

# Agricultural Growth Trends and Outlook for Lesotho

Annual Trends and Outlook Report 2016

*Charles Nhemachena, Greenwell Matchaya and Sibusiso Nhlengethwa*



ReSAKSS-SA

Annual Trends & Outlook Report		<b>20</b> <b>16</b>
---	--	------------------------

## About ReSAKSS and ReSAKSS-SA | [www.resakss.org](http://www.resakss.org)

Established in 2006, the Regional Strategic Analysis and Knowledge Support System (ReSAKSS) supports evidence- and outcome-based planning and implementation of agriculture sector policies and strategies in Africa. In particular, ReSAKSS offers high-quality analyses and knowledge products to improve policymaking and tracking of progress, and to facilitate policy dialogue, benchmarking, review and mutual learning processes of the Comprehensive Africa Agriculture Development Programme (CAADP) implementation agenda. The International Food Policy Research Institute (IFPRI) facilitates the overall work of ReSAKSS, working in partnership with the African Union Commission (AUC), the New Partnership for Africa's Development (NEPAD) Planning and Coordinating Agency (NPCA), and leading regional economic communities (RECs). At the regional level, ReSAKSS is supported by Africa-based CGIAR centers: International Livestock Research Institute (ILRI), Kenya; International Water Management Institute (IWMI), South Africa; and International Institute of Tropical Agriculture (IITA), Nigeria.

ReSAKSS has been established with funding from the United States Agency for International Development (USAID), the UK Department for International Development (DFID), the Swedish International Development Cooperation Agency (Sida), and the Bill & Melinda Gates Foundation. ReSAKSS also receives funding from the International Fund for Agricultural Development (IFAD) and the Ministry of Foreign Affairs of the Netherlands (MFAN).

## Citation

Nhemachena, C.; Matchaya, G.; Nhlengethwa, S. 2017. *Agricultural growth trends and outlook for Lesotho*. ReSAKSS-SA Annual Trends and Outlook Report 2016. International Food Policy Research Institute (IFPRI); International Water Management Institute (IWMI).

## Copyright

Except where otherwise noted, this work is licensed under a Creative Commons Attribution 3.0 License (<http://creativecommons.org/licenses/by/3.0>).

## Authors

Charles Nhemachena is a Researcher-Agricultural Economics, Greenwell Matchaya is Researcher – Economics and ReSAKSS-SA Coordinator, and Sibusiso Nhlengethwa is Research Officer – Statistics, all at the Southern Africa Office of the International Water Management Institute (IWMI), Pretoria, South Africa.

# Contents



<i>List of Tables</i>	<i>ii</i>
<i>List of Figures</i>	<i>iii</i>
<i>Acronyms and Abbreviations</i>	<i>iv</i>
<i>Executive Summary</i>	<i>v</i>
<b>1. Introduction</b>	<b>1</b>
1.2 Structure of the Report	1
<b>2. The Agriculture Sector in Lesotho</b>	<b>2</b>
2.1 Historical Background of Agriculture in Lesotho	2
2.2 Agroecological Zones in Lesotho	3
2.3 Climate, Soils and Agriculture in Lesotho	3
2.4 Agricultural Activities in Lesotho	4
2.5 Environmental Challenges Affecting the Agriculture Sector	4
2.6 Socioeconomic Context, Poverty, Social Inclusion and Equity	5
2.7 Summary	5
<b>3. Enabling Environment</b>	<b>7</b>
3.1 Introduction	7
3.2 Comprehensive Africa Agriculture Development Programme	7
3.3 Progress with Implementation of CAADP in Lesotho	7
3.4 Regional Indicative Strategic Development Plan	8
3.5 National-level Environment	9
<b>4. Performance of the Agriculture Sector</b>	<b>10</b>
4.1. Introduction	10

4.2. Agricultural Expenditure and Growth	11
4.3. Agricultural Output and Productivity	12
4.4. Agricultural Trade Performance	14
4.5. Development Results	15
4.6. Summary	18
5. Conclusions and Recommendations	19
References	21

## List of Tables

Table 1.	<i>Poverty and income distribution indicators</i>	6
Table 2.	<i>Progress made with implementation of the CAADP agenda in Lesotho</i>	8
Table 3.	<i>Monetary indicators (2013-2017)</i>	9
Table 4.	<i>Contribution of different sectors to the GDP of Lesotho (percentage of GDP at current prices)</i>	15
Table 5.	<i>Summary of performance of the agriculture sector in Lesotho, based on traffic light ratings given to the progress made towards achievement of selected indicators</i>	18

## List of Figures

Figure 1.	<i>Agroecological zones and districts in Lesotho</i>	3
Figure 2.	<i>Share of agricultural expenditure in total national expenditure in Lesotho (2000-2014)</i>	10
Figure 3.	<i>Annual agricultural GDP growth rate in Lesotho (1991-2014)</i>	11
Figure 4.	<i>Total cereal yield (kg per hectare) in Lesotho (1991-2014)</i>	12
Figure 5.	<i>Livestock production index (2004-2006 = 100) annual growth rate in Lesotho (2000-2013)</i>	12
Figure 6.	<i>Percentage of arable land equipped with irrigation in Lesotho (2000-2013)</i>	13
Figure 7.	<i>Agricultural land productivity (constant 2010 USD) in Lesotho (1991-2013)</i>	13
Figure 8.	<i>Labor productivity (constant 2010 USD) in Lesotho (1991-2014)</i>	13
Figure 9.	<i>Agricultural import:export ratio in Lesotho (1990-2013)</i>	14
Figure 10.	<i>Net agricultural export value in Lesotho (1990-2013)</i>	14
Figure 11.	<i>GDP per capita in Lesotho, Purchasing Power Parity (PPP) (constant 2011 international \$) (1991-2014)</i>	15
Figure 12.	<i>Growth of annual GDP in Lesotho (2006-2017)</i>	16
Figure 13.	<i>Global Hunger Index in Lesotho (1990-2015)</i>	16
Figure 14.	<i>Cereal production per capita in Lesotho (1991-2014)</i>	17
Figure 15.	<i>Prevalence of undernourishment in Lesotho (1991-2015)</i>	17

## Acronyms and Abbreviations

AUC	African Union Commission
CAADP	Comprehensive Africa Agriculture Development Programme
FAO	Food and Agriculture Organization of the United Nations
GDP	Gross Domestic Product
JSR	Joint Sector Review
LHWP	Lesotho Highlands Water Project
NAIP	National Agriculture Investment Plan
NEPAD	New Partnership for Africa's Development
NPCA	NEPAD Planning and Coordinating Agency
ReSAKSS	Regional Strategic Analysis and Knowledge Support System
ReSAKSS-SA	Regional Strategic Analysis and Knowledge Support System for Southern Africa
RISDP	Regional Indicative Strategic Development Plan
SACU	Southern African Customs Union
SADC	Southern African Development Community

# Executive Summary

## *Introduction and objectives*

The 2014 Malabo Declaration on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods, adopted by the Heads of State and Government of the African Union, reaffirmed the importance of the agriculture sector in achieving the continental vision of shared prosperity and improved livelihoods through accelerated agricultural growth and transformation. Lesotho recognizes the role of the agriculture sector in terms of its contribution to economic growth and fighting poverty as elaborated in the country's National Strategic Development Vision 2020. The purpose of this Annual Trends and Outlook Report is to provide a baseline assessment of agricultural growth trends in Lesotho which can be used for benchmarking future assessments of the sector, as part of efforts to assist member states in planning and implementing the Comprehensive Africa Agriculture Development Programme (CAADP) agenda.

The discussions in this report are based on a review and synthesis of past publications, reports and Internet sources. In addition, the data presented were gathered from various sources, including the Regional Strategic Analysis and Knowledge Support System

(ReSAKSS) database and other international databases that are freely available from the Internet, such as the World Development Indicators of the World Bank, and the FAOSTAT statistical database of the Food and Agriculture Organization of the United Nations (FAO). National-level data gathered by the ReSAKSS Southern Africa node were also used.

## *Summary of main findings*

*Progress with implementation of CAADP in Lesotho:* Despite Lesotho signing the CAADP Compact in 2013, finalization of the National Agriculture Investment Plan (NAIP) is still in progress, while subsequent processes (technical review and business meeting) are yet to be conducted. A SAKSS node to facilitate monitoring and evaluation, and provide a platform for agricultural policy dialogue has not yet been developed.

*Environmental challenges affecting the agriculture sector:* The main environmental challenges affecting the agriculture sector in Lesotho include erosion, land and environmental degradation, and low soil fertility. Environmental degradation has been worsened by agricultural activities on steep slopes and marginal lands, overgrazing of rangelands, and

increased frequency of natural disasters (droughts and floods). These also contribute to declining performance of the agriculture sector in Lesotho.

*Agricultural activities in Lesotho:* Agricultural crop production activities in Lesotho are mainly under smallholder rainfed systems, which are characterized by very limited input use and heavy reliance on maize production. In addition, farmers also engage in livestock production. The main types are sheep, goats and cattle. Livestock herds can be in excess of 300 per household.

*Agriculture sector performance:* Key CAADP targets and indicators analyzed include share of agricultural expenditure in total national budget and agricultural GDP growth. The findings indicate that Lesotho has not performed well in terms of meeting agriculture sector spending targets of the CAADP. The share of the agriculture sector has always been below 2.5% since 2007-2008. The agriculture sector contributes about 8% to national GDP per year. Assessment of the agriculture sector GDP annual growth rate shows mixed findings, with some years recording high growth rates and others recording high negative growth rates.

*Socioeconomic context, poverty, social inclusion and equity:* Between 70 and 80% of Lesotho's population resides in the rural areas and more than 75% of these people depend on agriculture as their main source of livelihood. Poverty and inequality are critical challenges in the country, despite increases in per capita income and Lesotho being a middle-income country.

## *Recommendations*

- Lesotho should strengthen ongoing efforts to implement the CAADP agenda and resolution of the 2014 Malabo Declaration on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods.
- Due to the limited amount of arable land in Lesotho, efforts are needed to improve productivity of the available land. This is critical, if the country is to revive the performance of the agriculture sector and build food self-sufficiency, especially among smallholder farmers.
- The vulnerability of the agriculture sector to impacts of climate change and variability requires the country to strengthen farmers' adaptive capacity to these changes.
- Improve utilization of the country's water resources in irrigation to help farmers adapt to impacts of climate change. Investment in irrigation development is a critical adaptation measure that the Lesotho government should prioritise as part of its efforts to improve agricultural transformation for shared livelihoods in the country.
- Agricultural productivity interventions should address challenges of poor soils, low nutrient use and land degradation among other factors.



# 1. Introduction

The 2014 Malabo Declaration on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods, adopted by Heads of State and Government of the African Union, reaffirmed the importance of the agriculture sector in achieving the continental vision of shared prosperity and improved livelihoods through accelerated agricultural growth and transformation (African Union Commission 2014, 2015). This emphasizes the role of the agriculture sector as a driver of the African economic growth and poverty reduction agenda. The African Union Commission (AUC), and the New Partnership for Africa's Development (NEPAD) Planning and Coordinating Agency (NPCA) adopted the Comprehensive Africa Agriculture Development Programme (CAADP) Results Framework which identifies priority areas and performance indicators for tracking performance in implementing the Malabo Declaration. The priority performance indicators include allocation of 10% of total national expenditure to agriculture and achieving a 6% annual agricultural GDP growth rate.

Lesotho is a middle-income country with a dominant rural population that largely depends on agricultural activities and other natural resources for their livelihoods. It has embraced the role of the agriculture sector in terms of its contribution to economic growth and fighting poverty as elaborated in the country's National Strategic Development Vision 2020. The purpose of this Annual Trends and Outlook Report is to provide a baseline assessment

of the agricultural growth trends in Lesotho which can be used for benchmarking future assessments of the sector, as part of efforts to assist member states in planning and implementing the CAADP agenda.

The discussions in this report are based on a review and synthesis of past publications, reports and internet sources. In addition, the data presented were gathered from various sources, including the ReSAKSS database ([www.resakss.org](http://www.resakss.org) website, 2016) and other international databases, such as the World Development Indicators of the World Bank (World Bank 2016) and the FAOSTAT database of the Food and Agriculture Organization of the United Nations (FAO 2016). National-level data gathered by ReSAKSS-Southern Africa (ReSAKSS-SA) with the assistance of national collaborators were also used.

## *1.2 Structure of the Report*

The rest of the report is structured as follows: Section 2 presents an overview of the agriculture sector in Lesotho. Section 3 presents a brief discussion on the enabling environment for implementation of the CAADP agenda in Lesotho. Section 4 presents the baseline analysis of performance of the agriculture sector. Finally, the conclusions and recommendations are presented in section 5.

## 2. The Agriculture Sector in Lesotho

### *2.1 Historical Background of Agriculture in Lesotho*

Lesotho is a landlocked country located in the eastern part of Southern Africa and entirely surrounded by South Africa. The country is characterized by a strip of arid arable land on the western border, and steep and rugged mountainous terrain for most parts of the country (Jayamaha 1979; Moeletsi and Walker 2013). The highlands cover about two-thirds of the country's land area (AfDB 2013).

The *Basotho* occupied an enclave of relatively undesirable land marked as present-day Lesotho as a result of the Boer Wars over 100 years ago (Prasad et al. 2012). The *Basotho* were cattle-herding pastoralists moving camps between the summer and the winter based on grass and fuelwood availability. Christian missionaries were invited to Lesotho by the first leader Moshoeshoe 1, and mission stations covered most parts of the country, including remote regions, in the 1950s. The mission stations run small-scale farming activities that included grain crops, gardens and orchards. The local communities started settled farming activities that they learned from the mission stations (Prasad et al. 2012).

The drawing of present-day boundaries for Lesotho led to permanent settlements. The rearing of animals around settlements, and the breakdown of the shifting between summer and winter grazing areas put stress on farmland and rangeland around these settlements. In

the 1920s and 1930s, the communities cultivated virgin grasslands into lowlands along the western border of Lesotho, producing corn and wheat that were exported for a ready market in South Africa (Prasad et al. 2012). However, rapid growth in agricultural production soon led to exhaustion of the thin fertile soil layer, leading to a decline in soil quality and a subsequent decline in agricultural yields (Lewis et al. 2011). In addition, the agriculture sector, which is the main source of livelihoods for the rural economy and employs most of the poor, has remained stagnant from the early 1990s due to changing climatic and agroecological conditions characterized by erratic rainfall and frequent droughts (AfDB 2013).

Lesotho was last self-sufficient in grains in 1970, but continuous declines in yields and a increasing population have turned the country into one that depends on food imports, which is now around 90% of national requirements (Lewis et al. 2011). Agricultural yields in Lesotho are extremely low and the country depends on food imports to meet local demand, importing about 60% of the maize and 80% of the wheat requirements.

Lesotho has rich water resources in the mountains, some of which is utilized by the Lesotho Highlands Water Project (LHWP), which exports water to South African industrial centers (Maile 2001). Other important natural resources that are exported are sandstone, diamonds and clay (which are used to manufacture bricks and ceramic tiles) (Maile 2001).

## 2.2 Agroecological Zones in Lesotho

Lesotho has a land area estimated at 30,355 km<sup>2</sup>, of which 60% is rangelands, 9% is arable land, and the remainder is mountains and steep hills (Maile 2001). The country is located at the highest peak of the Drakensburg escarpment (Lewis et al. 2011; Moeletsi and Walker 2013). Lesotho is divided into 10 administrative districts: Berea, Leribe, Butha-Buthe, Maseru, Qacha's Nek, Mochale's Hoek, Thaba-Tseka, Mafeteng, Mokhotlong and Quthing, which fall into four agroecological zones (Figure 1).

The four agroecological zones: the lowlands (20-50 km trip along the western border with South Africa), the Senqu River Valley, the foothills, and the mountainous area (highlands) (Chakela 1999 cited in Moeletsi and Walker 2013). The country is located in the arid and semi-arid agroecological region, and receives high rainfall regimes in the mountainous eastern parts (Prasad et al. 2012). Most of the smallholder, rainfed agricultural production activities are situated in the arid and semi-arid region of the country.

## 2.3 Climate, Soils and Agriculture in Lesotho

The country has a temperate climate which is marginally suitable for arable crop production, as it experiences erratic and spatially variable rainfall (Chakela 1999; Lewis et al. 2011) ranging from 500 mm per year in the Senqu River Valley to approximately 1,200 mm per year in a few locations in the northern and eastern parts of the country (Moeletsi and Walker 2013). Lesotho receives most of its rainfall in the summer months of October to April and peak rainfall is received during December to February, with the winter months receiving the lowest rainfall usually in June and July (Lewis et al. 2011; Moeletsi and Walker 2013).

The cooler climate in Lesotho restricts the growing season to the months of November and March. Before November, the main constraint to agricultural production is rainfall, and cool temperatures affect crop production after March leaving farmers in the Highlands of Lesotho with a limited agricultural growing period (Lewis et al. 2011). The soils are usually

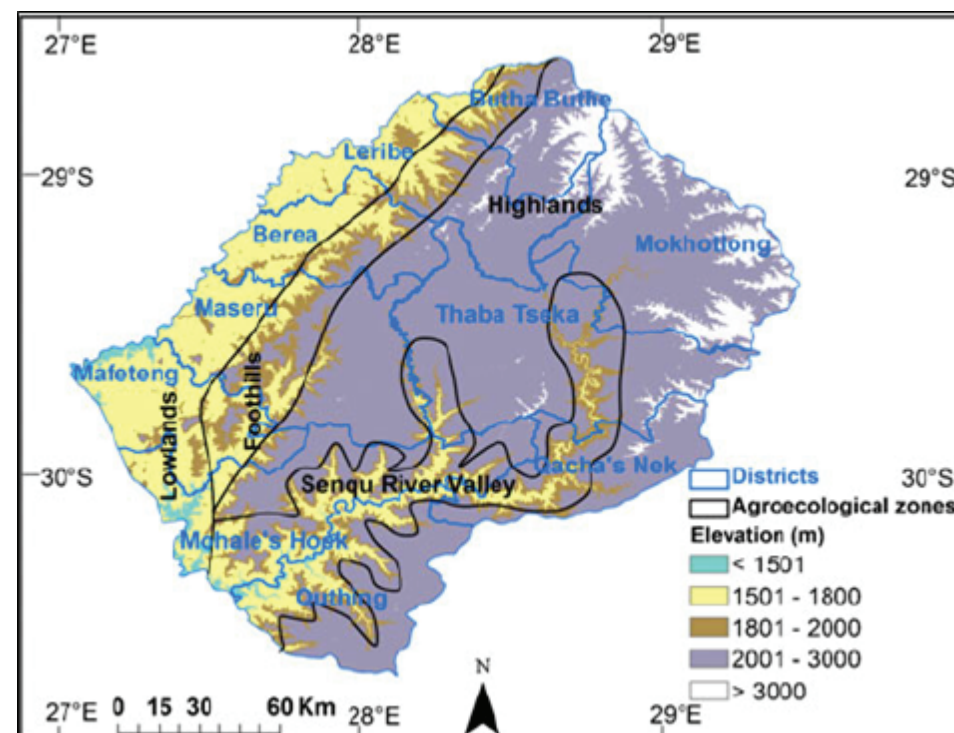


FIGURE 1. AGROECOLOGICAL ZONES AND DISTRICTS IN LESOTHO.

Source: Moeletsi and Walker 2013.

low in nutrients and are prone to soil erosion and overutilization, which contributes to low agricultural yields in Lesotho. Although various soil conservation systems have been implemented in the country, the soils remain insufficient to cope with frequent extreme floods that are a major cause of erosion from cultivated lands (Lewis et al. 2011).

Farmers in Lesotho regularly experience inter-annual and intra-annual climate change- and variability-related stresses, particularly droughts and floods (Lewis et al. 2011). The interaction of limited and erratic rainfall, climatic regimes and low soil fertility contributes to low and erratic agricultural crop yields (Lewis et al. 2011). Overall, despite having abundant water resources that could be utilized to address agricultural production challenges, especially during drought periods, Lesotho experiences food insecurity and at times seeks international assistance (Stevens and Ntali 2011). This means that substantial efforts are required to help farmers adapt to the impacts of climate change and variability on their livelihoods. There are opportunities to pursue better utilization of the country's water resources to help address the challenges posed by floods, droughts and low rainfall regimes (Prasad et al. 2012).

Despite the country having abundant water resources, less than 1.2% of the arable land (FAO 2016) is irrigated. This presents huge opportunities for investments in irrigation development as an adaptation measure and the Lesotho government should prioritise this as part of its efforts to improve agricultural transformation for shared livelihoods in the country. Investments in irrigation help to improve crop yields and prolong the effective growing season for crops, facilitating the production of multiple crops per year (Stevens and Ntali 2011). Furthermore, investments in irrigation help to reduce the adverse impacts on agricultural production that emanate from low rainfall regimes, droughts and mid-season droughts (Biswas 1986). In addition, irrigation helps to reduce the adverse experiences of boom-bust production cycles by stabilizing agricultural production at relatively high levels (Biswas 1986). However, investments in irrigation also require investments in complementary productivity-enhancing inputs, including fertilizers, improved crop varieties, disease and pest control inputs, etc., as well as extension support (Stevens and Ntali 2011).

## *2.4 Agricultural Activities in Lesotho*

About 15% of Lesotho's land area is arable with the remainder covered with rocky land and steep slopes (Jayamaha 1979). Agricultural crop production activities in the highlands of Lesotho are mainly under smallholder rainfed systems which are characterized by very limited input use and heavy reliance on maize production (Lewis et al. 2011). The main crops grown in Lesotho include maize (accounts for 60% of the cropped area), sorghum (10% to 20%), wheat (10%) and beans (about 6%).

The main types of livestock reared are sheep and goats, as well as cattle, with a minimum livestock ownership per household ranging from around 30 to more than 300 (Lewis et al. 2011). This creates challenges with overgrazing, and the establishment of rangeland management areas and grazing associations has not been able to successfully manage livestock and grazing patterns of the farmers (Lewis et al. 2011).

## *2.5 Environmental Challenges Affecting the Agriculture Sector*

Environmental challenges affecting agriculture in Lesotho include overgrazing, erosion, land degradation as a result of floods and droughts, and threats of climate change. The rugged mountainous terrain and abundant water resources expose Lesotho to the risk of natural disasters such as floods and rockslides (AfDB 2013). The rugged terrain is vulnerable to hazards of soil erosion that threatens the availability of the limited arable land (Monaheng 2003). Environmental degradation has worsened as a result of agricultural activities on steep slopes and marginal lands, overgrazing of rangelands and increased frequency of natural disasters (droughts and floods) (AfDB 2013).

Despite the impacts of climate change on agriculture and the economy, Lesotho has limited capacity to adapt to climate change or implement adaptation programs due to limited human capacity (AfDB 2013). This means that the performance of the agriculture and other

sectors remains vulnerable to the persistent impacts of climate change and variability. The interaction of agricultural production constraints (such as limited arable land, low soil fertility, land degradation, etc.) and other socioeconomic challenges has contributed to the poor performance of the agriculture sector.

Water management and food security are some of the major challenges facing the agriculture sector in Lesotho (Prasad et al. 2012). The adverse impacts of changing rainfall patterns and climate change on agricultural production are increasingly leading to increases in fallow land, as farmers abandon their agricultural production activities because the returns from the harvest are usually far less than the cost of inputs (Prasad et al. 2012). The reduced agricultural production combined with farmers moving out of farming has exacerbated the food import requirements for the country.

## 2.6 Socioeconomic Context, Poverty, Social Inclusion and Equity

Lesotho's population is estimated at 2.1 million and the annual population growth rate is 1.2% (World Bank 2016). Between 70 and 80% of the population resides in rural areas and more than 75% of these people rely on agricultural activities for their livelihoods. This means that the development of the agriculture sector remains critical for socioeconomic development in Lesotho.

The average population density in Lesotho is 70 people per square kilometer (km<sup>2</sup>) (World Bank 2016). However, the density increases to 745 people per km<sup>2</sup> on arable land (Maile 2001). The growth in the population is one of the factors causing cumulative environmental degradation and poverty in Lesotho. In addition, population growth has contributed to decreases in per capita availability of arable land and increased unsustainable agricultural practices, which have reduced the ability of the land to support the growing population (Maile 2001).

In Lesotho, poverty and inequality remain critical challenges despite increases in per capita income and the country being a middle-income country (AfDB 2013). Poverty in Lesotho

is more pronounced in the mountainous and rural areas (Monaheng 2003). Overall, the fight against poverty remains a major national development goal (Maile 2001). Based on the 2010 survey, 57% of the population were below the national poverty line while rural poverty was 61%. The percentage of the population below the poverty line increases to 77%, if the international poverty line of USD 3.10 is applied (Table 1). Inequality level (Gini coefficient) at 0.54 is high. According to AfDB, OECD and UNDP (2013), about 25% of the population in Lesotho has been made vulnerable to food insecurity due to poor performance of the agriculture sector.

In addition, remittances have declined from over 50% of GDP in 2000 to about 25% of GDP in 2011, emanating from declining opportunities for low-skilled *Basotho*, especially mine workers in South Africa (AfDB 2013). This has worsened the vulnerability of many poor rural households. Other social indicators, such as child and maternal mortality, and life expectancy, have worsened by the persistent food crises and high prevalence of human immunodeficiency virus (HIV) in the country (AfDB 2013).

## 2.7 Summary

This section discussed the structure of the agricultural sector in Lesotho. Lesotho is characterized by limited arable land located on the western border of the country, with the remainder covered by steep and rugged mountainous terrain. The country has a temperate climate that is marginally suitable for arable crop production due to erratic and spatially variable rainfall. The combination of erratic rainfall, soil and land degradation, and low input use has contributed to low agricultural productivity. The country is a net importer of agricultural food products, importing around 90% of the national requirements.

Despite the poor performance of the agriculture sector, it remains the main source of livelihoods for the rural poor. Agricultural production in Lesotho remains mainly rainfed, and despite the abundant water resources from the highland areas, the irrigation sector is

not well developed to help adapt to the impacts of climate change and that is affecting the performance of the agriculture sector. There is a need to explore opportunities to pursue better utilization of these water resources to help address the challenges posed by floods, droughts and low rainfall regimes in the country.

**TABLE 1. POVERTY AND INCOME DISTRIBUTION INDICATORS.**

National poverty line			International poverty line		Gini coefficient
Population below the poverty line (%)			Population below the poverty line (%)		
Rural	Urban	National	Below 1.90 (USD)	Below 3.10 (USD)	Index
61.2	39.6	57.1	59.7	77.3	54.2

Source: AfDB, OECD and UNDP 2016.

## 3. Enabling Environment

### *3.1 Introduction*

This chapter briefly discusses the enabling environment for the implementation of the CAADP agenda in Lesotho. A brief discussion of the progress made with implementation of CAADP is presented, as well as national and regional strategic plans that facilitate CAADP implementation in the country.

### *3.2 Comprehensive Africa Agriculture Development Programme*

As highlighted previously, the 2014 Malabo Declaration on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods, adopted by the Heads of State and Government of the African Union, emphasizes the central role of accelerated agricultural growth and transformation in driving shared prosperity and improved livelihoods in the continent (African Union Commission 2014, 2015). In line with the continental drive to revive the contribution made by the agriculture sector to the economy, Lesotho has also started implementing the CAADP activities. However, this is at a slow pace compared to other countries in the region, such as Malawi, Zambia and

Mozambique, which have advanced in CAADP implementation. As with other African countries, Lesotho commits to the CAADP priorities and indicators to accelerate growth and transformation of the agriculture sector to achieve developmental goals.

### *3.3 Progress with Implementation of CAADP in Lesotho*

Table 2 summarizes Lesotho's progress in implementing the CAADP agenda. Within the CAADP implementation guidelines and framework, Lesotho signed the CAADP Compact on September 4, 2013, and the National Agriculture Investment Plan (NAIP) is still in progress, while the technical review of the NAIP and the business meeting are still pending (NEPAD 2015). The NAIP has been partly developed and is still to be completed for technical review, which are both expected to be completed in 2017 (see Table 2).

The Lesotho CAADP Compact is a high-level agreement between the Lesotho government and sector-wide stakeholders outlining agriculture sector programs required to transform the sector to achieve the CAADP targets, which include achieving at least a 6% annual agricultural GDP growth rate and increasing agriculture sector spending to at least 10% of the national budget in addition to other national targets and priorities. Once finalized,



the NAIP would provide prioritised investment areas crucial for Lesotho to accelerate growth in the agriculture sector, and achieve the sector growth and development targets. Updates from the Ministry of Agriculture and Food Security indicated that there has been no progress with CAADP implementation processes since 2015 due to problems beyond the ministry's control. The ministry plans to resuscitate the NAIP development process for finalization as indicated in Table 2. Overall, planned efforts in developing the NAIP and implementation of the CAADP agenda show national commitment from Lesotho to transform the agriculture sector as being a critical sector for economic growth and development.

### 3.4 Regional Indicative Strategic Development Plan

At the SADC regional level, member countries are guided by the Regional Indicative Strategic Development Plan (RISDP) as a strategic framework for entrenching cooperation at the regional level, and enhancing efforts for fighting poverty and promoting sustainable development (SADC 2006). In support of the CAADP, the SADC RISDP provides priorities and targets (that also form part of the CAADP targets) that member states should strive to achieve. For example, The SADC RISDP targets annual growth rates in the agriculture sector of at least 7% and increases in the area under irrigation from around 3.5% to 7% (SADC 2006). Overall, the SADC RISDP endeavors to create a regional environment that facilitates regional integration, and sustainable growth and development of member states as a way of addressing developmental challenges such as poverty and inequality. Lesotho is a member state of this regional strategic framework and subscribes to the priorities and resolutions of the framework. It is expected that Lesotho will also actively align its policies with those in the newly finalized Regional Agricultural Policy of the SADC and the Malabo Declaration of the African Union.

**TABLE 2.** PROGRESS MADE WITH IMPLEMENTATION OF THE CAADP AGENDA IN LESOTHO.

Stage	Achieved? Yes/No/Partly	If yes, date achieved		If no/partly achieved, expected completion date	
		Month	Year	Month	Year
1 Has the CAADP focal institution/ person been appointed?	YES		2010		
2 Has the Technical Committee (TC) been appointed?	YES		2010		
3 Has the CAADP stakeholder validation workshop been held?	YES		2011		
4 Has the CAADP Compact been signed?	YES	SEPT	2013		
5 Has the NAIP been developed?	PARTLY			JULY	2017
6 Has a technical review been done?	NO			DEC	2017
7 Has a business meeting been held?	NO			FEB	2018

Source: Ministry of Agriculture and Food Security 2016.



### 3.5 National-level Environment

Overall, development of Lesotho is guided by the National Development Vision 2020, which identifies development of the agriculture sector as key to overall development of the country's economy. One of the strategic goals of the National Development Vision 2020 is to promote sustainable development and growth from a country's own resources. This involves implementing aggressive programs that advance entrepreneurship, and those that intensify and diversify agricultural production. Furthermore, specific policies and strategies for the agriculture sector provide an environment aimed at advancing achievement of sector-specific goals and targets in line with regional and continental initiatives discussed above.

Table 3 summarizes the monetary indicators for Lesotho. The inflation rate is expected to continue to be around 4% up to 2017. The exchange rate in Lesotho is linked to the South African exchange rate, as Lesotho is a member of the Southern African Customs Union (SACU). The volatility experienced with the South African Rand (ZAR) directly affects the exchange rate in Lesotho. Low, stable inflation rates and predictable exchange rates contribute to a stable economic environment that facilitates investments in the agriculture and other sectors of the economy. This is important for improving agricultural investments in Lesotho.

**TABLE 3.** MONETARY INDICATORS (2013-2017).

Inflation (%)				Exchange rate (LCU/USD)		
2014	2015 (e)	2016 (p)	2017 (p)	2013	2014	2015
5.3	3.8	3.9	4.0	9.7	10.9	12.8

Source: AfDB, OECD and UNDP 2016.

Note: 'e' – estimated; 'p' – projected.

## 4. Performance of the Agriculture Sector

### 4.1. Introduction

This section focuses on the CAADP priority targets and indicators for agricultural development, such as the share of the national budget allocation for agriculture, annual agricultural GDP growth rate, area under irrigation, land and labor productivity, agricultural trade performance, and development outcomes such as hunger and malnutrition. The traffic light rating system is applied to rate the progress made towards achievement of the indicators with set targets. For example, the progress made towards ensuring the share of agricultural expenditure in national expenditure is compared with the 10% CAADP target<sup>1</sup>. Where the progress made is less than half the target, it is rated as ‘red’; where the progress made is at least half the target, it is rated as ‘amber’; and where the target has been met or is exceeded, it is rated as ‘green’.

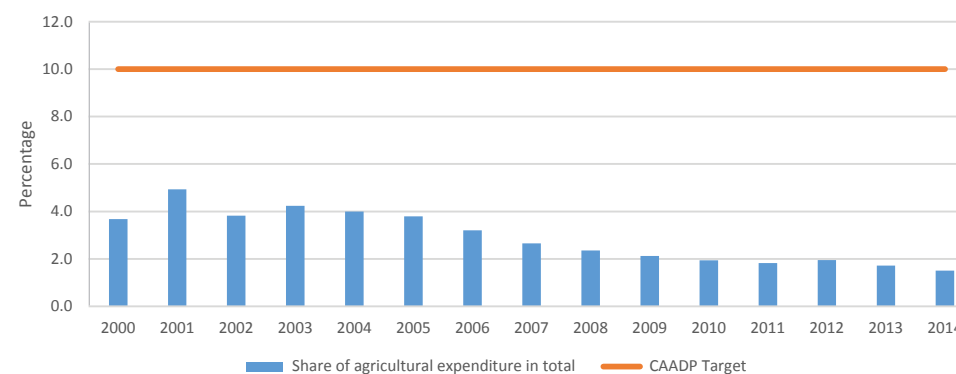
### 4.2. Agricultural Expenditure and Growth

Analysis of the share of agricultural expenditure in national expenditure for Lesotho is presented in Figure 2. The results show that the share of agricultural expenditure in Lesotho falls far below the CAADP target of 10%. The share of agricultural expenditure has been below 2.5% from 2008 to 2014, and has generally been decreasing over time. More efforts are required to increase the share of the agricultural budget allocation in Lesotho. Given the challenges facing the agriculture sector, such as droughts, climate change and other stresses, the government should allocate more budget resources for investments in the sector. Using the traffic light rating system, the progress made towards achievement of this indicator is **RED**<sup>2</sup>.

<sup>1</sup> The traffic light rating system applied in the agriculture sector has been applied in the Joint Sector Review (JSR) assessment conducted in various African countries as part of its support to the CAADP. Examples of the JSR assessments that have applied similar ratings include Swaziland, Zambia, Malawi and Ghana.

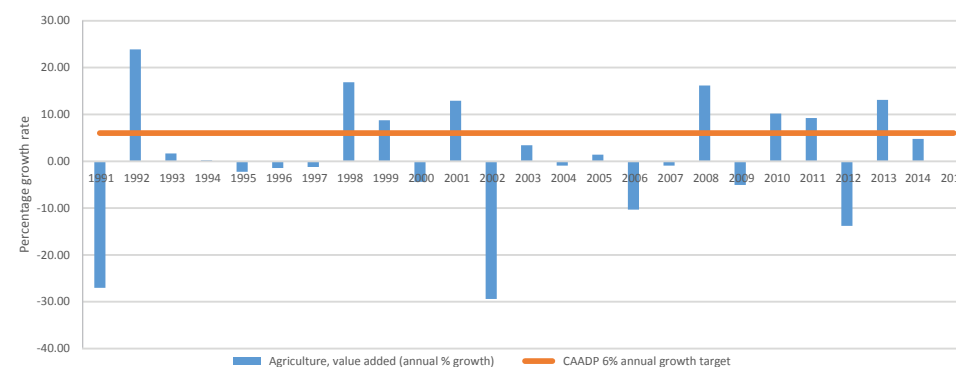
<sup>2</sup> Red = poor/does not exist; amber = progress made; green = good/exists.

Performance of the agriculture sector based on the GDP annual growth rate in the sector is presented in Figure 3. The results for Lesotho are mixed, with some years recording huge growth rates beyond the CAADP 6% annual growth rate and others showing large negative growth rates. For example, since 2000, large negative growth rates were recorded in 2002, 2006, 2009 and 2012. These years correspond to years when climatic conditions have not been conducive for agricultural production, among other factors. During these years, the country experienced very dry conditions which affected agricultural production. However, the positive growth rates that are presented in the graph highlight the huge potential that marginal increases in investment in the agriculture sector could bring to the country. Using the traffic light rating system, the progress made towards achievement of this indicator is **AMBER**.



**FIGURE 2. SHARE OF AGRICULTURAL EXPENDITURE IN TOTAL NATIONAL EXPENDITURE IN LESOTHO(2000-2014).**

Source: www.resakss.org website, 2015.



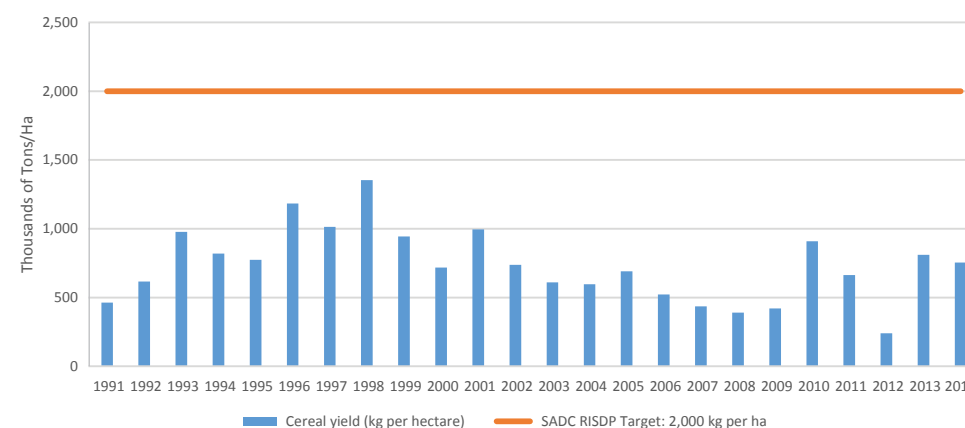
**FIGURE 3. ANNUAL AGRICULTURAL GDP GROWTH RATE IN LESOTHO (1991-2014).**

Source: World Bank 2016.

### 4.3. Agricultural Output and Productivity

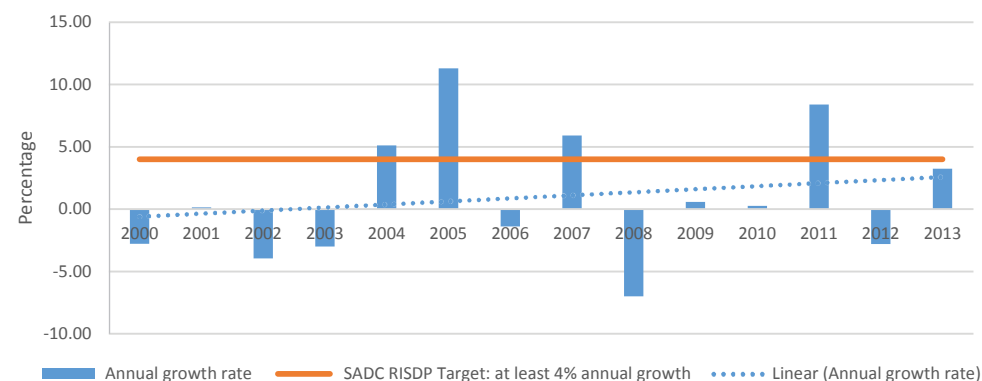
Figure 4 presents the assessment of cereal yield (or output per hectare) in Lesotho for the period 1991 to 2014. In general, there was a positive trend in cereal productivity during the 1990s. However, after 1998, the country recorded a declining trend until 2009. Despite positive trends in cereal productivity in recent years (2010, 2011, 2013 and 2014), the productivity levels are still very low, averaging less than 1,000 kg per hectare and failing to meet the SADC RISDP target of achieving at least 2,000 kg per hectare. In addition, throughout the entire assessment period, cereal productivity levels in Lesotho have not gone beyond 1,500 kg per hectare and the highest level achieved was 1,353 kg per hectare in 1998. These results indicate the need for more efforts in productivity-enhancing investments in the cereal subsector in Lesotho. Using the traffic light rating system, the progress made towards achievement of this indicator is **RED**.

Lesotho's livestock production index annual growth rate is presented in Figure 5. The results indicate that growth in livestock production has been fluctuating over the years. Overall, adding a linear trend line of the annual growth rate indicates a general gradual increase in the livestock production index. Despite negative growth rates in some years, there is potential for growth in the livestock subsector and the growth rate has surpassed the SADC RISDP 4% annual growth rate target in a number of years. Using the traffic light rating system, the progress made towards achievement of this indicator is **AMBER**.



**FIGURE 4. TOTAL CEREAL YIELD (KG PER HECTARE) IN LESOTHO (1991-2014).**

Source: World Bank 2016.



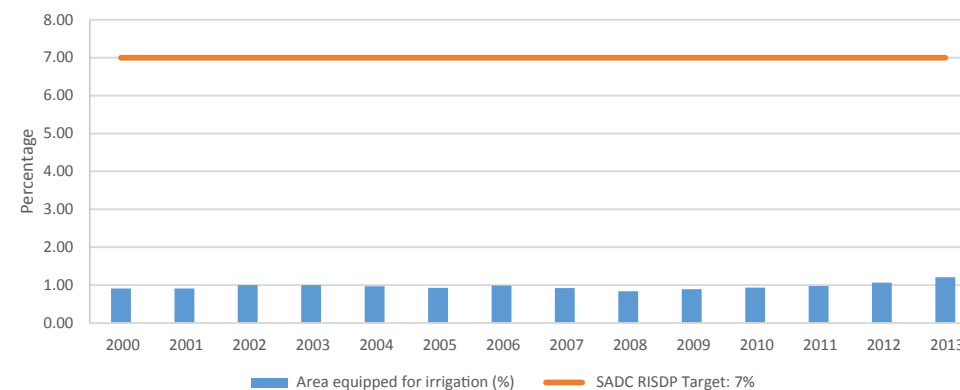
**FIGURE 5. LIVESTOCK PRODUCTION INDEX (2004-2006 = 100) ANNUAL GROWTH RATE IN LESOTHO (2000-2013).**

Source: Authors' calculations based on data from FAO 2016.

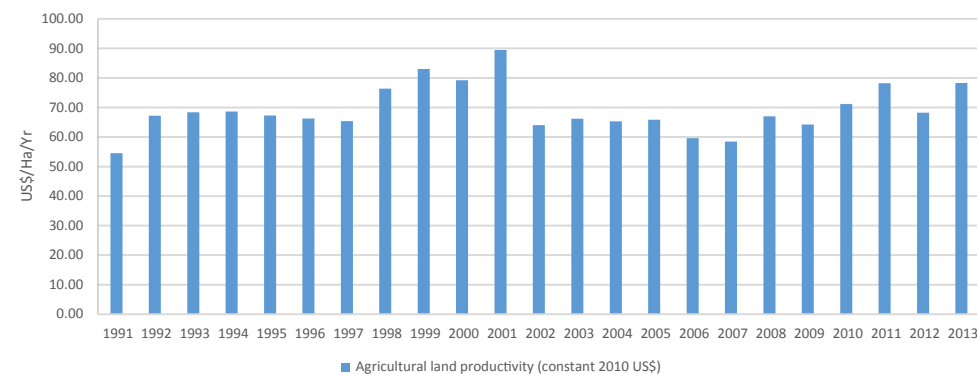
The percentage of arable land equipped with irrigation in Lesotho is presented in Figure 6. The SADC RISDP target commits member countries to increase their land area under irrigation to at least 7%, an increase from the regional level of 3.5%. The results for Lesotho show that this indicator has not progressed much and irrigation levels based on the arable land area equipped with irrigation have remained below 1.3%. This indicates that most of the agricultural activities remained largely rainfed, and with the challenges of droughts and climate change experienced recently in the Southern African region, investments in efficient irrigation systems would be required to adapt to harsh agro-climatic conditions. Using the traffic light rating system, the progress made towards achievement of this indicator is **AMBER**.

Figure 7 presents the land productivity results for Lesotho calculated as total agricultural value added divided by agricultural land (hectares). The results show that land productivity is very low, averaging about USD 70 per hectare per year compared to the regional average of about USD 120 per hectare per year for the period 2008-2013. This means that efforts are required to enhance the productivity of the agriculture sector so that it becomes more attractive as an income-generating sector. Using the traffic light rating system, the progress made towards achievement of this indicator is **AMBER**.

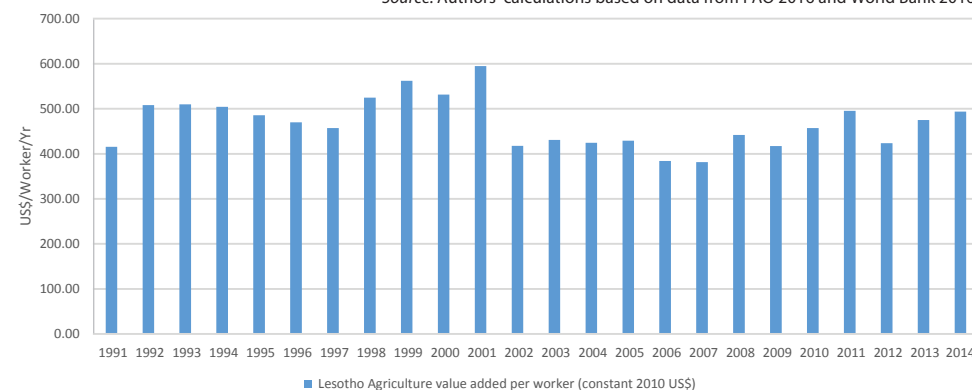
The assessment of labor productivity measured as agriculture value added per worker per year in Lesotho is presented in Figure 8. The results indicate that relatively higher levels of labor productivity were recorded during the period from 1991 to 2001 compared to the period 2002 to 2014. Overall, labor productivity averages USD 450 per worker per year compared to the regional average of around USD 1,500 per worker per year. As with agricultural land productivity, more efforts are required to improve labor productivity through targeted productivity-enhancing investments. Using the traffic light rating system, the progress made towards achievement of this indicator is **AMBER**.



**FIGURE 6. PERCENTAGE OF ARABLE LAND EQUIPPED WITH IRRIGATION IN LESOTHO (2000-2013).**  
Source: FAO 2016.



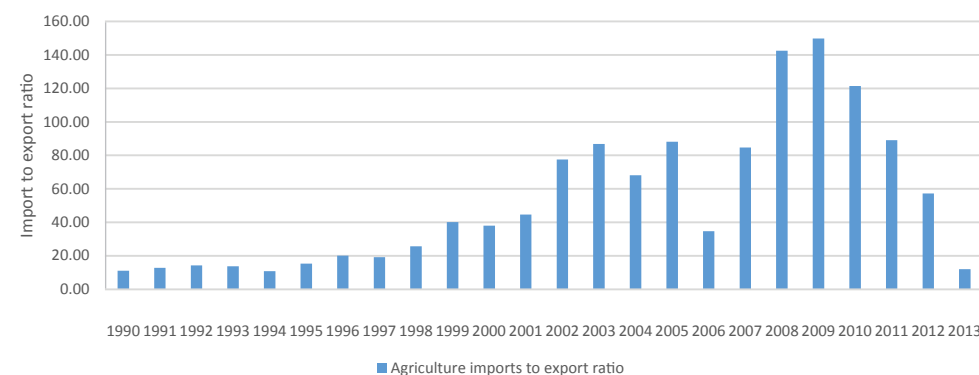
**FIGURE 7. AGRICULTURAL LAND PRODUCTIVITY (CONSTANT 2010 USD) IN LESOTHO (1991-2013).**  
Source: Authors' calculations based on data from FAO 2016 and World Bank 2016.



**FIGURE 8. LABOR PRODUCTIVITY (CONSTANT 2010 USD) IN LESOTHO (1991-2014).**  
Source: World Bank 2016.

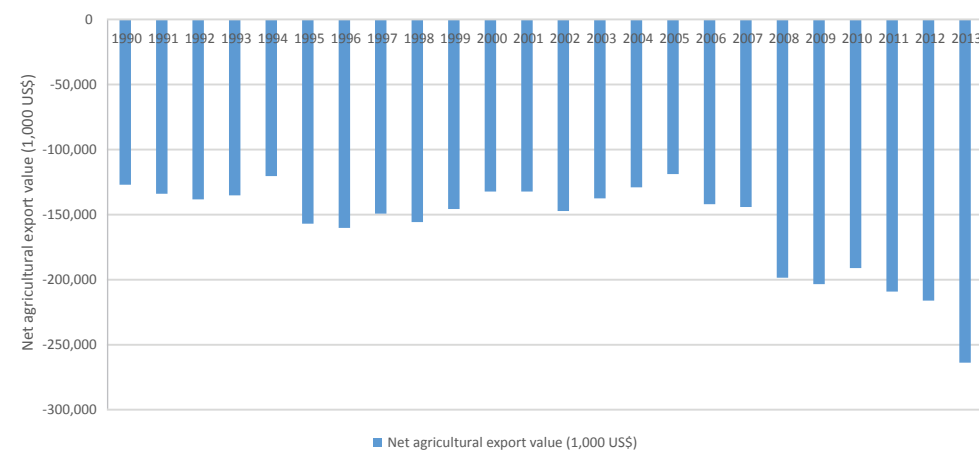
#### 4.4. Agricultural Trade Performance

Figures 9 and 10 present the agricultural import:export ratio and the net agricultural export value in Lesotho, respectively. The results from the two graphs indicate that, overall, Lesotho is a net importer of agricultural products. The agricultural import:export ratio (Figure 9) indicates a rising trend over the years up to 2009, when it peaked and started to decline in recent years. The net agricultural export value (Figure 10) also indicates that Lesotho largely depends on imports for the provision of agricultural products. There is a need for the country to invest more in improving its own production of agricultural products. If local agricultural production can be improved, this would help reduce the import budget and more can be invested in the agriculture sector for further transformation and development. Using the traffic light rating system, the progress made towards achievement of this indicator is **RED**.



**FIGURE 9. AGRICULTURAL IMPORT:EXPORT RATIO IN LESOTHO (1990-2013).**

Source: Authors' calculations based on data from FAO 2016.<sup>3</sup>



**FIGURE 10. NET AGRICULTURAL EXPORT VALUE IN LESOTHO (1990-2013).**

Source: Authors calculations based on data from FAO.<sup>4</sup>

<sup>3</sup> The agricultural import:export ratio was calculated by dividing the value of agricultural imports by the value of exports.

<sup>4</sup> The net agricultural export value was calculated as the agricultural export value minus the agricultural import value

## 4.5. Development Results

Table 4 presents the contribution of the various sectors to Lesotho's national Gross Domestic Product (GDP) for 2010 and 2014. The results indicate that the agriculture sector contributed 8.5% and 8% to the national GDP in 2010 and 2014, respectively. This indicates a slight decline in the sector's contribution to national GDP. Overall, the sectors contributing the most to national GDP in 2014 are finance, real estate and business services (17.9%); other services (13.5%); wholesale and retail trade, repair of vehicles household goods, restaurants and hotels (11.4%) and public administration and defence (10%). In line with the continental and regional goals to drive agricultural sector transformation and growth, Lesotho still needs to invest more resources to drive sector growth as an engine for development.

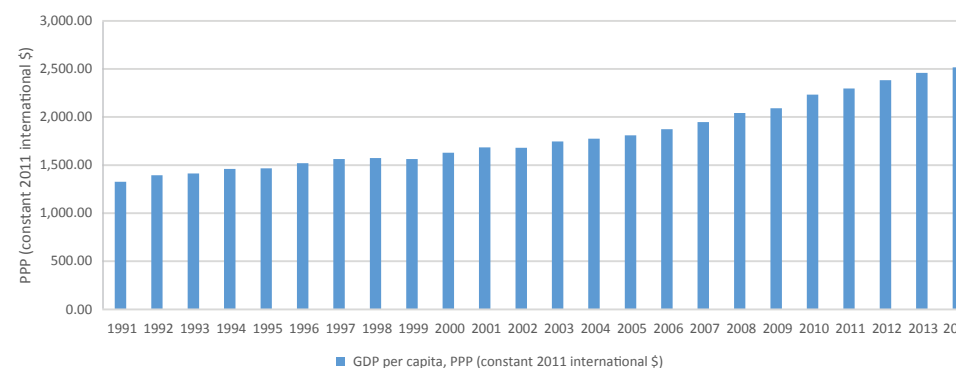
Figure 11 presents the GDP per capita in Lesotho for the period 1991-2014. The figure indicates that per capita GDP for Lesotho has been steadily increasing over the years. The results would imply improving living standards for the population. However, poverty remains a challenge in the country, particularly among the population that rely on agriculture for their livelihoods. This means that efforts to transform the agriculture sector are important for the country as part of its efforts to improve the well-being of the population.

The annual growth rates of GDP for Lesotho, Southern Africa and Africa are presented in Figure 12. The results show that, overall, Lesotho performs better than the regional average in most years since 2008. GDP has been increasing steadily between 2006 and 2008 before plunging in 2009 probably due to the effects of the global economic crisis. Annual GDP growth increased to 8% in 2010, which is well above both the regional and continental averages. However, from 2012 to 2015, Lesotho recorded a declining trend in annual GDP growth, and projections for 2016 and 2017 don't show any substantial improvements.

**TABLE 4.** CONTRIBUTION OF DIFFERENT SECTORS TO THE GDP OF LESOTHO (PERCENTAGE OF GDP AT CURRENT PRICES).

	2010	2014
Agriculture, forestry, fishing and hunting	8.5	8.0
of which fishing	...	...
Mining and quarrying	6.5	8.9
of which oil	...	...
Manufacturing	14.1	9.7
Electricity, gas and water	4.6	5.2
Construction	6.6	8.1
Wholesale and retail trade; repair of vehicles household goods; restaurants and hotels	9.3	11.4
of which hotels and restaurants	1.3	1.0
Transport, storage and communication	6.9	7.3
Finance, real estate and business services	17.4	17.9
Public administration and defence	12.7	10.0
Other services	13.4	13.5
<b>Gross domestic product at basic prices/factor cost</b>	<b>100</b>	<b>100</b>

Source: AfDB, OECD and UNDP 2016.

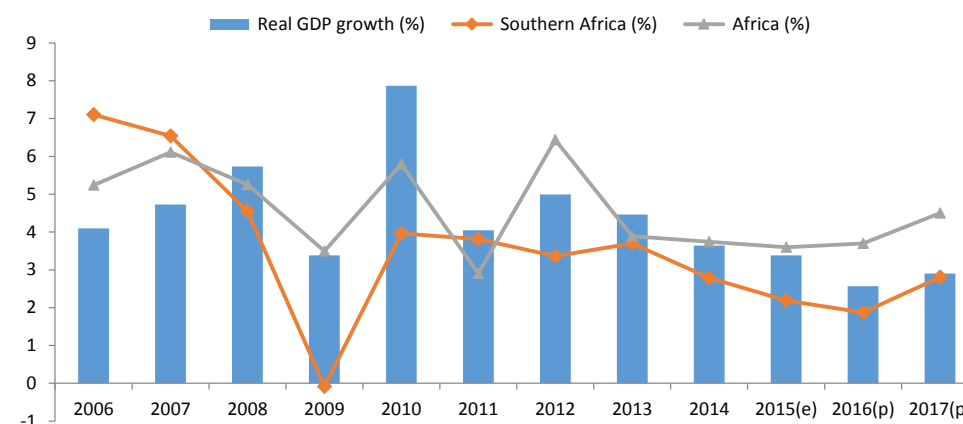


**FIGURE 11.** GDP PER CAPITA IN LESOTHO, PURCHASING POWER PARITY (PPP) (CONSTANT 2011 INTERNATIONAL \$) (1991-2014).

Source: World Bank 2016.

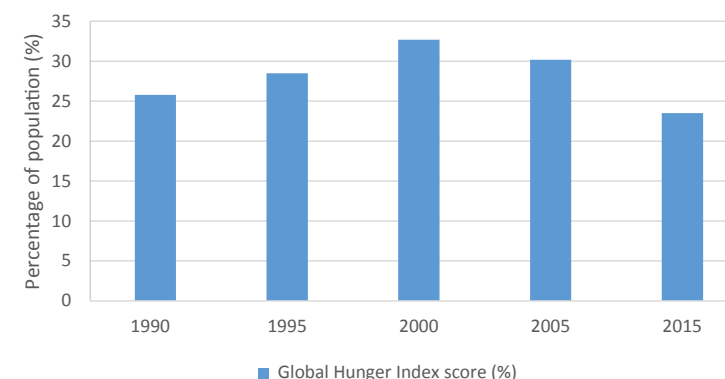
The recent political instability in the country might have contributed to the declining economic performance. Macroeconomic environment and political stability are critical for providing a conducive environment for national sector performance. Thus, national efforts to transform and drive growth in the agriculture sector would also depend on the government providing a conducive environment for increased investment in the sector.

Figure 13 presents the Global Hunger Index scores for Lesotho for the period 1990-2015 (von Grebmer et al. 2015). The results indicate that the score for Lesotho reached a peak of 33% in 2000, after which it started to gradually decline to 24% in 2015. Investments in the agriculture sector are critical to transform the sector and contribute to ending the hunger among the poor people in the country. Note that an increase in a country's GHI score indicates that the hunger situation is worsening, while a decrease in the score indicates an improvement in the hunger situation.



**FIGURE 12. GROWTH OF ANNUAL GDP IN LESOTHO (2006-2017).**

Source: AfDB, OECD and UNDP 2016.

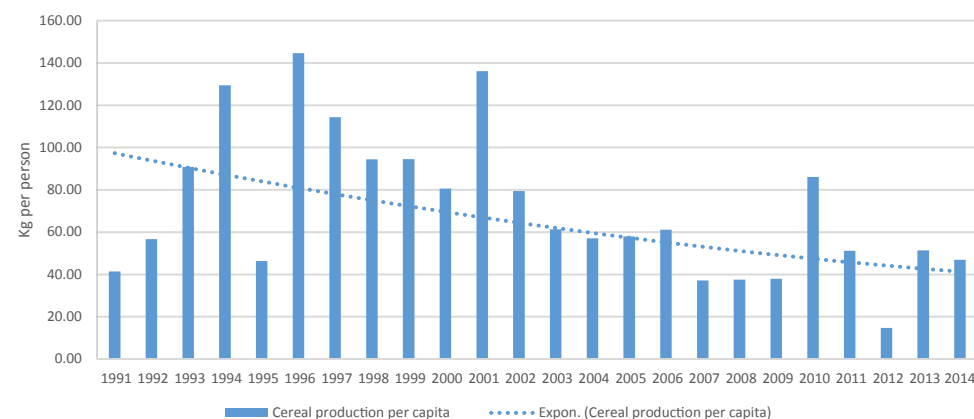


**FIGURE 13. GLOBAL HUNGER INDEX IN LESOTHO (1990-2015).**

Source: von Grebmer et al. 2015.

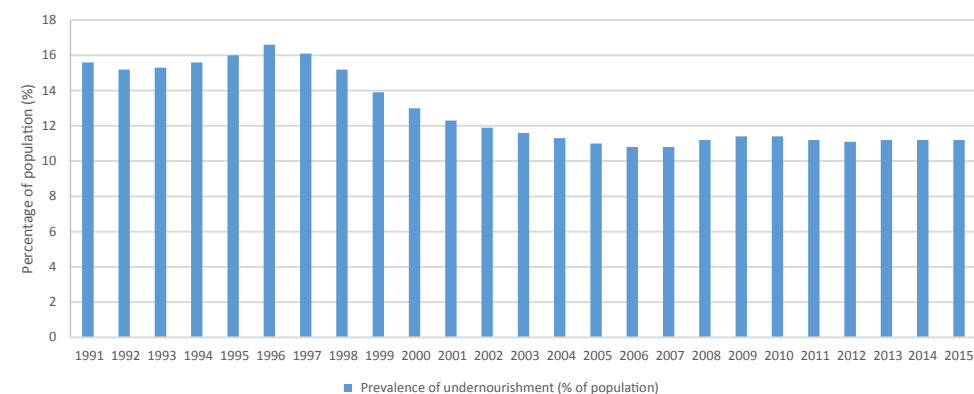


Figure 14 presents the per capita cereal production for Lesotho for the period 1991-2014. Adding a trend line to the graph shows that the country's per capita cereal production has been decreasing over the years. This means that population increase has outpaced the increase in cereal production. Overall, the results point to the need for Lesotho to increase investments to improve cereal production so that per capita production levels can increase. The prevalence of undernourishment in Lesotho is presented in Figure 15. The results show that the prevalence of undernourishment increased slightly between 1992 (15.2%) and 1996 (16.6%), after which it gradually declined to 10.8% in 2006 and 2007. It also shows that the level increased slightly to 11.4% in 2009 and 2010, and continued to decrease after that to 11.2% in 2015. Overall, the prevalence of undernourishment in Lesotho decreased for the time period shown in the figure.



**FIGURE 14. CEREAL PRODUCTION PER CAPITA IN LESOTHO (1991-2014).**

Source: Authors' calculations based on data from World Bank 2016.








**FIGURE 15. PREVALENCE OF UNDERNOURISHMENT IN LESOTHO (1991-2015).**

Source: World Bank 2016.

## 4.6. Summary

Chapter 4 presented an analysis of the performance of the agriculture sector and development outcomes. Data on various indicators were gathered from different sources to assess performance of the sector. Key CAADP targets and indicators analyzed include share of agricultural expenditure in total national expenditure and agricultural GDP growth rates. The findings indicate that Lesotho has not performed well in terms of meeting the agriculture sector spending targets of CAADP. Assessment of the agriculture sector GDP annual growth rate shows mixed findings, with some years recording high growth rates and others recording huge negative growth rates. Overall, Lesotho has the potential to revitalize the performance of the agriculture sector to drive economic development in the country. Ensuring a conducive macroeconomic and policy environment for transformation and growth of the agriculture sector is critical for the country to achieve national-level developmental goals. Table 5 summarizes performance of the agriculture sector in Lesotho, based on traffic light ratings given to the progress made towards achievement of selected indicators.

**TABLE 5.** SUMMARY OF PERFORMANCE OF THE AGRICULTURE SECTOR IN LESOTHO, BASED ON TRAFFIC LIGHT RATINGS GIVEN TO THE PROGRESS MADE TOWARDS ACHIEVEMENT OF SELECTED INDICATORS.

Performance indicators	Traffic light rating
Share of agricultural expenditure in total expenditure	 Red
Growth in agricultural GDP	 Amber
Cereal yield per hectare	 Red
Livestock production index (annual growth)	 Amber
Proportion of land equipped with irrigation	 Amber

Source: Authors

Note: Red = Poor/does not exist; Amber = Progress made; Green = Good/exists.

## 5. Conclusions and Recommendations

The purpose of this Annual Trends and Outlook Report was to provide a baseline assessment of the agricultural growth trends in Lesotho which can be used for benchmarking future assessments of the sector, as part of efforts to assist member states in planning and implementing the Comprehensive Africa Agriculture Development Programme (CAADP) agenda. The discussions in this report were based on review and synthesis of past publications, reports and Internet sources. In addition, the data presented were gathered from various sources, including the ReSAKSS database and other international databases that are freely available on the Internet, such as the World Development Indicators of the World Bank, and the FAOSTAT statistical database of the Food and Agriculture Organization of the United Nations (FAO). National-level data gathered by the Regional Strategic Analysis and Knowledge Support System for Southern Africa (ReSAKSS-SA) were also used.

### *Summary of main findings*

Lesotho is characterized by a strip of arid arable land on the western border, and steep and rugged mountainous terrain in most parts of the country. The country has four agroecological regions: the lowlands, Senqu River Valley, the foothills and the highlands (mountainous area).

Main agricultural constraints include: low soil fertility, land degradation, limited arable land and climate change-related risks (such as droughts and floods). The interaction of these factors with socioeconomic factors increases the vulnerability of agricultural production in the country to these factors.

Agricultural crop production activities in Lesotho are mainly under smallholder, rainfed systems which are characterized by very limited input use and a heavy reliance on maize production.

In addition to crop production, Lesotho has a culturally embedded livestock production activity, which also serves as a livelihood strategy for smallholder communities. Between 70 and 80% of Lesotho's population resides in the rural areas, and more than 75% of these people depend on agriculture for their livelihoods.

Most of the agricultural activities in Lesotho are carried out under rainfed conditions (only less than 1.3% of arable land is irrigated), despite the country having abundant water resources.

Despite Lesotho signing the CAADP Compact in 2013, finalization of the National Agriculture Investment Plan (NAIP) is still in progress, while subsequent processes (technical review and business meeting) are yet to be conducted.

Analysis of key CAADP targets and indicators, such as share of agricultural expenditure of total national budget and agricultural GDP growth rate, indicate that Lesotho has not performed well in terms of meeting agriculture sector spending targets. Assessment of the agriculture sector GDP annual growth rate shows mixed findings, with some years recording high growth rates and others recording huge negative growth rates.

## *Recommendations*

- Lesotho should strengthen ongoing efforts to implement the CAADP agenda and resolution of the 2014 Malabo Declaration on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods.
- Due to the limited amount of arable land in Lesotho, efforts are needed to improve productivity of the available land. This is critical, if the country is to revive the

performance of the agriculture sector and build food self-sufficiency, especially among smallholder farmers.

- The vulnerability of the agriculture sector to impacts of climate change and variability requires the country to strengthen farmers' adaptive capacity to these changes.
- Improve utilization of the country's water resources in irrigation to help farmers adapt to impacts of climate change. Investment in irrigation development is a critical adaptation measure that the Lesotho government should prioritise as part of its efforts to improve agricultural transformation for shared livelihoods in the country.
- Agricultural productivity interventions should address challenges of poor soils, low nutrient use and land degradation among other factors.

# References

- AfDB (African Development Bank). 2013. *Kingdom of Lesotho: Country strategy paper 2013-2017*. Adijan, Ivory Coast: Southern Africa Resource Center (SARC), African Development Bank (AfDB).
- AfDB; OECD (Organisation for Economic Co-operation and Development); UNDP (United Nations Development Programme). 2016. *African economic outlook 2016: Sustainable cities and structural transformation*. Abidjan: AfDB, OECD, UNDP.
- African Union Commission. 2014. Malabo Declaration on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods. In: *Decisions, Declarations, and Resolution of the Assembly of the Union, Twenty-Third Ordinary Session, June 26-27, 2014, Malabo, Equatorial Guinea*. Addis Ababa: African Union Commission.
- African Union Commission. 2015. *Implementation strategy and roadmap to achieve the 2025 Vision on CAADP*. Addis Ababa, Ethiopia: African Union Commission.
- Biswas, A.K. 1986. Irrigation in Africa. *Land Use Policy* 3(4): 269-285.
- Chakela, Q.K. 1999. *State of the environment in Lesotho, 1997*. Maseru, Lesotho: National Environment Secretariat, Ministry of Environment, Gender and Youth Affairs.
- FAO (Food and Agriculture Organization of the United Nations). 2016. FAOSTAT database. Available at <http://faostat3.fao.org/home/E> (accessed October 2, 2016).
- Jayamaha, G. 1979. *A contribution to the study of the weather and climate of Lesotho with special reference to agrometeorology in the country*.
- Lewis, F.; McCosh, J.; Pringle, C.; Bredin, I.; Nxele, Z. 2011. *Ecosystems, agriculture and livelihoods in the Lesotho Highlands: Likely futures and the implications of climate change*. Discussion document. Scottsville, South Africa: Institute of Natural Resources (INR).
- Maile, N. 2001. *Forestry Outlook Studies in Africa (FOSA): Lesotho*. Maseru, Lesotho: Department of Conservation and Forestry.
- Moeletsi, M.E.; Walker, S. 2013. Agroclimatological suitability mapping for dryland maize production in Lesotho. *Theoretical and Applied Climatology* 114(1-2): 227-236.
- Monaheng, T. 2003. An assessment of development policy initiatives in Lesotho. *Development Policy Management Network Bulletin* X(2).
- NEPAD (New Partnership for Africa's Development). 2015. *Countries with compacts/investment plans - Nov 2015*. Midrand, South Africa: NEPAD Coordinating Agency.
- Prasad, G.; Boule, M.; Boyd, A.; Rahlao, S.; Wlokas, H.; Yaholnitsky, I. 2012. *Energy, water and climate change in Southern Africa*. Cape Town: Energy Research Centre, University of Cape Town, South Africa.
- SADC (Southern African Development Community). 2006. *Regional Indicative Strategic Development Plan (RISDP)*. Gaborone, Botswana: SADC.
- Stevens, J.B.; Ntali, P.J. 2011. The role of extension support to irrigation farmers in Lesotho. *South African Journal of Agricultural Extension* 39(2): 104-112.
- von Grebmer, K.; Bernstein, J.; Prasai, N.; Yin, S.; Yohannes, Y.; Towey, O.; Sonntag, A.; Neubauer, L.; de Waal, A. 2015. *2015 Global hunger index: Armed conflict and the challenge of hunger*. Bonn, Germany: Welthungerhilfe; Washington, DC: International Food Policy Research Institute (IFPRI); Dublin, Ireland: Concern Worldwide.
- World Bank. 2016. *World Development Indicators*. Washington, DC, USA: World Bank.

