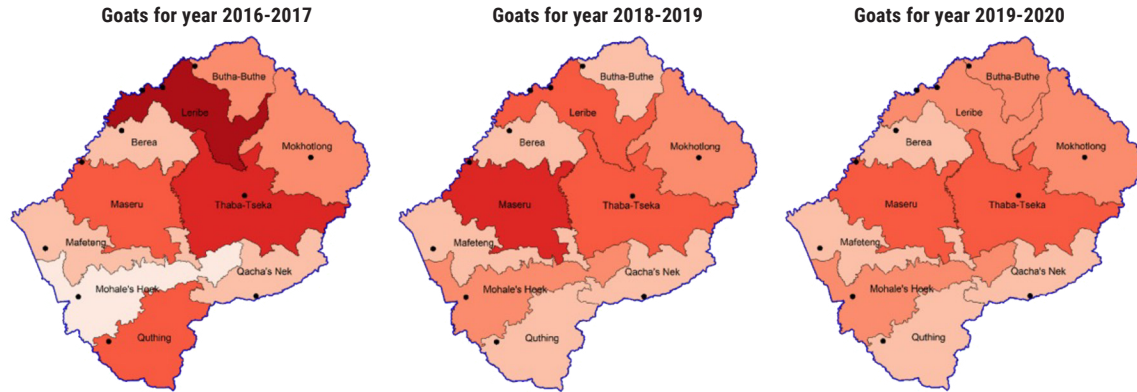
Analysis of the distribution of mohair goats in Lesotho²⁵ suggests territorial development analysis could provide recommendations for the further development of the mohair industry. This conclusion builds on work conducted by the International Fund for Agricultural Development (IFAD) for the Wool and Mohair Promotion Project (WAMPP). Historically, Leribe, Quthing, and Maseru have recorded large numbers of mohair goats, suggesting the lowlands and foothills are better suited for larger-scale production by virtue of the greater availability of land and a more favorable climate. Connectivity to the urban areas—the major demand centers where brokers and private buyers are located—may be a significant driver of mohair goat production in these districts. It may be possible, however, to achieve higher herd numbers in some of the highland areas. Thaba-Tseka, for example, has many goats but relatively few farmers, indicating, on average, larger herds per farmer in this highland area.

The analysis of goat distribution also indicates declining numbers over time, however. As shown in map 3.15, the total number of goats in Leribe has gone down steeply since the 2016/17 season. Drought, leading to degradation of grasslands and lack of water, has likely been a major factor.²⁶ While Thaba-Tseka also suffered a decline, it managed to

²⁵ Since practically all goats in Lesotho are mohair goats, the total number of goats can be used as an effective proxy for the number of mohair goats.

²⁶ Lesotho Poverty Assessment 2019.

Map 3.15. Mohair Goat Distribution by District and Season



Source: World Bank Staff/Lesotho BOS.
 Note: Darker color indicates greater concentration of goats.

stabilize its total numbers in 2018/19 and 2019/20. In Quthing and Mohale’s Hoek, two other districts that also saw their herds diminish during this period, losses from drought were exacerbated by significant livestock theft from across the border. The theft occurred in part because the borders are not clearly marked, and animals might often be grazing on the South African side. Since Lesotho has no program for livestock registration or tagging, resale of the stolen animals in neighboring markets is quite easy.

The territorial approach may be conducive to developing the mohair goat value chain. This applies especially in the lowlands and in foothill districts, such as Leribe, Quthing, and Maseru, and in some highland districts with favorable conditions, such as Thaba-Tseka. The spatial targeting approach, building on lessons learned from existing projects such as WAMPP, is crucial to developing tailored and context-specific recommendations for facilitating the development of inclusive mohair value chains.

Figure 3.4. Recommendations Framework for the Mohair Value Chain (with order of prioritization)

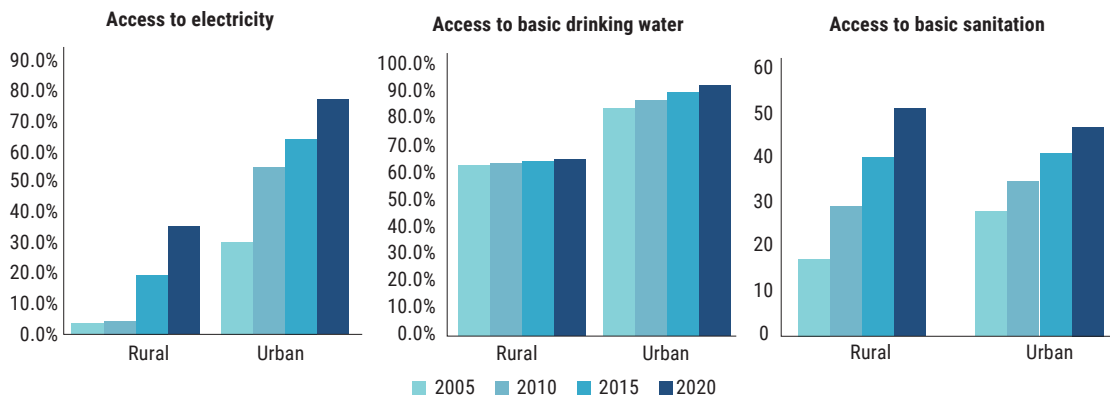


More generally, improving internal connectivity and strengthening regional collaboration with South Africa is important for better markets and improved mohair processing facilities and goat breeds. Enhanced goat husbandry practices, including the use of better feed and the adoption of hardier breeds, are important to improving mohair yield, especially in the highlands. Keeping reliable data is essential for policy, planning, and management of the mohair value chain. Also important is to explore mechanisms for developing an all-inclusive goat traceability system, which is likely to become particularly relevant to the export market.

3.2.2. Disparities in access to services across Lesotho regions

Lesotho has come a long way in the last 15 years and has made substantial progress in terms of access to basic services, but challenges persist (figure 3.5). In 2005, only 4 percent of the population in rural areas had electricity, and only 17 percent had basic sanitation. Although access to these services is still low, it increased significantly to, respectively, 35 percent and 52 percent in 2020. Moving from a rural to an urban area is associated with better provision of water, sanitation, and electricity, with about 45 percent, 35 percent, and 50 percent of the population, respectively, having access.²⁷ Despite the steady improvement, however, 28 percent of the urban population still lack electricity, and 52 percent are without basic sanitation.

Figure 3.5. Access to Basic Services in Lesotho



Source: World Development Indicators.

Access to electricity presents the largest urban-rural divide in Lesotho. More than 65 percent of the rural population does not have electricity, compared to 22 percent of those in urban areas. In both rural areas and the highlands, electricity, where available, represents a small share of domestic energy consumption; on average, more than half of the inhabitants use paraffin as their main power source. The levels of rural household electrification and affordability remain low. In 2015, only about 20 percent of rural households were connected to the grid, as compared to approximately 65 percent of urban households.

²⁷ Hommann, K., and S. V. Lall. 2019. *Which Way to Livable and Productive Cities? A Road Map for Sub-Saharan Africa*. International Development in Focus. Washington, DC: World Bank Group.

Access to piped water in rural areas has remained almost static in the last 15 years, with nearly 40 percent of the population lacking access, while almost all of the population in urban areas (97.5 percent) have it.²⁸ In the rural highlands, 68.3 percent of households have access to potable water sources, while 31.7 percent use water from unimproved sources. Among the reasons for the disparate access to water in the country are uneven distribution of water resources, unplanned population settlement patterns, and poor sector planning and management. With regard to basic sanitation, half the country's population does not benefit from access to services, although recent years have brought some convergence, with the rural population surpassing the urban (52 percent and 47 percent, respectively, have access). The quality of the services differs, however; 82.2 percent of the urban households have access to improved sanitation services, while rural areas remain at 52 percent.

In fact, the issue of access to services is generally complicated by the quality (or lack of quality) of those services. Despite Lesotho's being a fairly "water-rich" country, for example, the supply of clean drinking water is limited. The rapid urbanization of the lowlands and increased industrial development has placed pressure on water resources, with shortages now common in Maseru and towns in Leribe. This affects the value-added capacity of agriculture and of the garment industry, which is a major private employer, especially of Basotho women. The quality of service for rural water supply is in the process of changing as Lesotho makes a transition in its institutional architecture from a centralized to a decentralized system.

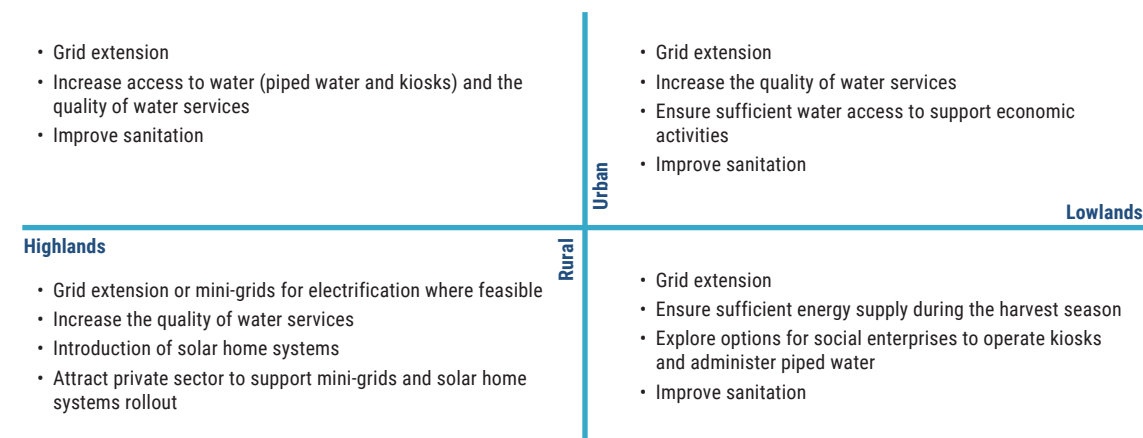
Finally, the analysis reveals that regional disparities at the district level tend to hide variation at the constituency level. On average, for example, Maseru and Berea are leading in district-level access to electricity, while Thaba-Tseka and Mokhotlong are the lagging districts. The rural lowland constituencies of Makhaleng, Maletsunyane, Rothe, and Thaba-Putsoa in Maseru District, however, fare worse than the urban highland ones of Thaba-Tseka and Mokhotlong, with a difference in access of 20 percentage points. These results further highlight the urban-rural divide and the fact that constituencies that are district capitals, such as Thaba-Tseka and Mokhotlong, have better access to basic services than the Maseru District constituencies, which are not. Similarly, five constituencies in Mafeteng District, which, on average, has the lowest access to improved sanitation in the country, outperform Mosalemane, Malimong, and Tsoana-makhulo in Berea District, despite the latter district's being among those with the highest access to improved sanitation; in this case, the finding highlights how urban-rural differences vary with the topographical divide.

Overall, the big gaps in basic services such as water, electricity, and sanitation call for a multisectoral policy framework for inclusive development. Given Lesotho's unique geographical characteristics, a spatially differentiated approach is needed to prioritize better access to services in the country. In Maseru City, as in other urban lowland towns, people are getting closer to opportunity, but the poor people in the rural areas remain far removed from it. While improving access to basic services for low-income people reduces spatial inequalities, the benefits from these investments are likely to be greater if they are accompanied by efforts to improve their utilization.²⁹

Policy action to ensure decentralized infrastructure and service delivery capacity in Lesotho could improve service provision across the country, including in lagging areas. The spatial approach can also effectively take advantage of the development potential in the resource-rich water and energy sectors. Figure 3.6 lists priority actions for these sectors in Lesotho.

28 The difference between the access to electricity in the urban areas (78 percent) and the rural areas (35 percent) is larger than the difference in access to drinking water services (urban 93 percent access and rural 64 percent).

29 Lall, S.V. (2009). *Territorial Development Policy. A practitioner's guide*. Shrinking distance, identifying priorities for territorial integration. World Bank.

Figure 3.6. Recommendations Framework for Priority Actions in the Water and Energy Sectors

3.2.3. Lesotho's potential to improve horticultural productivity and competitiveness

Horticulture, the production of vegetables and fruits, has significant potential for expansion in Lesotho, to the benefit of many smallholder farmers.³⁰ With favorable conditions for growing most horticultural commodities, Lesotho has the most potential to increase vegetable production—brassicas, such as cabbage and cauliflower; root vegetables; leafy vegetables, such as lettuce; and some fruits, particularly peaches, plums, and apples. Because it is highly labor intensive, horticultural production can create jobs and reduce poverty. It can also reduce imports and increase the incomes of farmers. Growth in horticulture could be inclusive of smallholder farmers because production of most horticultural commodities is scale neutral and can be performed by most of those with small farms.³¹

The demand for fresh produce is rising with Lesotho's growing urban population, rising incomes, and burgeoning middle class, as well as increasing awareness of healthy diets. Domestic production of horticultural commodities is still low, however, and the demand is largely met by imports, mostly from South Africa. Most supermarkets and other supply chains for fresh produce report that, even during the growing season, over 80 percent of their fresh stock is imported.³² Supermarkets and buyers are willing to consider increasing local sourcing, citing the convenience and freshness of local produce, as the viability of local supply chains is improved. Cost competitiveness will remain a challenge, however, as long as productivity, quality, the fragmentation of the local market, and remoteness are not addressed. A number of factors make this difficult.

First, smallholder farmers in Lesotho are prevented from achieving the necessary scale to increase their productivity by climate challenges. The challenging tradeoff for horticulture is that, in high altitudes, crops are relatively well protected from insect pests but at risk of harm from cold weather, which greatly affects tomatoes, cucumbers, and leafy vegetables, among others. Production of horticultural commodities in protected systems is mostly the province of fully commercial producers. Since smallholders cannot afford protected systems, they largely produce in open fields, where their crops are at risk of pests and diseases. Moreover, open-field crop production is becoming increasingly risky as highly irregular weather patterns aggravated by climate change bring alternating droughts, extreme rains, hailstorms, and frost. The weather patterns affect different areas of the country in various ways, depending on the ecological zones they are in.

30 The government of Lesotho has prioritized the development of the horticultural industry as one of four priority sectors under the National Strategic Development Plan 2018/19–2022/23.

31 According to the Bureau of Statistics, over 60 percent of the smallholder households have plots smaller than 1.5 hectares.

32 Trade statistics show that imports of vegetables have grown by 45 percent since 2010 and were worth \$18.7 million in 2017 (UNCOMTRADE). In that year, more than 28,000 tons of vegetables were imported from South Africa, with potatoes, cabbages, and tomatoes accounting for 83 percent of all vegetable imports.

Farming activity is also hampered by poor land recordkeeping and registration, as well as lack of skills among small-holders. The land tenure system is based on traditional practices with weak enforcement. This limits land transactions, including those that would consolidate small farms into bigger ones and encourage investment. Farmers lack basic understanding of the business side of farming, such as how prices in the market are formed, and even of their own production costs, as they rarely keep records.

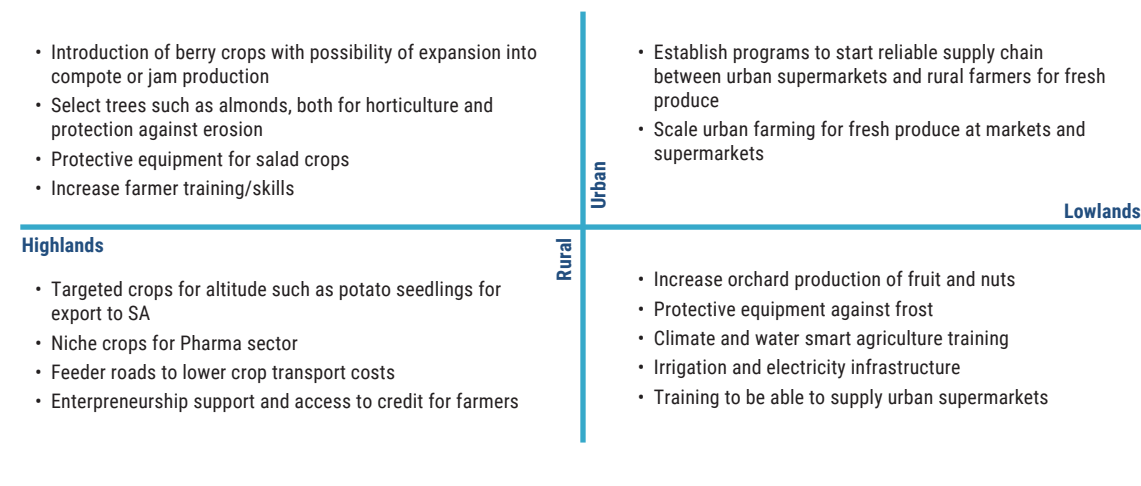
Access to markets is a major issue that is compounded by poor rural infrastructure. In addition to having limited access to electricity and clean water, rural areas lack feeder roads. Anecdotal evidence shows that transportation costs are high for rural farmers. According to information collected under the World Bank-supported Smallholder Agricultural Development Project (SADP), a farmer in Mafeteng under contract to supply cabbage to Pick&Pay shops in Maseru pays as much as LSL 5,000 (US\$271) to move a small load of cabbages on a three-ton truck.

Moreover, remote areas are largely excluded from access to credit and investment capital, as the banking sector does not reach such places and the microcredit sector is underdeveloped. While fintech apps like M-PESA are making inroads in Lesotho, they are limited to a few places (mostly urban) and mainly accessible to younger users with higher digital technology usage rates who are not affected by the digital divide. In most remote areas, insufficient network coverage renders such services largely unavailable.

In sum, the top-ranked issues affecting Lesotho's smallholder farmers in terms of competitiveness are unreliability, variable quality of produce, low volumes, lack of compliance with quality standards, and lack of basic food safety certifications. Combined, these challenges make sourcing from smallholder farmers risky for wholesalers and supermarkets. The farmers themselves find it difficult to comply with obligations under supply contracts because of their high degree of fragmentation, inability to meet production guidelines, limited technology, and limited operating capital.

Lesotho's agricultural industry in general, and its horticultural sector in particular, would benefit from putting into place outward- rather than inward-looking policies that promote regional integration in trade, with neighboring countries such as South Africa. Figure 3.7 provides specific recommendations with potential for horticultural production in Lesotho within the 2x2 framework.

Figure 3.7. Recommendations Framework for Horticulture





Recommendations

4.1. Developing Recommendations for Territorial Development in Lesotho

This chapter provides recommendations for addressing Lesotho’s development challenges, based on the conclusions reached following the analysis in chapter 3. The recommendations set forth key actions to take and the necessary steps for their implementation and are explained in detail so they can support both policymakers and technical experts.

At the heart of these recommendations is addressing Lesotho’s main challenges based on the country’s spatial characteristics. The 4D heat maps presented in chapter 3 helped provide an understanding of the spatial severity and underlying causes behind Lesotho’s four main challenges—lack of economic opportunities, weak connectivity, lack of access to services, and climate change. The report has shown how urban lowlands, the country’s leading area, have the highest relative economic density in Lesotho; low–medium economic distance, given their proximity to the South African border on the western side of the country; low–medium disparity in access to services; and high disaster risk of urban floods. By contrast, rural highlands, which are the most lagging area, face multiple challenges in the form of low economic density, high economic distance (due both to low connectivity within Lesotho and to the presence of several noncommercial posts along the border with South Africa), high disparity of access to services, and high risk of deep snow (which further threatens connectivity).

The recommendations provided here are predicated on the need to accomplish actions at the national level that are spatially agnostic and concern national-level policies, institutional strengthening, and coordination. They differ from the spatially differentiated recommendations, actions, and interventions provided below, which are tailored for the unique challenges and characteristics of the different parts of Lesotho—that is, the urban lowlands, urban highlands, rural lowlands, and rural highlands.

The spatially agnostic, national-level actions cover five categories: (1) the strengthening of local governance—a prerequisite to implementing the territorial approach successfully—with a focus on capacity building, coordination mechanisms between local and central government to enhance service delivery, and procedures to enhance and ringfence own-source revenue generation; (2) the achievement of greater regional integration with South Africa by simplifying and harmonizing cross-border trade regulations and establishing new commercial border posts; (3) the linking of climate and disaster risk to economic planning by enhancing the government’s ability both to prepare for and respond to climate events; (4) the acceleration of improvements to the business environment by prioritizing the use of digital tools for investment promotion, revisiting business licensing regulations, improving land administration, and increasing the capacity for identifying and implementing public-private partnerships; and (5) the building of Lesotho’s statistical and spatial data capacity to achieve better growth and development outcomes by supporting evidence-based policy formulation and implementation.

The recommendations are presented in section 4.2.1 and cover three categories for each of the four quadrants of the 2x2 framework: (1) access to services, (2) economic opportunities, and (3) climate resilience. The spatial differentiation of the recommendations is captured by the fact that the focus of the interventions under the same category differs, depending on the targeted quadrant.

Each recommendation specifies one or more implementing entity that can lead and/or support its execution. Given its mandate on development planning, the MoFDP is well positioned to take the lead on many of the recommendations. The MoFDP can also play a role in horizontal coordination with key ministries and agencies on different topics. The Ministry of Energy, for example, along with LMS and DMA will be crucial partners in national-level climate action, while MoPWT will be a key partner in improving connectivity. Similarly, MoFDP’s coordination with MoPWT, along with MOTI and the MoFA, can help accelerate regional integration with South Africa.



The report has made an effort to identify local government structures that should be involved in implementing the recommendations. In the case of rural areas (both lowlands and highlands), the recommendations are linked to the district administrations and community councils. As discussed above, the task is more complicated in urban areas (both lowland and highland towns and cities), as there is, with the sole exception of Maseru City, no official definition of what constitutes an urban area. It is recommended, therefore, that this particular issue be discussed within the national government, as it has an impact on the implementation of a territorial approach in Lesotho, as well as on the delivery of basic services and infrastructure and the ability to raise own-source revenues at the local level, among other issues. This was discussed during the Validation Workshop of the report co-hosted by the MoFDP and the World Bank. Based on that discussion, it is recommended that the MoFDP work closely with the MoLG to create the right governance structures.

To enable sequencing and prioritization, a time frame is also suggested for each recommendation. The short term (ST) refers to one year, while the medium term (MT) refers to two to three years and the long term (LT) to over three years. In some cases, recommendations may include two time periods to account for the time needed, respectively, to initiate the process and achieve results.

Finally, all recommendations have been developed with three sets of strategic priorities in mind: the objectives of the territorial approach, the Lesotho Government's NSDP II KPAs, and the CPF HLOs. These three sets of priorities are recapped as follows:

- *Objectives of the territorial approach:* TA 1: to reduce inequality in living standards; and TA 2: to identify and take advantage of economic opportunities in leading and lagging areas
- *NSDP II KPAs:* KPA I: enhancing inclusive and sustainable economic growth and private sector-led job creation; KPA II: strengthening human capital; KPA III: building enabling infrastructure; and KPA IV: strengthening national governance and accountability systems
- *CPF HLOs:* HLO 1: increased employment in the private sector; HLO 2: improved human capital outcomes; and HLO 3: increased climate resilience



4.2. Spatially Differentiated Recommendations for the Government of Lesotho

The tables below provide recommendations for spatially differentiated actions that are needed across the four quadrants of the 2x2 territorial development framework. These are the urban lowlands (that is, lowland cities and towns), the urban highlands (highland towns), rural lowlands, and rural highlands. In addition to the recommendations, the tables propose implementing entities and a time frame for each.

For each of the four quadrants, the recommendations are organized around three key areas: access to services, economic opportunities, and climate resilience. In the urban areas—that is, the lowland and highland cities and towns—the focus will be on improving livability through better access to services; boosting economic opportunities through higher-value-added jobs, private sector participation, skills training, and so on; and enhancing climate resilience to protect people and assets. By contrast, in rural lowlands and highlands, the focus will be on providing access to basic services only; enhancing economic opportunities by exploring selected opportunities in key sectors, such as agribusiness and tourism, and targeted private sector participation; and climate resilience that emphasizes maintaining connectivity between the leading and lagging areas and protecting key economic sectors.

Urban Lowlands or Lowland Cities and Towns

The following cities and towns are targeted in the recommendations below: Maseru City (Maseru District), Hlotse and Maputsoe (Leribe District), Teyateyaneng (Berea District), Mafeteng (Mafeteng District), and Mohale's Hoek (Mohale's Hoek District). In implementing the recommendations, special attention should be paid to Maseru City and to Hlotse and Maputsoe in Leribe District, as these account for 70 percent of Lesotho's GDP. All lowland cities and towns are close to the South African border and can support the access of Basotho products to larger markets.

Table 4.1. Recommendations for Urban Lowlands

No.	Recommendation	Implementing Entity	Timeframe
1.	<p>Improve access to services with a focus on livability by strengthening both the access to and quality of services offered in lowland cities and towns.</p> <ul style="list-style-type: none"> I. Ensure access to services (e.g., water, sanitation, electricity, broadband) and infrastructure (e.g., housing) throughout lowland cities and towns, particularly in peripheral areas and areas with urban poor. II. Assess quality of service delivery (e.g., water, sanitation, electricity) in dense neighborhoods, and develop plans to enhance service quality during peak hours. III. Assess quality of human capital infrastructure (e.g., schools and hospitals), with focus on outcomes (e.g., learning and health), particularly in Maseru City. IV. Invest in urban mobility to improve access to jobs and manage congestion resulting from population growth, particularly in Maseru City. V. Explore opportunities to provide dedicated green spaces and public parks. 	MoLG, MCC, and urban local governments (see note on new structure needed)	ST/MT
2.	<p>Strengthen economic opportunities with a focus on competitiveness (particularly in export sectors) through higher-value-added jobs, related skills training, urban mobility for access to jobs, and greater private sector participation to push job creation.</p> <ul style="list-style-type: none"> I. Invest in access to services that can boost manufacturing/production capacity at factories/warehouses (e.g., water, electricity) and create higher-value-added jobs. Investigate areas in which skills training or technological improvements can boost productivity and incomes. II. Ensure sufficient intracity connectivity to areas with jobs. Investigate need to improve connectivity with South Africa in border towns to get access to larger markets, deepen economic ties, and improve regional integration. III. Focus on urban-rural transportation linkages in industries, such as agriculture (including horticulture and wool/mohair) and mining, where raw materials come from rural parts of Lesotho but value addition takes place in lowland cities and towns. IV. Conduct regular enterprise surveys to assess key bottlenecks and support policy development in pursuit of private sector engagement for job creation. V. Strengthen rural-urban linkages to create opportunities in lowland towns for off-farm agricultural jobs that are linked to products from rural lowlands. 	MoFDP, MoLG, MoTI, LNDC, MCC, and urban local governments (see note on new structure needed)	ST/MT
3.	<p>Invest in climate resilience with a focus on protecting people and assets, given the high population and GDP concentration in lowland cities and towns. Prioritize risk-sensitive urban planning, flood defenses, and nature-based solutions to mitigate the impact of urban floods.</p> <ul style="list-style-type: none"> I. Deploy climate risk-sensitive urban and transportation planning, with an eye toward densification and lower risk of urban floods to people and economic assets in lowland cities/towns. II. Develop city-/town-level hazard maps and vulnerability assessments to determine whether appropriate infrastructure investments are needed for floods/urban heat, particularly in Maseru City. III. Support low-carbon urban development, including green buildings and nature-based solutions to prevent urban sprawl, which is linked to higher emissions, higher transportation costs, higher cost of service delivery, and lower potential for agglomeration economies. 	MoFDP, MoPWT, MOE, DMA, MCC, and urban local governments (see note on new structure needed)	ST/MT

Urban Highlands or Highland Towns

Towns targeted in the recommendations below include Thaba-Tseka Town (Thaba-Tseka District), Quthing/Moyeni (Quthing District), Butha-Buthe Town (Butha-Buthe District), and Qacha's Nek Town (Qacha's Nek District).

Table 4.2. Recommendations for Urban Highlands

No.	Recommendation	Implementing Entity	Timeframe
1.	<p>Improve access to services with a focus on a minimum level of livability in highland towns, as they cater to the highest population concentrations within the districts and serve as nodes to improve services in the rural highlands.</p> <ol style="list-style-type: none"> I. Focus on access to basic services (e.g., water, sanitation, electricity) and infrastructure (housing). When population exceeds 50,000, begin tracking quality of service metrics. II. Ensure basic access to broadband and financial services. III. Invest in human capital infrastructure (education and health care) so highland towns can offer some level of services to their own residents, as well as residents of the wider district (rural highlands). Consider mobile service vans for health care, based in highland towns but with the ability to reach remote areas in the district. 	MoFDP, MoLG, MoPWT, and urban local governments (see note on new structure needed)	ST/MT
2.	<p>Strengthen economic opportunities with a focus on market access through improved connectivity and by exploring specific value chains that could be linked to the lowland cities/towns, as well as the rural hinterland (particularly for off-farm agricultural jobs).</p> <ol style="list-style-type: none"> I. Strengthen connectivity between highland towns and lowland cities/towns within Lesotho, as well as with parts of South Africa (subject to achievement of commercial border status) to improve market access and strengthen economic opportunities. II. Invest in connectivity to key rural highland areas based on population density and economic potential to support economic activity in highland towns (e.g., emerging sectors such as horticulture). III. Assess role of private sector in key sectors that may support job creation, particularly higher-value-added jobs relying on local raw materials. IV. Whenever possible, rely on community-driven construction, as well as operations and maintenance of assets to create temporary labor-intensive jobs in a gender-inclusive manner. 	MoFDP, MoPWT, DA, and urban local governments (see note on new structure needed)	MT
3.	<p>Invest in climate resilience with a focus on sufficient flood resilience within highland towns and safeguarding of critical connective infrastructure from which the highland towns might be cut off during deep snow. Prioritize risk-sensitive urban planning, as well as emergency preparedness and response (EP&R) with respect to urban floods and deep snow.</p> <ol style="list-style-type: none"> I. Adopt risk-sensitive urban and transportation planning to manage risk of urban floods and snow affecting people and economic assets. II. Invest in local government- and community-driven emergency preparedness and response (including associated machinery) to guard against being cut off by deep snow emergencies. 	DMA, MoLG, and urban local governments (see note on new structure needed)	MT

Rural Lowlands

Areas targeted under the rural lowlands are those in lowland districts outside city/town limits noted under the urban lowlands category. The lowland districts are Maseru District, Leribe District, Berea District, Mafeteng District, and Mohale's Hoek District. Since some districts fall under both lowlands and highlands due to elevation gradient, the categorization presented here is general rather than absolute. Semonkong, for example, a major tourism destination in Lesotho, is in Maseru District but is best classified as rural highland.

Table 4.3. Recommendations for Rural Lowlands

No.	Recommendation	Implementing Entity	Timeframe
1.	<p>Improve access to services with a focus on agricultural production, other key economic activity (e.g., mohair, livestock management), and selected areas based on population density, which is usually driven by proximity to urban lowlands.</p> <p>I. Ensure a minimum level of access to services that can support agricultural production (e.g., water and electricity for irrigation). Focus on key sectors of economic value, such as mohair production/processing, livestock management, etc.</p> <p>II. Identify selected settlements with population density and in close proximity to urban lowlands to support rollout of basic services (e.g., water, sanitation, electricity).</p>	MoLG, DA, and rural local governments (see note on new structure needed)	MT
2.	<p>Strengthen economic opportunities with a focus on rural-urban linkages to enable the movement of agricultural products and raw materials to other parts of the country for consumption and/or value addition.</p> <p>I. Lower transportation costs through enhanced connectivity to major roads and provide electricity and piped water to improve the reliability of fruit and vegetable production to the point where supply is viable to supermarkets in the urban lowlands that currently import produce for sale.</p> <p>II. Explore opportunities for key value chains (e.g., mohair) through better links between rural highlands for production and lowlands for processing and for horticulture by enabling smallholder farmers to engage in commercial horticulture farming through training and access to finance.</p> <p>III. Invest in Micro, Small, and Medium Enterprise (MSME) strategies for horticulture and irrigation (e.g., MSMEs for small-scale irrigation development).</p> <p>IV. Enhance the adoption of diversified and integrated cropping patterns (i.e., crop and small livestock), which provide multiple sources of food security and income, thus offering more secure economic opportunities than single or monocropping.</p>	MoFDP, MoPWT, LNDC, and Ministry of Agriculture, Food Security, and Nutrition (MoA), DA, and rural local governments (see note on new structure needed)	ST/MT
3.	<p>Invest in climate resilience with a focus on the agricultural sector through practices like climate-smart agriculture using drought-resistant seed varieties and provision of well-functioning irrigation systems to counter the risk of droughts.</p> <p>I. Invest in climate-smart agriculture (e.g., early maturing and drought-resistant crop varieties) and drought resilience measures to enhance agricultural productivity and safeguard the agriculture sector's GDP contribution.</p> <p>II. Consider soil and water conservation technologies (e.g., the Machobane farming system) in high-potential areas. Invest in flood prevention and management through rural drainage and management of soil erosion.</p> <p>III. Establish community-managed early warning systems (EWSs) and procedures for climate-related events.</p>	DMA, MoA, DA, and rural local governments (see note on new structure needed)	ST/MT

Rural Highlands

Areas targeted under the rural highlands are essentially those in highland districts outside the highland town limits that are noted under the urban highlands category. The highland districts are Thaba-Tseka District, Quthing District, Mokhotlong District, Butha-Buthe District, and Qacha's Nek District. Since some districts fall under both lowlands and highlands due to elevation gradient, the categorization presented here is general rather than absolute. Semonkong, for example, a major tourism destination in Lesotho, is in Maseru District but is best classified as rural highland.

Table 4.4. Recommendations for Rural Highlands

No.	Recommendation	Implementing Entity	Timeframe
1.	<p>Improve access to services with a focus on non-network solutions and tourism destinations. Explore private sector participation in service extension.</p> <ol style="list-style-type: none"> I. Explore non-network solutions (e.g., mobile vans for health care and education) for rural highlands. II. Engage private sector in the rollout of key services, such as mini-grids for improving access to electricity, particularly in areas close to horticultural production centers and tourism facilities. III. Consider adding cell towers for basic mobile and broadband connectivity with a focus on areas with tourism sites and economic activities. 	MoFDP, DA, and rural local governments (see note on new structure needed)	LT
2.	<p>Strengthen economic opportunities with a focus on selected sectors that are the most lucrative in the rural highlands.</p> <ol style="list-style-type: none"> I. Invest in key sectors that take advantage of local endowments (e.g., horticulture, hydropower, tourism). II. Attract private sector investments in the tourism sector for establishment and management of tourism facilities (e.g., Semonkong Lodge). III. Support community-based tourism to support rural livelihoods and incomes in high-potential areas. Introduce highland-friendly horticulture, such as berries and potato seeds, for export. IV. Whenever possible, rely on community-driven construction, as well as operation and maintenance of assets, to create temporary labor-intensive jobs in a gender-inclusive manner. 	MoTI, MoA, LNDC, and rural local governments (see note on new structure needed)	MT/LT
3.	<p>Invest in climate resilience with a focus on critical connective infrastructure to ensure access to highland towns and/or other parts of the country. Prioritize community-driven early warning systems (EWSs) and EP&R for deep snow emergencies.</p> <ol style="list-style-type: none"> I. Prioritize climate-resilient connective infrastructure (e.g., gravel or paved roads, footbridges) to protect against landslide and deep snow risks for areas with economic activities (tourism, hydropower facilities) and relatively higher population density (e.g., settlements close to highlands towns). II. Establish community-driven EWSs and procedures for climate-related events in areas with sufficient population density. III. Foster collaboration with South African emergency response and management authorities for parts of the rural highlands that are easier to reach from South Africa than from elsewhere in Lesotho. 	DMA, MoPWT, DA, and rural local governments (see note on new structure needed)	MT/LT



Annexes

Annex Part 1: Full Case Studies

The following three case studies demonstrate real-life applications of the territorial development approach to solving growth and development challenges in Lesotho.

Case Study 1: Mohair Production and Value-Chain Development in Lesotho

Introduction

The agricultural sector is a major source of livelihood in Lesotho, engaging approximately 71 percent of the rural Basotho population. Agriculture contributes about 5 percent to GDP, more than half of which (about 52 percent) is attributable to the livestock sector. Wool and mohair are among the largest agricultural commodities. In 2022, Lesotho produced 16 percent of global mohair output, making the country the second biggest producer and exporter of mohair after South Africa.^{33,34}

Referred to as the “diamond fiber,” mohair, like wool, is a natural fiber used mainly in the apparel industry, especially in high-end fashion. It is also biodegradable, renewable, and ecofriendly, making it a unique niche commodity. The production of mohair in Lesotho has a long history and is crucial to the livelihoods of many rural producers, whether directly or indirectly, through their participation in allied commodity chains. The subsector therefore holds considerable potential to alleviate rural poverty and food insecurity in the country. The available data on the number of goats and mohair farmers in each district indicate that a territorial approach, using the 2x2 framework developed for Lesotho, could provide insight for the development of a tailored and spatially specific program of investments and interventions to promote a private sector-driven, export-oriented mohair value chain to help raise farmers’ income and create jobs.

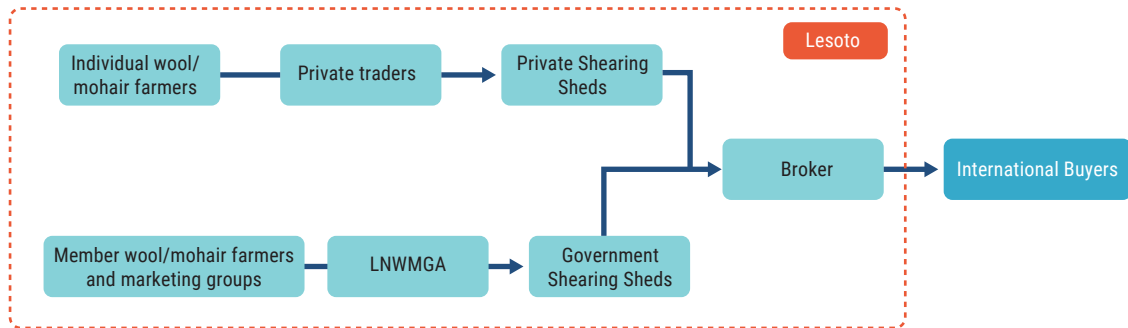
Farmers’ participation in the wool and mohair subsector

The wool and mohair agricultural subsector contributes more than half of Lesotho’s agricultural exports. An estimated 250,000 of the country’s households are directly involved in wool and mohair production. According to a report prepared by the International Fund for Agricultural Development (IFAD) for the Wool and Mohair Promotion Project (WAMPP), the subsector comprises two categories of producers: individual farmers who sell their produce to private traders, some of whom own shearing sheds, and members and affiliates of the Lesotho National Wool and Mohair Growers Association. LNWMGA is a nonprofit organization that facilitates the selling of wool and mohair through brokers.³⁵ Figure A.1 shows the current wool and mohair value chain in Lesotho.

33 Marco Coetzee, 2023. South Africa’s Mohair Update. Mohair South Africa. <https://www.mohair.co.za/mohair-blog/press-release-south-african-mohair-industry-update-april-2023>.

34 In 2022, the estimated global mohair output was 4.55 million kilograms.

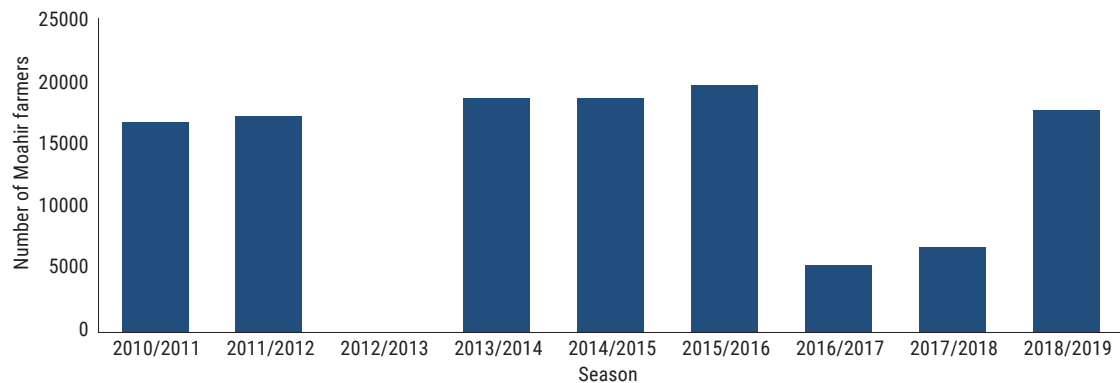
35 Wool and Mohair Promotion Project (WAMPP)/International Fund for Agricultural Development (IFAD), 2020.

Figure A.1. Current Wool and Mohair Value Chain in Lesotho

Source: WAMPP/IFAD, 2020

Mohair goat production in Lesotho

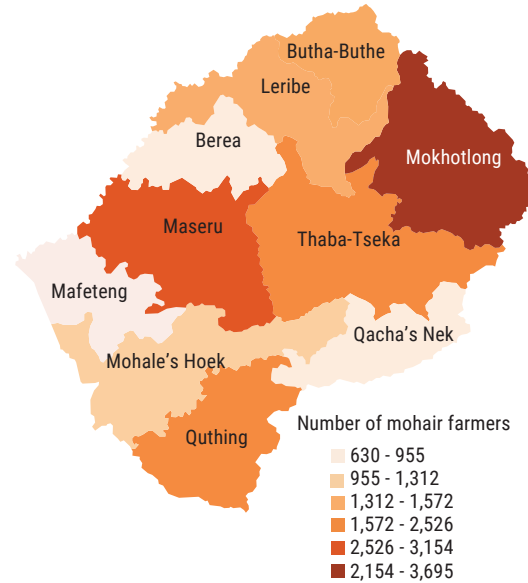
According to the Lesotho Climate Smart Agriculture Investment Plan (CSAIP), almost all the sheep and goats in Lesotho are raised, respectively, for their wool and mohair. It is reasonable, therefore, to use the total number of goats as a proxy for the number of mohair goats. While farmer numbers are based only on those operating under the LNWMGA, more than 80 percent of the farmers in Lesotho raise livestock—predominantly sheep and goats.

Figure A.2. Mohair Farmers by Season, 2010/11–2018/19

Since 2010, the total number of mohair goat farmers at the national level has averaged between 15,000 and 20,000, except from 2016 to 2017, when a significant drop to less than 10,000 occurred. Following fairly constant totals in the period from 2013/14 to 2015/16, the number declined dramatically in the 2016/17 and 2018/19 seasons (see figure A.2). Climactic factors, such as drought or cold weather, could have driven farmers out of mohair goat rearing. An increase in food insecurity from such climatic factors, highlighted in a 2019 UN report, may have led to a rise in livestock deaths resulting from lack of water and suitable pastures, as well as to an increase in farmers' offtake as a coping response. The report listed Quthing and Maseru among the districts worst affected by food insecurity, while Leribe and Thaba-Tseka were classified as stressed but not in crisis.

The most mohair goat farmers—estimated at between 3,154 and 3,695—are found in Mokhotlong District (see map A.1). Thaba-Tseka and Maseru are second, with 2,526–3,154 each. In terms of goats produced, however, the data show that, historically, the highest numbers have been in Leribe, Maseru, Mohale’s Hoek, Quthing, and Thaba-Tseka (map A.2). In Mokhotlong, the number of goats lower than in other districts, implying that goat herd per farmer is smaller. The district is at a much higher elevation and therefore cooler. Focus group discussions and interviews conducted in 2020 as part of the WAMPP/IFAD revealed that the median herd in Mokhotlong comprised 20 goats per farmer, with the explanation that it is challenging to raise mohair goats in very high-altitude areas. The common practice in Lesotho of shearing the goats twice a year, including in the coldest months, leaves them highly vulnerable to cold because they are relatively small. The goats’ vulnerability can be mitigated by feeding them very well, but the need for extra food limits the size of the herds. The combination of shearing twice a year with inadequate feeding constitutes the major challenge to mohair goat rearing in Mokhotlong and other high-altitude areas of the country.

Map A.1. Mohair Farmers under the LNWMGA per District, 2018/19

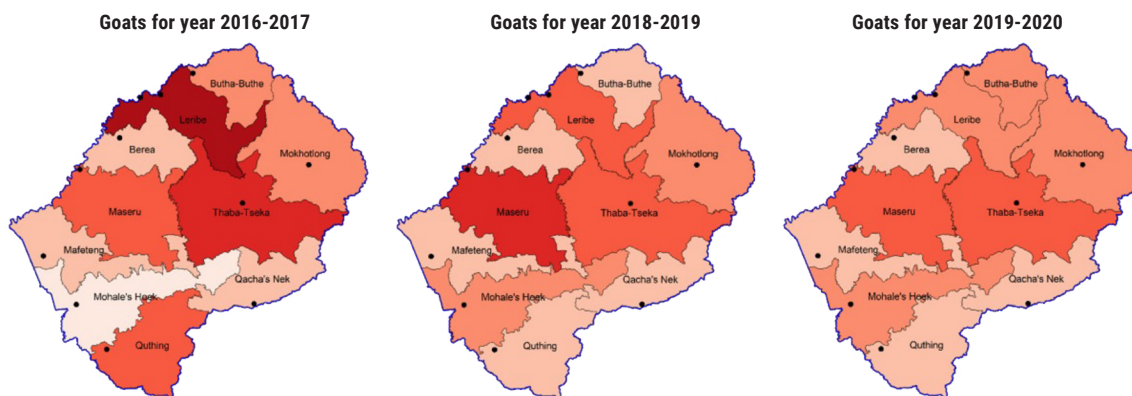


Source: WAMPP/IFAD 2020

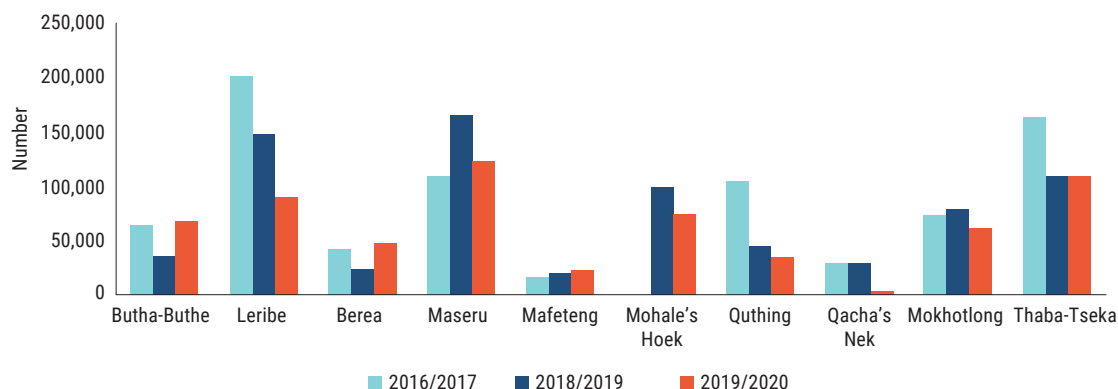
Key challenges affecting mohair goat production in Lesotho

In general, Lesotho’s wool and mohair sector faces several key constraints, among them limited value-chain coordination and mistrust; a paucity of data for management, policy, and planning; suboptimal management of critical public assets, such as the shearing sheds; and lack of improved breeds for sheep and goats. To improve intensity of production

Map A.2. Reduction in Goats per District, 2016/17–2019/20



Source: World Bank Staff/Lesotho BOS.
 Note: Darker color indicates darker concentration of sheep.

Figure A.3. Goats in Lesotho per Agricultural Year

Source: World Bank Staff/Lesotho Bureau of Statistics

by shearing twice a year even in high-altitude areas, supplemental feeding with concentrates is necessary. The cost of this is not affordable to most farmers, nor is the feed always available. Furthermore, Lesotho's wool and mohair industry depends heavily on South Africa for input procurement and access to services (such as shearing, cleaning, and marketing), as Lesotho's producers tend to be fragmented and lacking in functional associations, and large private-sector actors are few. Mohair production is mainly undertaken by rural smallholder farmers and, thus, constrained by low productivity and a lack of records to facilitate product certification.

Recommendations for improving the mohair value chain in Lesotho

The territorial approach holds potential for developing the mohair goat value chain in Lesotho's lowlands and foothill districts, such as Leribe, Quthing, and Maseru, and also in some highlands with favorable conditions, such as Thaba Tseka. The spatial targeting approach, building on lessons learned from existing projects such as WAMPP, is vital to developing tailored and context-specific recommendations to facilitate the development of inclusive value chains.

More generally, strengthening regional collaboration with South Africa is important for improving markets, mohair processing facilities, and goat breeds. Enhancement of goat husbandry practices, including feeding, is needed to improve mohair yield, and keeping reliable data is essential to policymaking for and planning and management of the mohair value chain. Also important is to explore mechanisms of developing an all-inclusive traceability system, which is likely to become a key element of the export market.

Specific recommendations are presented in the 2x2 framework in figure A.4.

Figure A.4. Spatially Differentiated Recommendations to Promote the Mohair Value Chain in Lesotho

		Urban	
			Lowlands
	3	4	
Highlands	2	1	
		Rural	
<ul style="list-style-type: none"> • Build mohair processing facility for local market • Improve road connectivity to industry in urban lowland 		<ul style="list-style-type: none"> • Build or adapt textile facility for local mohair production and export • Increase capacity of existing government institutions to improve regional collaboration with South Africa 	
<ul style="list-style-type: none"> • Invest in education and capacity building to improve practices and increase yields for mohair goats • Invest in introducing higher yield and climate resilient (cold resistant) variants • Improve road connectivity to urban highlands processing facility 		<ul style="list-style-type: none"> • Provide assistance for herd rebuilding, introducing climate resilient variants • Invest in education for reduction in kid mortality rates • Build mohair processing facilities linked to urban industry • Improve goat registration and traceability (nationwide, but prioritizing rural lowlands) 	



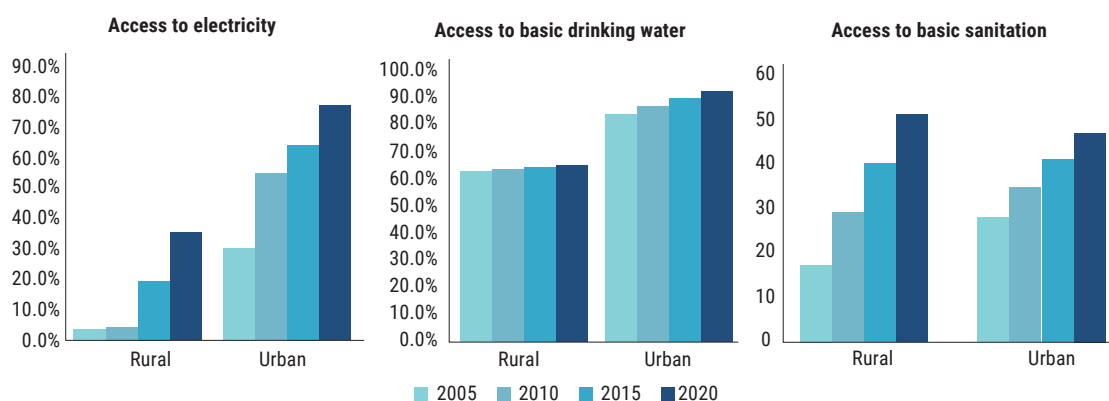
Case Study 2: Disparities in Access to Services and Living Standards across Lesotho

Introduction

Basic services and infrastructure are essential to ensuring good living standards and economic dynamism. Lesotho's progress toward broad access to basic services and core infrastructure has been slow, undermining productivity and livability. At the regional level, significant gaps are coupled with exposure to natural disasters and ineffective land use planning, which can further hinder resilient territorial development growth.

Lesotho has come a long way in the past 15 years and has made substantial progress in terms of access to basic services, but challenges persist (figure A.5). In 2005, only 4 percent of the rural population had access to electricity and 17 percent to basic sanitation. Although access to these services remains low, it has increased significantly since then (to 35 percent and 52 percent in 2020, respectively). Moving from a rural to an urban area is associated with improved access to water, sanitation, and electricity, with such a move causing a rise in access by about 45 percent, 35 percent, and 50 percent, in each service respectively.³⁶

Figure A.5. Access to services in rural and urban areas in Lesotho, 2005–20



Source: World Development Indicators.

The extent of the variation in access to services between urban and rural areas depends on the service in question. In Lesotho, access to electricity presents the largest urban-rural divide. More than 65 percent of the rural population does not have access to electricity, compared to 22 percent in urban areas. Access to water in rural areas has remained almost static in the past 15 years, with nearly 40 percent of the population lacking access to drinking water, while in urban areas, nearly all of the population (97.5 percent) has access to potable water. In the rural highlands, 68.3 percent of households have access to potable water, while 31.7 percent use water from unimproved sources. Some reasons for this include uneven distribution of water resources, unplanned population settlement patterns, and poor sector planning and management. Although half the country's population does not benefit from basic sanitation services, Lesotho has seen some convergence between rural and urban areas in recent years, with the former (at 52 percent access) surpassing the latter (47 percent).

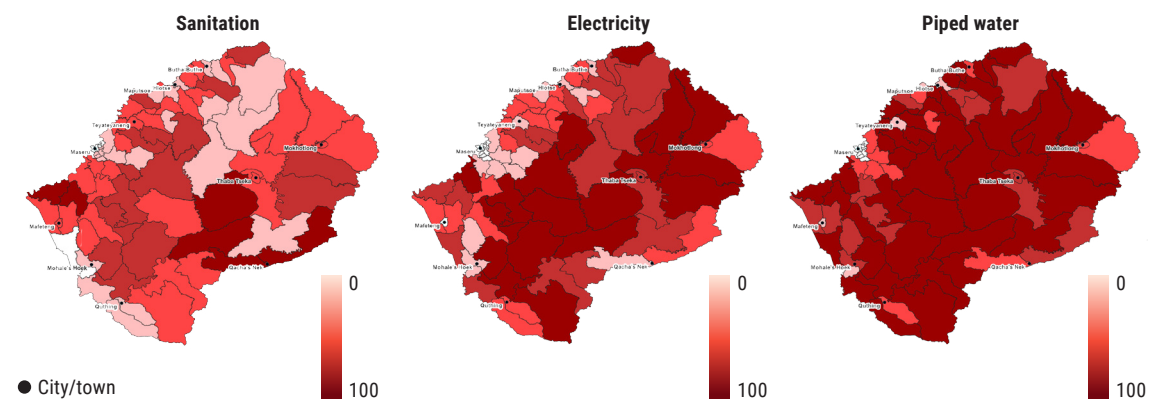
³⁶ Hommann, K., and S. V. Lall. 2019. *Which Way to Livable and Productive Cities? A Road Map for Sub-Saharan Africa*. International Development in Focus. Washington, DC: World Bank Group.

The quality of the sanitation remains better in urban areas, however, with 82.2 percent of households having access to improved services while rural areas remain at 52 percent.

Regional disparities in the provision of basic services

A more granular look at the data reveals additional spatial differences in access to basic services in Lesotho. The uniqueness of the country's disparities lies in the combination of the rural-urban divides—which are observed in many countries—with Lesotho's topography. Rural and mountainous areas in Lesotho tend to lag the urban areas in the lowlands and to have limited income opportunities, low human capital, inadequate and inequitable access to basic services and infrastructure, and high vulnerability to environmental and economic shocks. Dividing Lesotho into four main regions—urban lowlands, urban highlands, rural lowlands, and rural highlands—reveals substantial differences in the provision of basic services, depending on the area in which a constituency is situated (figure A.6).

Figure A.6. Access to Basic Services by Constituency



Source: WB Staff calculations using Census 2016 and Household Survey 2017/2018.

Despite having the country's largest share of the population (35 percent), communities in the rural lowlands are among those with the least access to basic services. Only 29 percent of the people in this quadrant have access to electricity, 38 percent to improved sanitation, and 12 percent to piped private water. Only the rural highlands fare worse.

The urban lowlands, with almost 30 percent of the country's population, is the only region in which more than half the population has access to improved basic services. Among urban lowland residents, 65 percent have access to the electric grid, 57 percent to improved sanitation, and almost 70 percent to piped private water. In contrast, among their urban peers in the highlands—the least populated region with only 6 percent of the country's population—provision of services is, on average, 30 percentage points lower.

Regional disparities at the district level tend to hide variation among constituencies. On average, for example, Maseru and Berea lead in district-level access to electricity, while Thaba-Tseka and Mokhotlong are lagging districts. The Maseru district constituencies of Makhaleng, Maletsunyane, Rothe, and Thaba-Putsoa, however, have far worse access to electricity than the constituencies of Thaba-Tseka and Mokhotlong districts, lagging by 20 percentage points. These findings further demonstrate the urban-rural divide, as well as the better access provided to constituencies that contain district capitals, such as the Thaba-Tseka Town and Mokhotlong Town constituencies (urban highlands, relative to the four rural lowlands constituencies in Maseru District. Similarly, five constituencies in Mafeteng District, which, on average, has the

lowest access to improved sanitation in the country, outperform Mosalemane, Malimong, and Tsoana-makhulo in Berea District, despite Berea's being among the districts with the highest access to improved sanitation, underlining how the urban-rural divide is potentially a bigger driver than the lowland-highland divide. The lowlands districts mentioned have better access to services in general than their highlands counterparts, but urban constituencies in highlands districts outperform many rural ones in lowlands districts.

In terms of disparities in living standards, the constituencies of Maseru (in Maseru District) and Khubetsoana and Mabote (Berea District) are, on average, the leaders, with more than 80 percent of the population having access to improved basic services. In contrast, Thaba-Moea (Mokhotlong District) lags, has less than 6 percent of the people having such access.

Beyond access: The quality of services in the water and energy sectors

Despite Lesotho's being a fairly "water-rich" country, it lacks access to clean drinking water. Although water resources are substantial, availability is constrained significantly by location and season. The rapid urbanization of the lowlands and increased industrial development has added to the pressure on water resources. Water supply shortages are now common, for example, in Maseru District and in towns in Leribe, affecting the value-added capacity of agriculture as well as of the garment industry, which is a major private employer, especially of Basotho women. To cater to rising industrial demand and rapid urbanization, the efficiency of water service delivery to urban areas needs to be improved within the Lesotho Water and Sewage Company (WASCO). In rural areas, Lesotho is in the process of improving the quality of its water supply services by changing its institutional architecture; the country is moving from a centralized system, in which the process was managed by the Department of Rural Water Supply, to a more decentralized one, in which the community councils act as water service authorities (WSAs). A more secure infrastructure service provision platform—one that can sustain the well-being and economic livelihood of the population and reduce vulnerability to climate-related disasters—has also been necessitated by drought and flood conditions that have occurred several times over the past two decades.

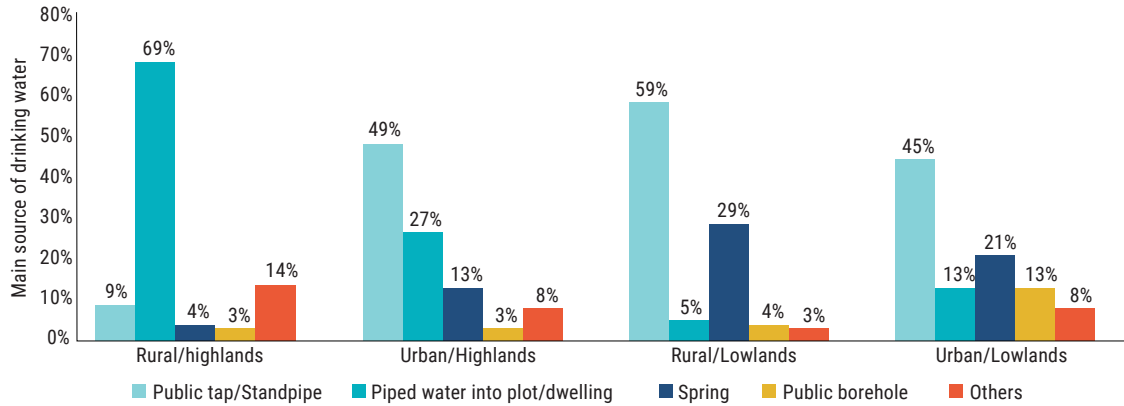
On a national level, most of Lesotho's people have access to water through public taps or standpipes, with the exception of the rural highlands, where approximately 70 percent receive piped water within their yards or dwelling (figure A.7). In the lowlands, springs are also a popular alternative to public fixtures, with almost 30 percent of the rural lowlands and 21 percent of the urban lowlands relying on them. Variations also exist, however, at the constituency level. While the constituencies of Maseru and Mabote, for example, have the highest access to improved water piped into dwellings or plots (83 percent and 93 percent, respectively), half the population in the constituencies of Malibamat'so, Thaba-Phatsoa, Ketane, Semena, and Mashai rely on springs; 40 percent depend on unprotected springs, which can be hazardous to health.³⁷

With regard to energy, more than half of inhabitants, on average, of rural areas (as in the highlands) use paraffin as their main source, while electricity use, where available, represents a small share of domestic energy consumption (figure A.8). Levels of rural household electrification and affordability are still low. In 2015, about 65 percent of urban households were grid connected, but this was only true for approximately 20 percent of rural households.

Although access to the grid has increased in recent years, household electricity utilization is constrained by economic and physical factors. Consequently, households are forced to employ an energy "stacking" approach, in which they alternate between electric and nonelectric energy sources, the latter of which include cheaper yet potentially hazardous sources such as paraffin, candles, firewood, coal, and gas to meet their daily needs. Paraffin, which is relatively inexpensive to produce and consume, is often the only available option for low-income settlements, but its use can result in burns and poisoning.

37 Global Nutrition Monitoring Framework: operational guidance for tracking progress in meeting targets for 2025. Geneva: World Health Organization; 2017.

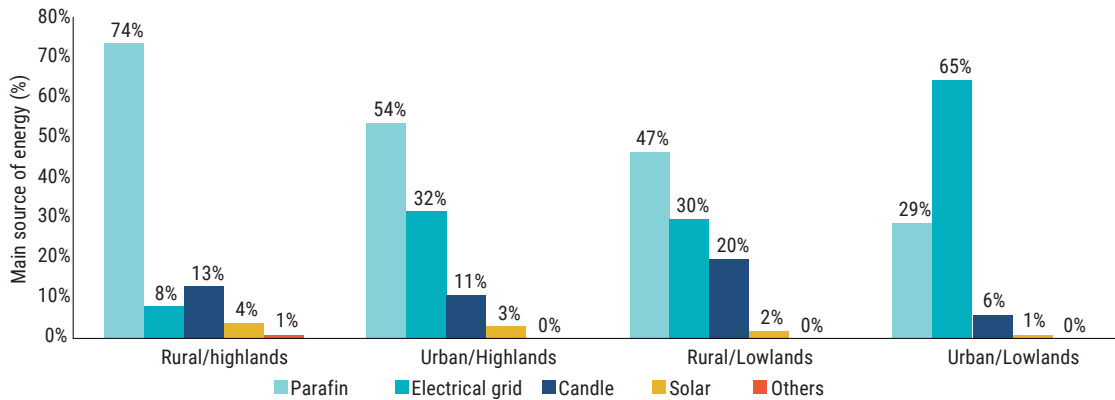
Figure A.7. Water Sources in Lesotho by quadrant



Source: WB Staff calculations using Census 2016.

Note: "Others" includes water piped into someone else's plot, borehole into the property, surface water (river, dam, lake, pond), rainwater harvesting, tanker truck, and cart with small tank/drum.

Figure A.8. Energy Sources in Lesotho by Quadrant



Source: WB Staff calculations using Census 2016.

Note: "Other" includes batteries, electricity generators, wood, and liquefied petroleum gas.

Toward better access to services across Lesotho

Big gaps in such basic services as water, sanitation, and electricity call for a multisectoral policy framework for inclusive development. Given Lesotho's unique geographical characteristics, a spatially differentiated approach is needed to prioritize better access to services in the country. In Maseru City, as in other urban lowlands towns, people are better connected to economic opportunities, while poor people in the rural areas are much further away. While improving access to basic services for low-income people reduces spatial inequalities, the benefits from these investments are likely to be greater if they are accompanied by efforts to improve the utilization of the services.³⁸

Policy action to enhance decentralized infrastructure and service delivery capacity in Lesotho could help improve service provision across the country, including in lagging areas. The spatial approach could also effectively take advantage of the development potential in the resource-rich water or energy sectors; figure A.9 lists priority actions for these sectors in Lesotho. The figure recognizes the challenges involved in electrifying very remote rural highland areas through either publicly financed grid extensions or private sector-led minigrids, and that, in some cases, an alternative would be solar home systems.

Figure A.9. Spatially Differentiated Approach to Priority Actions in Lesotho’s Water and Energy Sectors

	Urban	<ul style="list-style-type: none"> • Grid extension • Increase the quality of water services • Ensure sufficient water access to support economic activities • Improve sanitation 	Lowlands
Highlands	Rural	<ul style="list-style-type: none"> • Grid extension or mini-grids for electrification where feasible • Increase the quality of water services • Introduction of solar home systems • Attract private sector to support mini-grids and solar home systems rollout 	



Case Study 3: A Spatial Analysis of Lesotho's Potential to Improve Horticultural Productivity and Competitiveness

Introduction

Agriculture plays a significant role in Lesotho's economy. About 70 percent of the Basotho live in rural areas and directly depend on agriculture for their livelihoods. Most rural subsistence farmers grow cereals (mainly maize and sorghum), in which the country does not have a competitive advantage because of agroclimatic conditions, small farms, and a general lack of productivity-enhancing investments and activities, exacerbated by very low use of mechanization. This contributes to a large share of Lesotho's population (49.7 percent in 2017) living under the national poverty line, with poverty most prevalent in rural areas.³⁹

Horticulture—the production of vegetables and fruits—has significant potential for growth and can benefit many smallholder farmers in Lesotho.⁴⁰ Conditions in the country are favorable for growing most horticultural commodities—vegetables, in particular. Horticultural production can create jobs and reduce poverty because the sector is highly labor intensive. It can also reduce imports and increase the incomes of farmers. Growth in horticulture can be inclusive of smallholder farmers because production of most such commodities is scale neutral and can be performed by most of Lesotho's smallholder farmers.⁴¹

Horticultural commodities are grown mostly in open-field conditions in Lesotho, although the practice of using protected systems, such as greenhouses or tunnels, is becoming more common.⁴² The products can be classified in different categories, the largest of which comprises brassicas—mainly cabbage, cauliflower, and rape—grown both in open fields and under protective shade netting in controlled environments. The largest areas, mostly open fields but sometimes in protected spheres, are planted with root vegetables, including potatoes, carrots, beetroots, and onions. It is important to note that all these crops can be and are grown in both summer and winter, depending on altitude and proximity to the market. Tomatoes, cucurbitaceae (such as cucumbers, gourds, and squash), and leafy vegetables are grown during the warmer part of the year.

Fruit trees are found throughout nearly the entire country. Most are pit fruit (mostly peaches and plums), held mostly as a supplement to family consumption. Organized larger orchards remain a rarity and, with recent diseases of pit fruit, investments have been directed toward apples.

Data on horticultural production in Lesotho are not reliable. According to a survey of commercial vegetable farmers conducted by the World Bank in 2019,⁴³ however, tomatoes, cabbages, and lettuce are the most popular vegetables grown in Lesotho.

Growing urban populations, increasing incomes, a burgeoning middle class, and a potential for greater awareness of healthy diets are contributing to rising demand for fresh produce. The urban population in Lesotho has doubled since

39 The latest available data are from 2017. Poverty assessed against international standards also remains high. If evaluated using the international poverty line of \$2.15 per person per day (in terms of 2017 purchasing power parities, or PPP), poverty is estimated at 32.4 percent in 2017. Recent projections suggest that, given the limited recovery in 2022, poverty levels remained high that year at an estimated 57 percent (also based on \$2.15 per person per day, 2017 PPP). Other factors, such as rising food prices, have limited poverty reduction (World Bank 2023).

40 The government of Lesotho has prioritized the development of the horticulture industry as one of four priority sectors under the National Strategic Development Plan 2018/19–2022/23.

41 According to Lesotho's Bureau of Statistics, over 60 percent of smallholder households have plots of less than 1.5 hectares.

42 Some of these are supported by projects funded by development partners, such as the European Investment Fund (EIF) and the Smallholder Agricultural Development Project (SADP), funded by the World Bank.

43 World Bank, 2019. Linking smallholders to markets: A Supplier Development Program for Vegetable Farmers in Lesotho. <https://documents1.worldbank.org/curated/en/515391560754757314/pdf/Linking-Smallholders-to-Markets-A-Supplier-Development-Program-for-Vegetable-Farmers-in-Lesotho.pdf>.

1990 and grown at an average annual rate of 2.9 percent over the past decade (World Bank 2019). Maseru City, the main urban center, has a population of more than half a million. Domestic production of horticultural commodities is still low, however, and the domestic demand is largely met by imports, mostly from South Africa. Most supermarkets and other supply chains for fresh produce report that over 80 percent of their fresh stock is imported, even during the growing season (World Bank 2019).⁴⁴

All the supermarkets and buyers are willing to increase local sourcing as the viability of local supply chains is improved, citing the convenience and freshness of local produce. Cost competitiveness will remain a challenge, however, as long as low productivity and quality, fragmentation, and remoteness are not addressed, as these invariably raise the transaction costs of the supermarkets that wish to sell more domestic produce. Improving the ability of local producers to meet the demand will open opportunities for import substitution.

Factors affecting horticulture productivity and competitiveness in Lesotho

The challenges horticultural producers face depend on their location and degree of commercialization. The tradeoff they encounter is that at high altitudes the crops are relatively well protected from insect pests but at risk of harm from cold weather, which greatly affects tomatoes, cucumbers, and leafy vegetables, among others. Production of horticultural commodities in protected systems is undertaken mostly by fully commercial producers. Smallholder farmers, who cannot afford protected systems, largely produce in open fields, thus risking exposure of their crops to pests and diseases that reduce productivity and net profit.

Horticultural productivity in Lesotho is also affected by several crucial factors that are not unique to agriculture but hamper investment and development overall. These include national issues that are spatially agnostic, along with factors identified through territorial analysis. Among the former are the land tenure system, which is based on traditional tenure practices with weak land registration, recording, and enforcement. This system limits land transactions and hinders consolidation toward bigger farms and investment. Also limiting is farmers' lack of relevant knowledge and skills, including basic understanding of how prices in the market, including their production costs, are set, as they rarely keep records.

Another challenge to farmers is presented by highly irregular weather patterns aggravated by climate change, which put open-field crop production increasingly at risk from alternating droughts, extreme rains, hailstorms, and frost. The weather patterns affect different areas of the country in different ways, depending on the ecological zone. The affects are particularly unfortunate for the traditional producers, who do not grow their crops in protected environments (such as greenhouses) because they lack the operating capital to afford such systems. Lack of irrigation infrastructure also affects farmers' resilience to adverse weather, particularly drought.⁴⁵

Access to markets is a major issue that is compounded by poor rural infrastructure, including lack of feeder roads in rural areas and limited access to electricity and clean water. Anecdotal evidence indicates that transportation costs are high for farmers. According to information collected under the World Bank-supported Smallholder Agricultural Development Project (SADP), a farmer in Mafeteng, under contract to supply Pick&Pay shops in Maseru, may pay as much M 5,000 for a small load of cabbages on a three-ton truck.

Moreover, remote areas are largely excluded from access to credit and investment capital, as the banking sector does not reach such places and the microcredit sector is underdeveloped. In some parts of Lesotho, financial technology (fintech) applications such as MPESA are making inroads, but they are limited to a few places, mostly urban, and mainly

⁴⁴ Trade statistics show that imports of vegetables have grown by 45 percent since 2010 and were worth \$18.7 million in 2017 (UNCOMTRADE). In 2017, more than 28,000 tons of vegetables were imported from South Africa, with potatoes, cabbages, and tomatoes accounting for 83 percent of all vegetable imports.

⁴⁵ The National Irrigation Plan identifies 52,000 ha that could be irrigated. Investment requirements, however, are stated to be anywhere from US\$5,000 to US\$8,000.

accessible to younger people who use digital technology more and are not affected by the “digital divide.” In most remote areas, insufficient network coverage renders the apps largely unavailable.

The top-ranked issues affecting smallholder farmers in terms of competitiveness are unreliability, variable quality, low volumes, noncompliance with quality standards, and lack of basic food safety certification (World Bank, 2019). In combination, these issues make sourcing from smallholder farmers risky for wholesalers and supermarkets. The farmers, in turn, find it difficult to fulfill obligations under supply contracts as the result of the high degree of fragmentation and inability to comply with production guidelines, coupled with limited technology and operating capital.

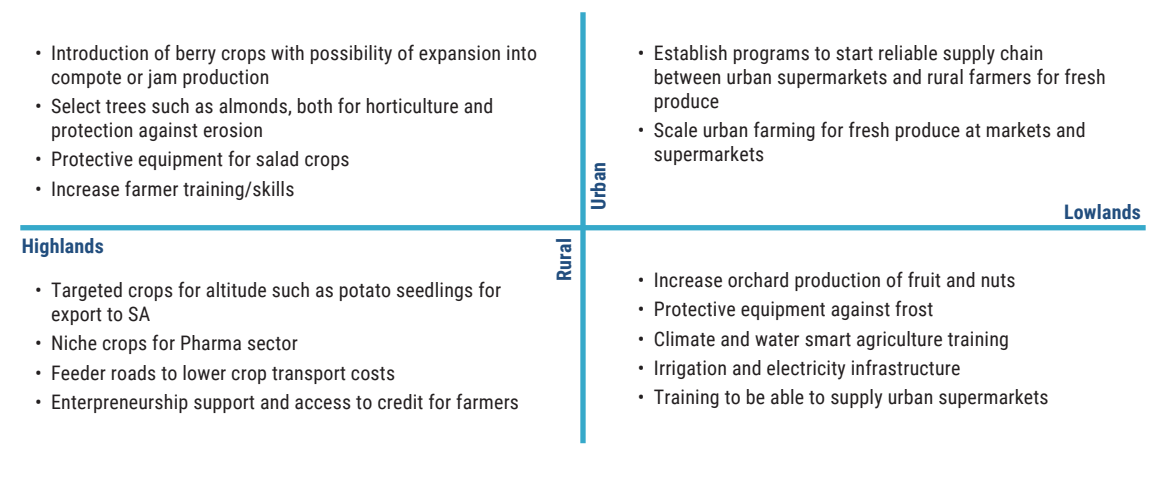
**Recommendations to improve horticultural productivity and competitiveness:
 2x2 framework**

Enhancing the productivity and competitiveness of smallholder horticultural producers requires, first and foremost, addressing farmers’ production constraints to enable them to meet the quality and volume requirements of potential customers. It is also vital to build their organizational capacity so they can aggregate their commodities to meet the scale required by customers. Working with customers in supply contracts would help the farmers address the production challenges through the transfer of technology, operating capital, and production knowledge and skills. Through such arrangements, they would be trained on how to produce commodities in accordance with quality and quantity specifications.

Improving public goods, such as rural access infrastructure and basic services provision, is essential to attracting private sector investment in the logistical facilities that form the lifeline of horticultural value chains, given that most of the products are perishable and have to be delivered to the market before they spoil. The improvement of irrigation infrastructure would also help farmers adapt to and be resilient against droughts, which are becoming more common as climate change advances.

Putting in place policies that look outward rather than inward to promote regional integration in trade with neighboring countries such as South Africa would be beneficial to Lesotho’s agriculture in general, and the horticultural sector in particular. The framework in figure A.10 provides some specific recommendations in terms of the locations with potential for horticultural production in Lesotho.

Figure A.10. Spatially Differentiated Recommendations to Improving Horticulture Production in Lesotho



Annex Part 2: Detailed Lesotho Economic and Poverty Profile

Lesotho, a landlocked country of two million people, is one of the poorest in Southern Africa. Although it ranks as a lower-middle-income country with a per capita gross domestic product (GDP) of US\$999.70, income inequality is very high. Increased economic growth since the 1990s had led to a downward trend in poverty levels but this has been partially reversed by multiple crises. Lesotho's poverty rate fell from 56.6 percent in 2002 to 49.7 percent in 2017, based on the national poverty line. Using the international poverty line of US\$2.15 per person per day in 2017 purchasing power parity (PPP) terms, the reduction was sharper, falling from 66.3 percent in 2002 to 32.4 percent over the same period.⁴⁶ A combination of the recent COVID-19 pandemic with frequent climate events halted and partially reversed this encouraging trend, however, with recent projections indicating that the poverty rate—again based on the 2017 international poverty line—increased from 32.4 percent in 2002 to 36.6 percent in 2021, with only a slight decrease to 36.3 percent in 2022.

Lesotho's economy is directly and significantly affected by South Africa's economic performance. Through its membership in the Common Monetary Area (CMA) and the Southern African Customs Union (SACU),⁴⁷ Lesotho's economy is deeply integrated with that of its only neighbor. Lesotho's currency, the loti (abbreviation: LSL; plural: maloti), is also pegged 1:1 with the Rand, which deprives Lesotho of an independent monetary policy. Lesotho relies, therefore, solely on its own fiscal policy for growth and development, as well as its response to any crises. The economy is vulnerable to changes in remittances from Basotho workers in South Africa, because they account for a large proportion of GDP (22 percent in 2019–21), and is dependent on South Africa, its largest trading partner, for trade and financial flows. South Africa exports to Lesotho 90 percent of Lesotho's consumer goods services—a share that has been increasing over the years as a result of the SACU trade arrangement. South African businesses also own most of Lesotho's retail chain stores, commercial banks, insurance companies, and mobile network companies.

Economic growth, which started to stall with the financial crisis of 2007–9, is expected to pick up in 2023 due to internal factors. Of particular importance are the construction of Phase II of the Lesotho Highlands Water Project⁴⁸ and associated spillover effects in the services sector. Also, likely to contribute to higher growth is the improved outlook for rough diamonds⁴⁹ in response to an expected prolonged worldwide supply shortage, resulting from sustained demand, that will boost the crucial mining sector.⁵⁰ Growth is estimated at 2.6 percent in the 2023 calendar year, 3.1 percent in 2024, and 3.3 percent in 2025.

Even with the prospect of raised economic growth, Lesotho remains in the top 20 percent of the most unequal countries in the world,⁵¹ although it has become less unequal than its neighbors. In addition to high inequality of outcomes,

46 Assessed against the lower middle-income-country threshold of \$3.65 per person per day (in 2017 PPP), poverty fell from 83.6 percent to 54.7 percent over the same period.

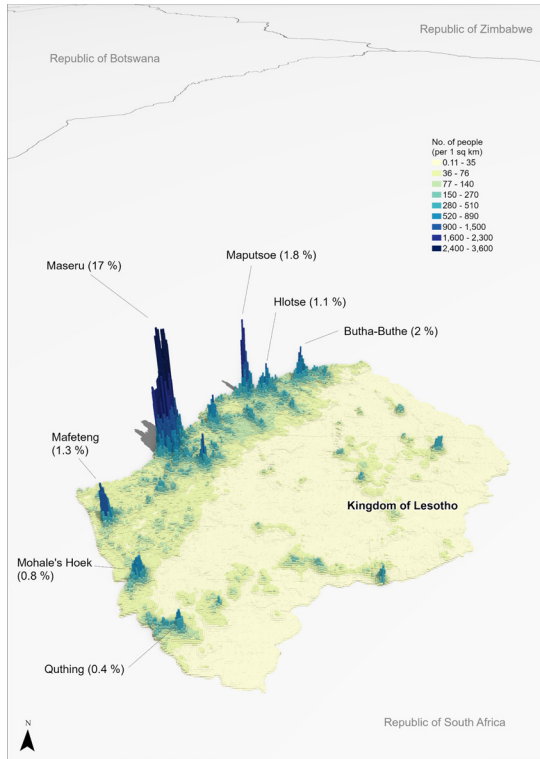
47 CMA members are Eswatini, Lesotho, Namibia, and South Africa. SACU comprises Botswana, Eswatini, Lesotho, and South Africa.

48 The Lesotho Highlands Water Project is an ongoing undertaking comprising a system of dams and tunnels to supply South Africa with water from Lesotho.

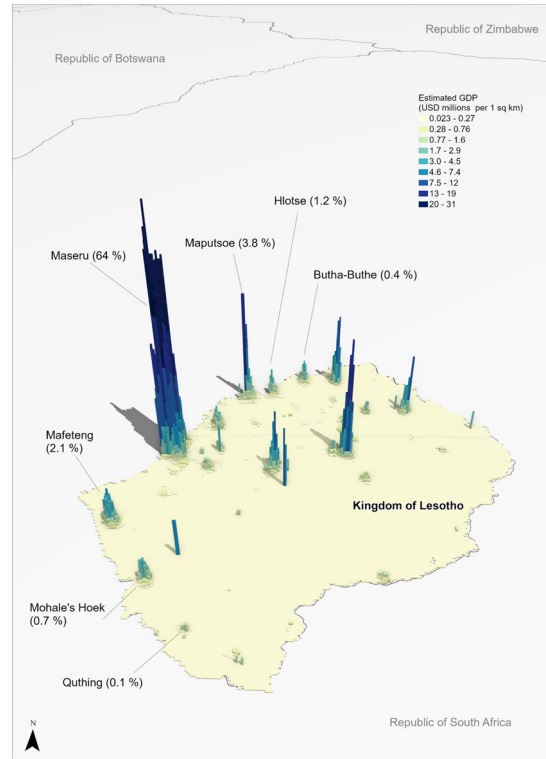
49 World Bank Lesotho Overview.

50 Bain and Company, <https://www.bain.com/insights/a-brilliant-recovery-shapes-up-the-global-diamond-industry-2021-to-22/>.

51 How Lesotho, one of the world's most unequal countries, became a lot more equal – World Bank article: <https://blogs.worldbank.org/african/how-lesotho-one-worlds-most-unequal-countries-became-lot-more-equal#:~:text=Duepercent20topercent20apercent20largepercent20urban,unequalpercent20countriespercent20inpercent20thepercent20world.>

Map A.3. Population Density in Lesotho

Source: World Pop 2020.

Map A.4. GDP Concentration in Lesotho

Source: Chen et al 2019

Lesotho faces high inequality of opportunity and relatively low intergenerational mobility. Maps A.3 and A.4 compared GDP concentration and population concentration throughout the country. They show how GDP is much more concentrated in urban areas relative to the distribution of the population. This is particularly true for Maseru City, Lesotho's capital, which has 17 percent of the country's population but 64 percent of GDP, showing strong agglomeration economies there. At the same time, inequality has been going down. Between 2002 and 2017, Lesotho's Gini coefficient fell by seven points, from 51.9 to 44.6. Consumption by the bottom 40 percent of the population grew by 2.2 percent annually over the same period, compared to 0.1 percent for the top 60 percent. Expansion of social protection and an increase in wage incomes among the poor contributed to improvement in shared prosperity.

Lesotho's employment profile differs significantly between rural and urban areas, reflecting the distribution of economic activity. In Maseru City, the most significant urban area in terms of both its size and level of economic activity, the consumer services sector is responsible for 31 percent of employment and the mining and construction sector for 33 percent.⁵² Lesotho's mining sector is export oriented and accounts for 41.9 percent of the country's exports by monetary value; together, mining and textile manufacturing, which is located in urban areas of the lowland districts that neighbor Maseru District, comprise the bulk of the private sector. Meanwhile agriculture, the mainstay of the rural economy, provides 44 percent of jobs nationwide but remains mainly at the subsistence level, contributing only about 5 percent to GDP.

Foreign trade figures show that Lesotho imports items with more value added than it exports. In 2021, total exports of goods equaled LSL 13,817 million (\$722.8 million), of which LSL 8,930 million (\$489.5 million), or 64 percent, had some value added. In contrast, total imports of goods equaled LSL 26,949 million (\$1,477 million), of which LSL 13,010 (\$713.2 million), or 48.2 percent, had some value added.⁵³

Interviews with officials from the Lesotho National Development Corporation (LNDC) confirmed that economic diversification leading to more value-added production within Lesotho is a policy goal, especially within sectors like agriculture. This has proved challenging because of structural constraints, however, which LNDC and others have identified as lack of institutional capacity, lack of industrial focus, inadequate governance characterized by a poor policy and legal environment, and a lack of access to basic services that affects manufacturing capacity. To address them, LNDC's objectives include creating a better business environment, improving institutional capacity, improving infrastructure, improving the use of data, and introducing green investment practices.⁵⁴

As part of efforts to reduce the structural constraints on its economy, Lesotho is attempting to transfer powers to local government from the central government, but governance remains highly centralized. Local government comprises ten district councils (one for each district in the country), eleven urban councils, one municipal council (Maseru City Council), and sixty-four community councils (active in rural areas). Each district is led by a district administrator, who is answerable to the central government and is the chief liaison between the center and the local district. All councils are answerable to the Ministry of Local Government, which has been leading the efforts to transfer more powers and functions to local government per the 2014 National Decentralization Policy. A key barrier is the lack of official definitions of urban areas, which presents an impediment to the territorial approach, as well as to the provision of basic services and infrastructure and the generation of own-source revenue at the local level. Without such definitions, councils do not know whom to tax (for example, because they do not know which buildings are subject to property tax), and service providers with urban mandates do not know to whom to extend service provision on the peripheries. The latest Decentralization Bill, drafted in 2015, contains provisions to define urban areas. It also helps define more granularly the relationship between central and local government, which is often not clear, and allows for an expansion of the capabilities crucial to effective implementation of economic development policies at the local level.

Another challenge to Lesotho's economic development is growing pressure on service provision as the country's current population of 2 million rises to a forecasted 2.3 million by 2036. All regions except certain districts in the south and southwest are expected to experience population growth, with the increase occurring at a faster rate in urban areas. As of 2020, 29 percent of Lesotho's population lived in urban areas, which is lower than the average for sub-Saharan Africa (41 percent). Urbanization was most rapid in Maseru City, the land area of which grew 177 percent between 1985 to 2015.⁵⁵ While most of that expansion occurred between 1985 and 1990, with a slower expansion rate after that point, Maseru's population is forecast to increase 38 percent by 2036, suggesting a potential return to faster urbanization rate.

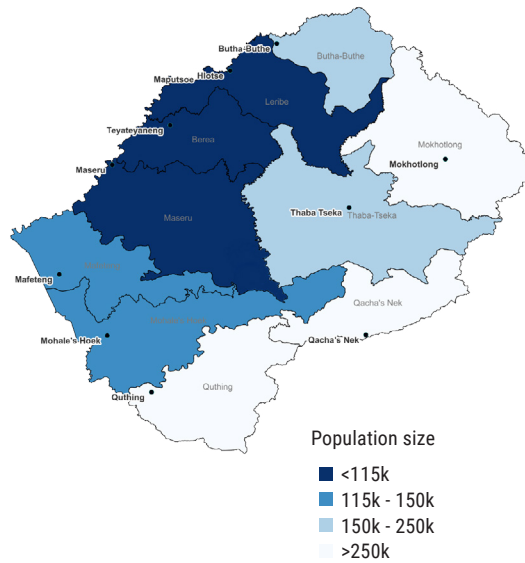
Maps A.5 and A.6 compare population density in 2022 with expected population density in 2036 by district. The darkest colored districts have the densest populations. Those on the western side—Maseru, Berea, and Leribe—are in the lowlands and have the most urbanized towns. Given the decrease in density the figures show for rural areas in the southwest, coupled with the expected growth in population, people will be even more concentrated in Maseru and the neighboring industrial districts by 2036.

53 Lesotho Bureau of Statistics, Foreign Trade Statistics, 2021.

54 LNDC Strategy 2023/24-2027/28.

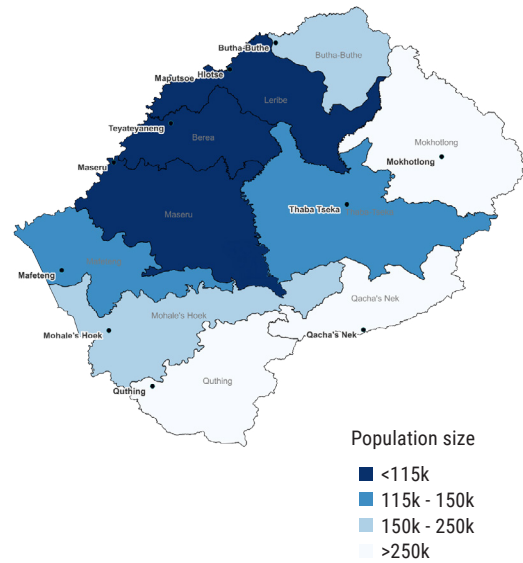
55 WB Maseru City Scan, October 2022.

Map A.5. Population Density 2022



Source: Lesotho Bureau of Statistics.

Map A.6. Expected Population Density 2036



Source: Lesotho Bureau of Statistics.

Contributing to increasing urban density are climate events, which are potential push factors for predicted internal migration to cities as food insecurity becomes more acute in rural agricultural areas. In 2019, more than 400,000 people in rural areas (or 20 percent of the rural population) were affected by drought.⁵⁶ The lowlands in the west and south in their entirety are highly vulnerable to drought, with specific areas in the northwest and southwest lowlands identified as high risk. At the same time, the growing population in urban areas, particularly the poor, are also endangered by increased flooding. As the climate has become more variable, the frequency and severity of weather events have increased and had material impacts on the economy, the public finances, livelihoods, poverty, and inequality.

In short, Lesotho as a whole is affected by adverse climate events for which it is not prepared, and which vary with its highly diverse geography. In lowland areas increased precipitation leads to flooding that can erode the soil and cause drought, while in the highlands it causes more frequent landslides or takes the form of increased heavy snow that can damage crops and connectivity by blocking infrastructure such as roads. Some of Lesotho's key sectors, including agriculture and tourism, are especially vulnerable. The country's Disaster Management Agency (DMA) lacks the institutional capacity to address these risks, and does not use a spatially tailored approach disaster response planning that differentiates between lowlands and highlands or urban and rural. DMA also focuses on post-disaster response, and it lacks the mandate and capacity for effective preventive actions, such as risk identification and risk reduction. Other key agencies also lack the skills, hardware, and infrastructure to prepare for climate emergencies or respond to them effectively.

56 UN Central Emergency Response Fund (CERF) (2019). Lesotho Drought Situation Update.

Poverty Profile and Spatial Variation

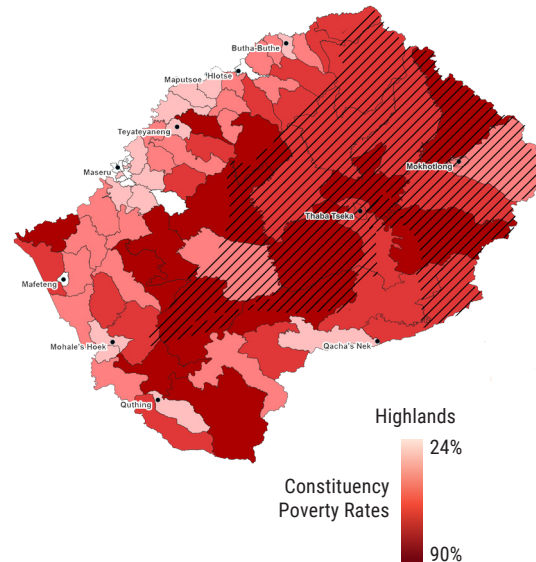
As mentioned above, based on the international poverty line, Lesotho more than halved its national poverty rate between 2002 and 2017 and then saw a partial reversal resulting from several crises, including the COVID-19 pandemic. Since the pandemic, poverty has begun to fall nationally. Measuring poverty at the national level, however, disguises the considerable variation within the country that necessitates bringing a spatially differentiated lens to its development, as well as acting as a complement to existing poverty data and analysis.

Lesotho's topography seems to be a driver of "lagginess"—that is, the extent to which districts and their constituencies lag behind leading areas. Constituencies are smaller regions within districts, and analysis at this level provides more granular insight than at the district level. Map A.7 was created by overlaying a constituency-level poverty map based on data from the Lesotho World Bank Poverty Assessment with a digital land elevation model.⁵⁷ The result shows a strong relationship between elevation (shaded areas in the map are higher) and poverty rates (darker-colored areas are poorer). As elevation increases from lowlands to foothills to highlands, population density generally decreases, and access to services and infrastructure, including connective infrastructure such as roads and broadband, tends to drop.

The differences in access to services based on Lesotho's geography and urban and rural variations is particularly striking. Service delivery is best in the urban areas in the lowlands, followed by urban areas in the highlands, and then rural areas. The rural areas of the highlands, which have the highest costs for service provision and the lowest connectivity, have the worst service delivery rates in the country. An illustration of the effect of geographical barriers is Thaba-Tseka, Lesotho's most lagging district in terms of poverty. Although Thaba-Tseka is actually next to Maseru, Lesotho's leading district, it mostly does not benefit from the economic opportunities in Maseru. The Senqunyane River at its border and its highly mountainous terrain create economic distance between Thaba-Tseka and both Maseru and the commercial border with South Africa.

Within the wealthier urban areas, rapid expansion resulting from migration has exacerbated poverty. The decline in Lesotho's poverty rates that occurred between 2002 and 2017 happened in urban areas, particularly Maseru, dropping from 41.5 percent to 28.5 percent in the cities and towns (based on the national poverty line) while remaining the same or rising in rural foothills, rural mountains, and the Senqunyane river valley area. The absolute number of poor, however, actually increased in urban areas from 180,000 to 196,000 because of internal migration to urban areas, but decreased in the rural and mountainous areas from 864,000 to 801,000, implying a gradually increasing *urbanization of poverty* as the general population shifts to being more urban (figure A.11). Given the changes in population distribution and density discussed in section 1.1, above, this trend will likely continue.

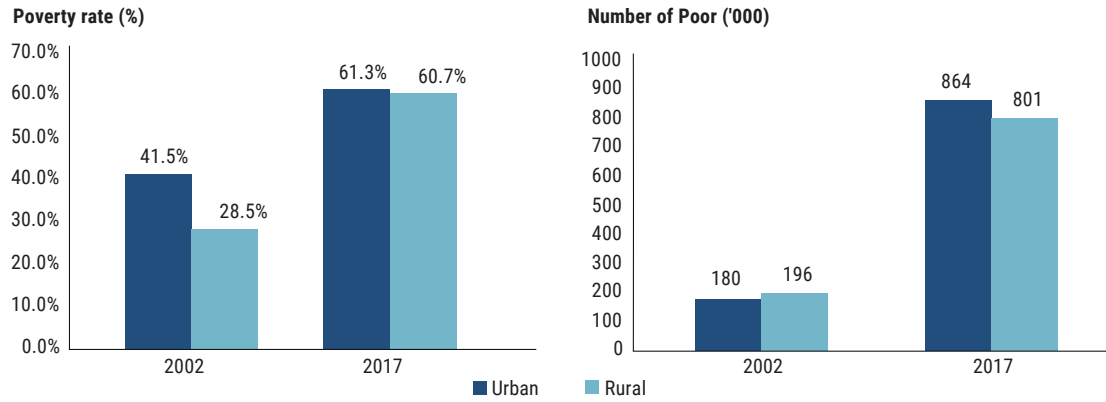
Map A.7. Relationship between Poverty and Land Elevation in Lesotho



Source: World Bank Poverty GP data and WB staff calculations.

Note: Poverty measured at the official national poverty line.

57 Mapping Subnational Poverty in Lesotho 2017/18, produced by World Bank Poverty team with Lesotho Bureau of Statistics, digital elevation model sourced Regional Center for Mapping of Resources for Development, Lesotho DEM 2023 <https://rcmrd.org/en/>.

Figure A.11. Poverty Rate versus Number of Poor

Source: Mapping Subnational Poverty in Lesotho in 2017/18, WB and Lesotho Bureau of Statistics.

Note: Poverty measured at the official national poverty line.



Annex Part 3: Detailed Territorial Development Framework and Analysis in Lesotho

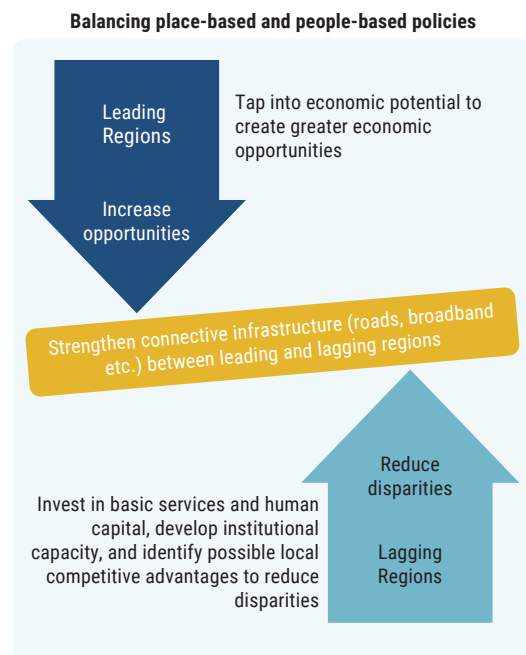
Definition of Territorial Development

The territorial development approach analyzes poverty and economic opportunity through a spatial lens, using both quantitative and qualitative data. An integrative multisectoral approach, it pursues its two main objectives—reducing inequality between lagging and leading regions and identifying opportunities in both to support agglomeration economies and job creation—by seeking to understand the root causes of disparity between the regions and the barriers to resilient and inclusive development. It gives due consideration to natural disaster risks induced by climate change, as well as the constraints of political economy that affect the development and implementation of projects. The World Bank has deployed the territorial approach in several countries around the world (see box A.1). Of particular note was its application in Bhutan, another landlocked mountain kingdom like Lesotho, in which investments targeted the capital city of Thimphu and a border town with strong economic potential.

A key advantage of territorial development is that it moves away from a one-size-fits-all approach in favor of a holistic one that balances leading and lagging regions.

In some ways, Lesotho as a whole could be treated as a lagging region of South Africa, a larger and economically stronger country. Spatial analysis of poverty in Lesotho reveals sufficient variation within the country for the territorial approach to be helpful in gaining a better understanding and diagnosis of its challenges and developing spatially differentiated and targeted recommendations.

Figure A.12. Snapshot of the Territorial Approach



Box A.1. The Territorial Approach to Economic Growth and Development around the World

The World Bank has brought the territorial development approach to various countries to help them think differently about development challenges and how they can be addressed. Consideration of spatial variation takes into account economic density, local or regional economic specializations, population of target areas, local geography, and the urban-rural divide. The analyses conducted all identified an approach that highlighted access to services, capacity building, and connectivity as key to improving living standards and taking advantage of economic opportunities in lagging areas.

In Bhutan, the territorial approach supported the government's need to achieve sustainable urban growth, coupled with a regional balance for development, by improving its understanding of and capitalizing on its demographic and economic spatial variations. A World Bank team laid out a framework for varying strategies depending on the economic and population density of a city or town. For cities such as the capital Thimphu, investments concentrated on supporting agglomeration effects and improving access to services and housing. In secondary urban settlements such as Jhonkar, with lower population and urban densities, the emphasis was on improvements in connectivity and communication infrastructure to strengthen links with other places. Settlements with the lowest economic and population densities, such as Gasa, received investments in the establishment of basic services and in infrastructure and human capital. Funds were also directed toward improving regional connectivity with neighbors China and India⁵⁸

A World Bank study in India analyzed a lagging corridor in the state of Uttar Pradesh between Punjab/Haryana and West Bengal. Five priorities were identified for a project promoting regional growth clusters: basic infrastructure and services, last-mile connectivity infrastructure, logistical capacity, transparency in land allocation and transactions, and improved responsiveness to grievances.⁵⁹

Croatia in 2015 registered significant regional disparities in GDP per capita, ranging from 107 percent of the European Union (EU) average in the capital Zagreb to 32 percent in Virovitica-Podravina county. The country adopted what it called a “smart specialization” strategy the following year that took the territorial development approach.⁶⁰ The strategy emphasized the coordination of development efforts by envisioning cities as poles of regional growth and making policy and institutional changes that would allow for the benefits of these economic centers to be felt more widely. In common with other countries, Croatia varied its strategy for place-based investments—its smart specialization—depending on a target area's population and unique economic characteristics. Croatia also emphasized the proper sequencing of “soft” and “hard” investments, meaning that institutional capacity and policy shifts needed to take place before infrastructure investments would be committed.

The territorial approach is also an important tool for ensuring a balance between people-based and place-based policies. Research from earlier in the 2000s suggested a hard tradeoff existed between policies that target poor people and those that target poor places. At the time, the territorial approach favored either the place-based policy of *spatial efficiency*—that is, the supporting of agglomeration economies, which typically benefitted leading areas—or the people-based policy of *spatial equity*—the improvement of access to services, which typically favored lagging areas. Based on the latest research, a “new view” of territorial development suggests it is essential to balance investments in both poor people (many of whom often move to leading areas like urban centers) and poor places, or lagging regions. In other

58 Bhutan Urban Policy Note- Regional Development and Economic Transformation, World Bank 2019.

59 Leveraging Spatial Development Solutions in Uttar Pradesh, World Bank, Korea Green Growth Partnership, Australian Aid, June 2014.

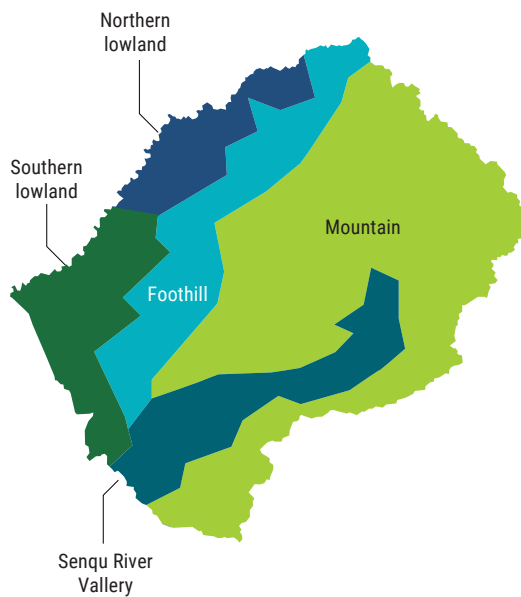
60 <https://s3platform.jrc.ec.europa.eu/croatia>.

words, it is not only possible but desirable to emphasize agglomeration economies in leading areas while also supporting equity outcomes in lagging ones. Figure A.12 provides a snapshot of how the territorial approach can be used to balance people- and place-based policies. Key to achieving this balance is ensuring sufficient connective infrastructure, such as roads and broadband access, to facilitate the movement of goods, labor, and knowledge between leading and lagging regions.

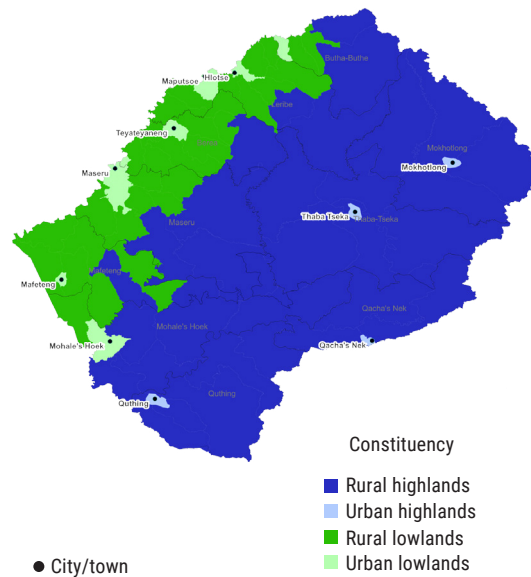
Bringing the Territorial Approach to Lesotho: The 2x2 Framework

The first step toward developing a territorial framework in Lesotho is to define its leading and lagging areas. Map A.7 in the previous section, which overlaid the country's poverty rates with a digital elevation model, showed the relationship between poverty and topography in Lesotho. This chapter further brings in the ecological zones of the country, defined as lowlands (northern and southern), foothills, mountains, and the Senquyane River Valley (see map A.8). These ecological zones are also largely determined by the country's topography and a major river system.

Map A.8. Lesotho Ecological Zones



Map A.9. Lesotho 2x2 framework in terms of geography



Combining the poverty and elevation overlays with the ecological zones suggests the country has two separate major divides: lowland-highland and urban-rural. The lowland-highland divide is driven by topography and the related issues of connectivity, while the urban-rural divide is driven by factors like economic density and access to basic services and infrastructure.

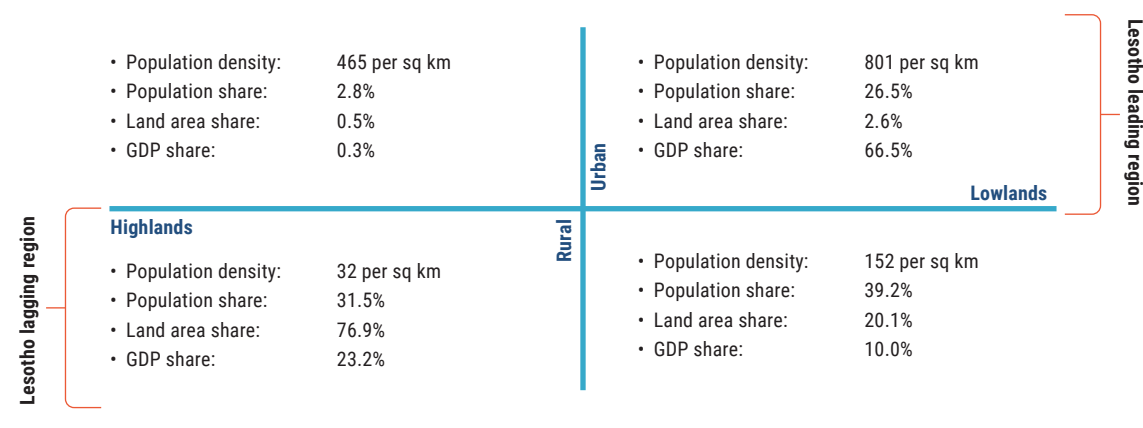
These ecological, topographical, and economic distinctions permit the identification of four distinct zones or quadrants on which can be based the development of a customized 2x2 territorial framework for Lesotho. Lagging and leading areas are defined in terms of, first, lowlands and highlands (including, for ease of analysis, the foothills and the Senquyane

River Valley), wherein lowlands are leading and highlands are lagging; and, second, urban and rural areas, wherein urban areas are leading and rural ones are lagging. The four quadrants identified for the territorial development analysis are urban lowlands or lowland cities and towns; urban highlands or highland towns; rural lowlands; and rural highlands.

The combined effects of the lowland-highlands and urban-rural divides (discussed in chapter 3) result in designation of the urban lowlands as the leading region and the rural highlands as the most lagging. The dynamics between them are interesting, with the urban-rural divide more pronounced than the lowland-highland divide. This means that, in general, the urban highlands perform better than the rural lowlands on poverty and economic metrics.

Map A.9 presents the 2x2 framework in terms of geography. The lowlands are marked in green, with dark green indicating rural and light green urban areas. The highlands are depicted in blue, with dark blue rural and light blue urban. The framework itself is presented below in figure A.13, with key population and GDP statistics presented for the four quadrants. Together, the lowlands (both urban and rural areas) constitute 22.6 percent of the country’s land area but are home to 65.7 percent of the population and generate 76.5 percent of GDP (of which 62 percent is generated directly by Maseru City). The highlands constitute 77.4 percent of the country’s land area, are home to 34.3 percent of the population, and generate 23.5 percent of GDP.

Figure A.13. 2x2 framework

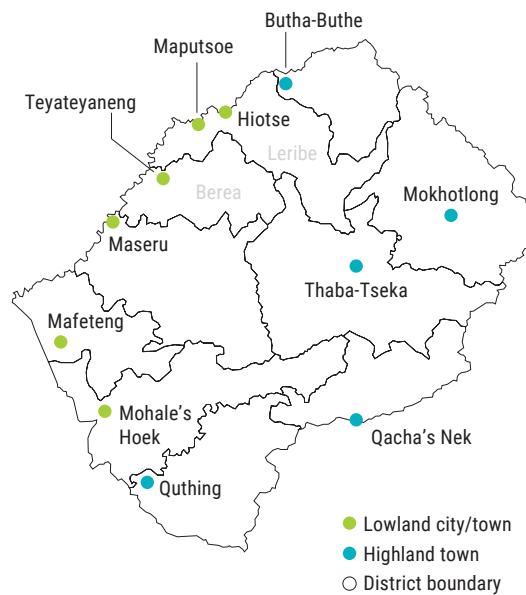


A few points should be noted with respect to the geographical representation in maps A.8 and A.9. First, since official city extents for lowland and highland towns are not defined or available, satellite imagery was used to define their areas. Second, some districts in Lesotho could span more than one quadrant. Due to the elevation gradient, for example, a district might fall under both lowlands and highlands. Maseru District, for example, which is largely considered a lowland district, also includes the tourist destination of Semonkong, which is best classified as rural highland. For ease of analysis and interpretation of results, districts are here assigned to one quadrant or another, with key exceptions, like Semonkong, noted.

The locations of the country’s key urban and rural areas in each quadrant are represented in table A.1, with key towns also shown in map A.10. A distinction is made between towns on the border towns away from the non-border towns because of the importance of connectivity with South Africa in determining development outcomes.

Table A.1. Key Locations in Each Quadrant

Quadrant	Border	Non-border	Type of rural settlement
Urban lowlands	Maseru (primary city) Butha-Buthe Town Hlotse Town Maputsoe Mafeteng Town Mohale's Hoek Town	Teyateyaneng	N/A
Urban highlands	Thaba-Tseka Town Quthing Town Qacha's Nek Town	Mokhotlong Town	N/A
Rural lowlands	Rest of Butha-Buthe Rest of Leribe Rest of Mafeteng Rest of Mohale's Hoek	Rest of Berea	Small rural towns Rural settlements/village
Rural highlands	Rest of Thaba-Tseka Rest of Quthing Rest of Qacha's Nek	Rest of Mokhotlong	Small rural towns Rural settlement/village

Map A.10. Location of Urban Areas in Lesotho

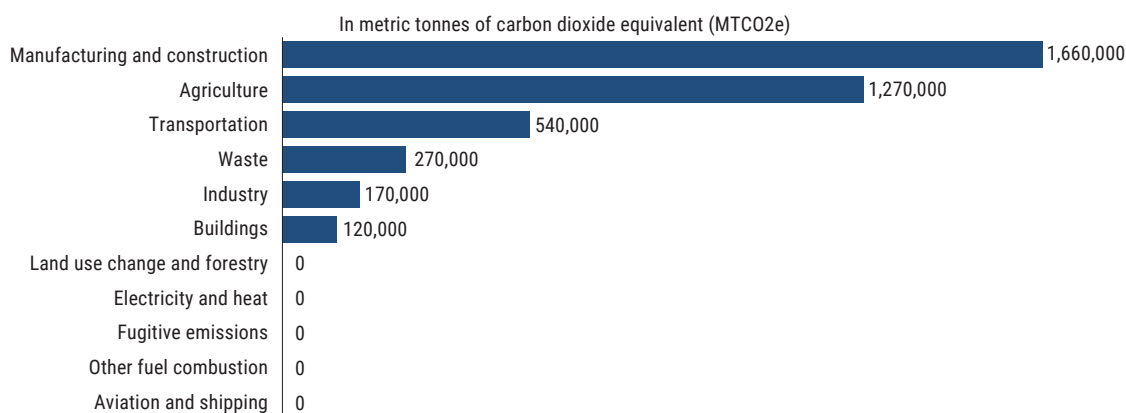
Annex Part 4: GHG Emissions Analysis

This analysis applies the 2x2 framework to the mitigation of greenhouse gas (GHG) emissions, complementing the disaster and climate analysis in chapter 3 and the climate-related recommendations in chapter 4. In this instance, the territorial approach applies data on emissions by sector to each of the four quadrants, providing a better spatial understanding of how to approach mitigation. According to its unconditional NDC commitments,⁶¹ Lesotho must carry out specific actions to reduce its GHG emissions by 10 percent by 2030; the conditional commitment calls for reducing them by a further 25 percent. GHG emissions mitigation is important not only as part of the drive to reduce carbon emissions but as a way to create opportunities to use natural resources more sustainably to enable transforming the country's economy to one that is green, circular, and resilient. To facilitate this transition to a more circular and sustainable productive economy, energy efficiency, conservation, and the recycling and reuse of resources should be promoted across all sectors.

As shown in figure A.14, despite the availability of detailed data being limited, Lesotho's emissions can be distributed across the main sectors of the economy. The largest GHG contributions are primarily related to the combustion of fossil fuels to generate electricity for manufacturing and construction, and transportation. Other significant sources of emissions include industrial processes, agriculture, and waste management. The sources and types of emissions vary by sector. In the manufacturing and construction sectors, the burning of coal, oil, and natural gas contributes significantly to carbon dioxide (CO₂) emissions. The burning of petroleum and diesel in the transportation sector produces CO₂ alongside nitrous oxide (N₂O) emissions. Industrial processes, such as cement production and chemical manufacturing, release methane (CH₄) in addition to CO₂. CH₄ is also emitted in significant quantities from the agricultural industry, primarily from live-stock farming and rice cultivation; agriculture contributes N₂O and CO₂ emissions, as well. Improper waste management practices, such as uncontrolled decomposition of organic waste in landfills, is another source of CH₄.

In table A.2, emissions for each sector are allocated across the four quadrants of the 2x2 territorial framework. The emissions were apportioned by quadrant for the analysis using GDP share per quadrant for the manufacturing and construction, transportation, industry, and buildings sectors (see figure 2.2); population density per quadrant for the waste sector (also figure 2.2); and agricultural land share per quadrant for the agricultural sector, based on World Bank Agriculture GP calculations and data from FAO.

61 LMS 2017. *Lesotho's Nationally Determined Contribution under the United Nations Framework Convention on Climate Change*, Ministry of Energy and Meteorology, Lesotho. As presented to the UNFCCC, pursuant to decision 1/CP.21 of the Paris Agreement.

Figure A.14. Lesotho Emissions by Sector

Source: Climate Watch 2023 processed by Our World in Data.

Table A.2. Missions by Sector and Quadrant, and Reductions According to NDC Commitments

In metric tonnes of carbon dioxide equivalent (MTCO₂e)

Sector	Urban Lowland	Urban Highland	Rural Highland	Rural Lowland
Manufacturing and construction	1.06 million	5,000	385,000	166,000
Agriculture	-	-	356,000	953,000
Transportation	359,000	1,600	125,000	54,000
Waste	71,600	7,560	85,000	106,000
Industry	113,000	500	39,000	17,000
Buildings	80,000	360	28,000	12,000
TOTAL	1,683,600	15,020	1,018,000	1,308,000
Emissions saved if unconditional target (10%) is reached	168,360	1,502	101,800	130,800
Additional emissions saved if conditional target (25%) is reached	420,900	3,755	254,500	327,000

Source: World Bank calculations, based on sectoral emissions data and distributed by quadrant.

To align with the Paris Agreement, Lesotho needs to take several steps to reduce its greenhouse gas emissions and contribute to global climate goals, as outlined in its NDC. According to the results of the GHG emissions analysis presented in the table above, the urban lowlands stand to eliminate the most emissions, given the high baseline emissions level. This is especially true at the conditional level of emissions reductions, where the quantity of additional emissions reduced in the urban lowlands quadrant is almost 29 percent higher than in the next highest quadrant. Since the data do not include emissions projections, this number could be even higher, given projections for urban growth.

Based on the results of this analysis, reduction targets for GHG emissions can be achieved most efficiently by prioritizing actions by quadrant, in the following order: urban lowlands, rural lowlands, rural highlands, urban highlands.

Table A.3 presents further analysis of specific actions included in Lesotho’s NDC, sorted by sectors as mentioned in the NDC and by quadrant where possible and appropriate, to provide guidance for prioritizing NDC mitigation actions.⁶²

Table A.3. Mitigation Actions Listed in Lesotho’s First NDC, Sorted by Quadrant

Industry	Urban Lowlands	Urban Highlands	Rural Highlands	Rural Lowlands
Transportation	Increase numbers of fuel-efficient vehicles; improve efficiency of and reduce emissions from existing vehicles through standards and capacity building. Upscale public transportation infrastructure and introduce traffic management systems.			
Energy	Increase number of solar heating and water heating systems to 5,000 by 2030. Increase use of energy-efficient bulbs.	Provide and upscale use of efficient cook stoves by 2030	Increase hydroelectric generation. Increase use of rural mini-grids. Deploy utility-scale wind power where transmission is possible.	Deploy utility-scale (up to 40 MW) solar electricity near urban areas.
Agriculture			Increase organic share in fertilizer mixture.	Provide training in and disseminate climate-resilient agronomic practices, including livestock management. Use biodigesters in livestock farms. Increase agricultural mechanization.
Buildings	Implement energy efficiency measures in industrial, government, and residential buildings. Regulate energy efficiency in design and construction of new buildings.	Impose energy efficiency measures in government and residential buildings Regulate energy efficiency in design and construction of new buildings.		
Waste	Control wastewater treatment and water use reduction practices. Process municipal solid waste into fertilizer. Capture CH ₄ from landfill.	Compost organic waste.		Implement sustainable waste management systems, decentralized sorting of waste in households, and improved recycling efforts.
Forestry and land-use			Upscale afforestation, reforestation, and forest conservation, thereby enhancing carbon sequestration. Upscale sustainable fuel-wood production.	Conduct research on drought-tolerant, fast-growing tree species.

⁶² Tables 4 and 5, Lesotho NDC, 2017.

