

Linking Smallholders to Markets:

A Supplier Development
Program for Vegetable
Farmers in Lesotho



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Abbreviations and Acronyms

BEDCO	Basotho Enterprise Development Corporation
C	Celsius
EIF	Enhanced Integrated Framework
ha	hectare
IFC	International Finance Corporation
kg	kilogram
M	maloti
MSBDCM	Ministry of Small Business Development, Cooperatives and Marketing
SADP	Smallholder Agriculture Development Project
SDP	Supplier Development Program
sqm	square meters
VAT	value-added tax



Executive Summary



BACKGROUND

Lesotho has good potential to increase vegetable production, reduce imports, and increase the incomes of farmers. Protected vegetable farming¹ has taken off in the past five years in Lesotho, thanks to donor and government support. Cultivation of many vegetables is scale neutral and even smallholder farmers with less than a hectare of land can operate at a profit in Lesotho. As is the case globally, investments in horticulture can create jobs and reduce poverty, because the sector is highly labor intensive. Interviews with buyers suggested that there is strong demand for fresh produce in Lesotho, which is met primarily through imports. Supermarkets and grocery stores reported that over 80 percent of vegetables are imported from South Africa, even during the growing season. Trade statistics shows that imports of vegetables were worth \$18.7 million in 2017 (UNCOMTRADE). However, all the buyers are willing to increase local sourcing, citing the convenience, cost competitiveness, and freshness of local produce.

This study aims to (1) assess the demand for vegetables from the main buyers in Maseru, (2) examine the current production and marketing strategies of commercial vegetable producers practicing protected farming, and (3) suggest the design of the pilot

Supplier Development Program to improve formal market access for smallholder farmers. The analysis is focused on Maseru, as it is the main demand center in the country. The paper builds on the findings of the recent World Bank report "Unlocking the Potential of Lesotho's Private Sector: A Focus on Apparel, Horticulture and ICT" (Reva 2018), which remain highly relevant.

We hope the results of the analysis will be of interest to government officials, potential investors, producers, and the donor agencies working on agricultural entrepreneurship in Lesotho. The Government of Lesotho is trying to attract investment in primary agriculture, the Market Center in Ha Tikoe, and agroprocessing. These efforts would benefit from the detailed assessment of demand, buyer sourcing strategies, and a program to upgrade farmers so that they can better meet the requirements of formal markets. The paper is also relevant for two World Bank Projects—the Second Smallholder Agriculture Development Project and the Second Private Sector Development and Economic Competitiveness Project—as well as the work of other donors supporting agriculture and entrepreneurship.

¹. By "protected vegetable farming" we mean cultivation under greenhouses or hail nets



DEMAND



SUPPLY

There are multiple actors in the fresh produce market in Maseru. The main players are the branches of four South African supermarkets, three local grocery stores (in the bus stop area), five Chinese-owned stores, and about 25 individual traders (with import permits) who typically sell on the street. The three local grocery stores have the largest market share, at 35 percent, followed by the supermarkets, at 31 percent; individual traders, at 20 percent; and Chinese-owned stores, at 15 percent.² There are no fresh produce aggregators or agro-processors in Lesotho. Our estimates suggest that more than 1,400 tons of vegetables are traded monthly in Maseru. The vegetables in highest demand are cabbages, potatoes, carrots, beetroots, and tomatoes, which account for 87 percent of total trade.

The main constraints reported by the buyers are reliability of supply, varying quality, and low volumes. The problems of quantity and reliability of supply are primarily due to most farmers being smallholders and not spacing production or coordinating deliveries. The quality requirements currently relate mainly to product visual appearance and packaging. Global Gap and other standards are not imposed, and buyers do not conduct phytosanitary tests. Lack of food certification is an important area of concern for supermarkets that may introduce food safety standards in the future due to corporate requirements.

All the buyers want to increase local purchasing, and they find that local produce is cost-competitive relative to imports. Yet, some of their sourcing strategies may preclude the formation of a sustainable supply chain. Contracts are not practiced by any of the buyers, and there is rarely a strong commitment to purchase a certain quantity of a product. Pick n Pay supermarket practices an inclusive strategy by giving many farmers a chance to deliver their produce if it meets the quality requirements. However, the approach disadvantages growth-oriented farmers, as they are subject to rationing and quotas. Shoprite supermarket works closely with Freshmark, its distribution center in South Africa. Due to the small scale of local suppliers, none is registered with the distribution center, and local purchasing tends to happen on an ad hoc basis. Overall, lack of certainty in the market precludes specialization in high-value crops (red and yellow peppers, broccoli, cauliflower, baby vegetables, and others), which can be sold only to supermarkets.

Government and donor support provided a major impetus to the development of protected vegetable farming and contributed to the emergence of agricultural entrepreneurs. The provision of greenhouses, hail nets, and small-scale irrigation systems was often a starting point for the emergence of commercial farming enterprises. The two largest donor-funded projects provided grants for protected farming to about 400 farmers in several districts of the country. Although few vegetable producers keep good records, our estimates suggest that protected vegetable farming is a viable business in Lesotho. Based on the data reported by farmers, the profits of the most successful vegetable producers can reach M 1 million (US\$71,428) per season in per hectare (ha) equivalent.

Investments in protected farming and irrigation can have a transformational impact on farmers' incomes, yet obtaining a greenhouse is not necessarily a path to success. Transition to intensive vegetable production requires acquisition of skills in modern agronomic practices, which has not yet happened for most farmers. As a result, most vegetable producers report low yields. Some of the common knowledge gaps include seed variety selection, plant spacing, and pest management. Furthermore, lack of soil testing often results in the incorrect use of fertilizers and chemicals. As a result, yields are often lower than expected. For example, reported tomato yields ranged between 8-12 kilograms (kg) per plant per season among top performing farmers and just 1 kg for struggling farmers. Local extension officers and input service providers lack knowledge on greenhouse vegetable cultivation, and there are no microbiological facilities in Lesotho, which makes it difficult to identify plant diseases. More advanced farmers tend to purchase inputs in South Africa and, when needed, seek advice from South African agro-dealers on pest and disease management.

Although most farmers can sell their produce, relatively few have regular formal customers. There are multiple distribution channels, which can take most of the common produce, from poor quality to first grade. Yet, fragmentation of production, frequent losses of crops to diseases, poor sorting and grading, and lack of packaging make it difficult for many farmers to establish regular relationships with formal buyers.

². Based on the Buyer survey conducted for this study and analysis of import declarations



PROPOSED PILOT SUPPLIER DEVELOPMENT PROGRAM

The main objective of the pilot Supplier Development Program (SDP) is to increase farmers' productivity and link them to formal markets. Most of the formal buyers who were interviewed in Maseru expressed strong interest in participating in a market linkage intervention. Specifically, the program can improve the agronomic practices and management capabilities of farmers and strengthen the profitability of their enterprises. It can also increase buyers' trust in working with local farmers. The proposed SDP pilot focuses on technical assistance for beneficiary farmers and no financial support is envisaged. The program will provide training on optimizing cash flow and strengthening financial management, which will increase farmers' ability to access bank loans.

The pilot program has three main components: (1) improving linkages with buyers, (2) providing technical assistance to farmers, and (3) improving linkages with input suppliers. The first component will include continuous monitoring of buyer demand for the crops and volumes needed, quality (size, color, and stage of ripening), and delivery timing requirements. Technical assistance to farmers will include seed variety selection, cultivation practices, soil nutrient testing and amelioration, pest and disease management, water management, product standards, and financial management. The SDP should also work with local agro-dealers to raise their awareness of the inputs that are frequently needed by vegetable farmers, the types of seed varieties that do well in Lesotho's climate conditions, use of plant protection products, and crop husbandry practices. The objective of the last component is to improve the product and service offerings of the local input providers and capacitate them to support farmers.

It is proposed that the SDP will target wholesale and retail buyers in Maseru over consumer or end markets. The focus on these buyers is justified because their knowledge of demand requirements is more formal and there is greater potential for demand scalability, that is, increased production could be more easily absorbed. Direct supply to end users, such as restaurants and hotels, may serve as a "sink" in cases where supply exceeds demand from the wholesale and retail markets. It is also proposed that the SDP will focus on several crops for which there is strong demand from buyers and that farmers are comfortable growing.

Program participants will be chosen through a competitive selection process. The program will focus on growth-oriented farmers and include the following selection criteria: (1) having a greenhouse or shade net as well as year-round access to irrigation, (2) a minimum of three years of farm management experience, (3) positive sales trends in the past two years (provided there was no adverse weather event), and (4) at least some experience selling to formal buyers. We suggest that the initial pilot will last for 18 months and focus on Maseru. At the end of that period, the program should be evaluated, the scope of activities and level of support adjusted as needed, and the intervention scaled up to include more farmers and locations. The program duration could be extended to five years or longer (depending on farmers' needs and resource availability).

The SDP can contribute to strengthening the vegetable supply chain and making Lesotho a more attractive investment destination for agrobusiness. In the short term, the program can contribute to improved yields and incomes of farmers. In the medium term, the program can have a strong positive impact on the volume of locally available produce, which would encourage investment in aggregation and agroprocessing. Lastly, the lessons learned from the demand-driven SDP aimed at growth-oriented businesses could inform the design of entrepreneurship projects in other sectors.





Introduction

Agriculture plays a significant role in Lesotho's economy.

Lesotho is among the poorest countries in Southern Africa, with 57 percent of the population living below the poverty line. About 70 percent of the population lives in rural areas and depends on agriculture for their livelihoods. Most farmers are involved in subsistence cultivation of cereals, where the country does not have a competitive advantage due to the agroclimatic conditions, small farm size, and lack of mechanization. This contributes to widespread poverty in rural areas, which account for 87 percent of the poor.

Vegetable production has a good potential for growth in Lesotho.

Several factors can support commercial vegetable cultivation in the country: (1) a favorable climate, (2) increasing local and regional demand for healthy food, (3) interest from key buyers to source locally, and (4) opportunity for import substitution—supermarkets and grocery stores in Lesotho report that over 80 percent of fresh produce is imported even during the growing season. Furthermore, the cultivation of many vegetables is scale neutral and therefore suitable for Lesotho's smallholders, who constitute most of the farmers. Indeed, most of the Basotho farms are small, and over 60 percent of the households have plots that are smaller than 1.5 hectares (ha) (Bureau of Statistics 2009/2010 Agricultural Census).

The Government of Lesotho has prioritized the development of horticulture industry and mobilized donor support for the sector.

Agriculture, including vegetable farming, is one of the four priority sectors under the National Strategic Development Plan 2018/19–2022/23. The government and donors' support to vegetable farming has mostly focused on providing grant funding for greenhouses and hail nets as well as initial basic training on protected farming. The largest programs that have supported protected vegetable farming include the World Bank's Smallholder Agriculture Development Project (SADP) and the World Trade Organization's Enhanced Integrated Framework (EIF) project. These programs have provided grants to about 400 farmers.

Although vegetable production has reportedly increased, emerging commercial farmers often suffer from low productivity and challenges in accessing formal markets.

Many farmers sell their produce to street vendors and in informal community markets rather than to formal buyers that offer better prices. There are no packing houses, aggregators, or agro-processors in any of the crop value chains in Lesotho (except Lesotho Flour Mills, which imports most of the raw material from South Africa).



Lack of data on vegetable production volumes, yields, and farm revenues complicates analysis of the industry and policy efforts to support the sector. The first pilot commercial horticulture survey identified 198 “commercial vegetable farmers,” defined as those who produced primarily for the market and used irrigation (Bureau of Statistics 2016). The survey covered a limited number of variables, including area planted to different crops and the educational attainment and age of farmers. There are no data on yields or farm turnover. The results suggest that a little more than 600 ha were planted to vegetables by the surveyed farmers. The most common crops were spinach, spaile (traditional green leaf vegetable), and pumpkins.

This study builds on the findings of a World Bank report, “Unlocking the Potential of Lesotho’s Private Sector: A Focus on Apparel, Horticulture and ICT.” The report identifies good opportunities for horticulture development and suggests the following measures to support the sector: (1) conduct land titling and enable development of the land market (only 232 farmers have land titles, which prevents them from using land as collateral and deters new investment in the sector), (2) prioritize the areas suitable for horticulture development for investments in irrigation and other rural infrastructure, and (3) incentivize market linkages (through productive alliances between farmers and potential buyers) and invest in skills (Reva 2018). These recommendations remain relevant.

The objectives of this study are to (1) assess the demand for vegetables from formal buyers in Lesotho, (2) examine the current production and marketing strategies of commercial

vegetable farmers, and (3) suggest the design of the pilot Supplier Development Program (SDP) to improve formal market access for smallholder farmers. The focus of this study is on Maseru, as it is the main center of demand in the country. The study relies on several data sources: a buyer survey in Maseru, semi-structured interviews with commercial farmers, and administrative and import data. To our knowledge, this is the first demand-driven assessment of business opportunities in the horticulture industry in Lesotho.

The results of the analysis can inform public and private investments and further donor support to the industry. In particular, it is expected that the findings of this study will inform implementation of the second phase of the World Bank’s SADP project, which is currently under preparation. The findings will also be relevant for the World Bank’s Competitiveness and Economic Diversification project, which provides support to the development of fruit farming, among other interventions. The results of the analysis will also be of interest to several government agencies that are supporting commercialization of agriculture and development of entrepreneurship and to development practitioners in Lesotho who are working on designing projects for growth-oriented entrepreneurs. Lastly, the study should be of interest to potential investors in the Market Center in Ha Tikoe Industrial Estate, as well as to vegetable producers.

The rest of this paper is organized as follows. Part 1 describes the demand for fresh produce and sourcing strategies of buyers in Maseru. Part 2 discusses the production and marketing practices of commercial vegetable farmers. Part 3 outlines the design of the pilot SDP.

PART





Demand for Fresh Vegetables >

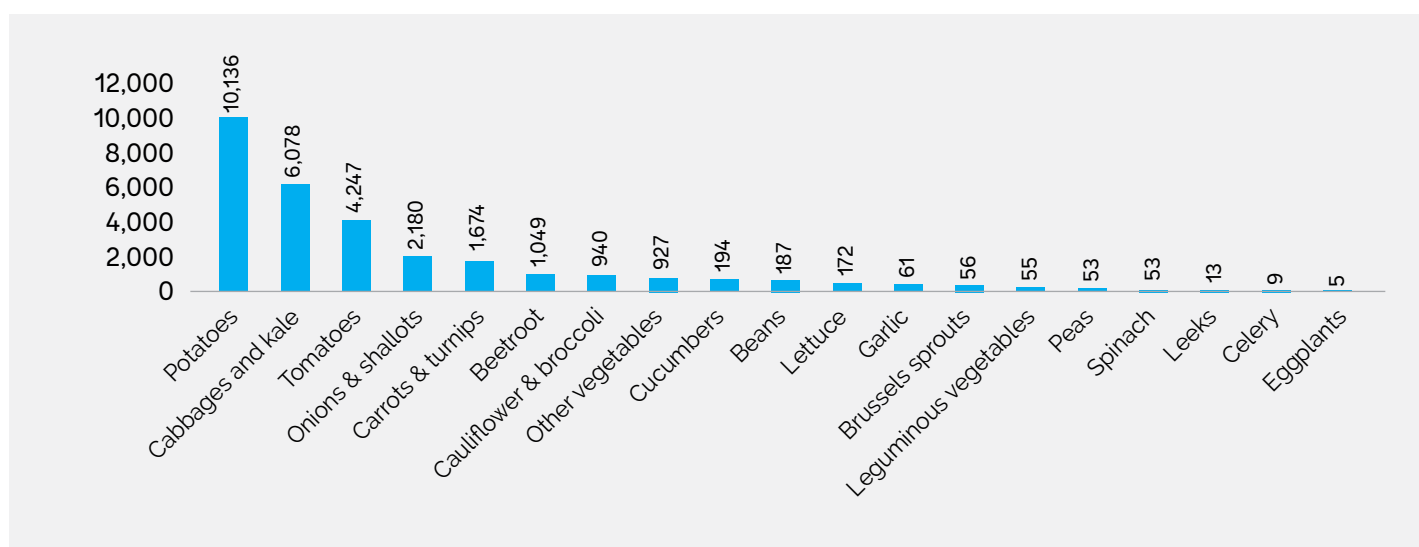
1.1

DEMAND FOR VEGETABLES AT THE NATIONAL LEVEL AND REGULATION OF IMPORTS

The growing urban population and increased awareness of healthy diets contribute to rising demand for fresh produce, which is met primarily through imports. The urban population in Lesotho has doubled since 1990 and grown at an average rate of 2.9 percent over the past decade (World Bank 2019). Maseru is the main urban center, with a population of more than 500,000. Domestic production of fresh vegetables by commercial farmers is low, and most of the demand is met through imports from South Africa. Imports of vegetables have grown by 45 percent cumulatively since 2010 and constituted \$18.7 million in 2017 (UNCOMTRADE mirror data). Actual imports could be larger, as imports by small-scale traders may be undocumented. In 2017, more than 28,000 tons of vegetables were imported from South Africa (UNCOMTRADE). The highest volumes were for potatoes, cabbages, and tomatoes, accounting for 83 percent of all vegetable imports (figure 1).



FIGURE 1: Potatoes, cabbages, and tomatoes are the most commonly imported vegetables in Lesotho



Source: UNCOMTRADE mirror data.

Fresh produce imports are duty-free, but traders must have a valid import permit issued by the Ministry of Small Business Development, Cooperatives and Marketing (MSBDCM) on a monthly basis. As a member of the Southern African Customs Union, Lesotho does not impose customs duties on imports from other member countries. However, fresh produce imports are regulated through an import permit system. MSBDCM issues permits for a specific quantity of each vegetable crop at the district level, based on the ministry's knowledge of the fresh produce volumes available from local suppliers in the district. The ministry also organizes regular buyer-seller meetings in each district to encourage traders to source more products locally. Farmers can contact and inform the market officers in their district about the anticipated volumes of their crops before harvest, and the ministry encourages local buyers to source locally. There is no regulation/formula prescribing the percentage of produce that should be bought locally by different traders (for example, supermarkets versus local grocery shops).

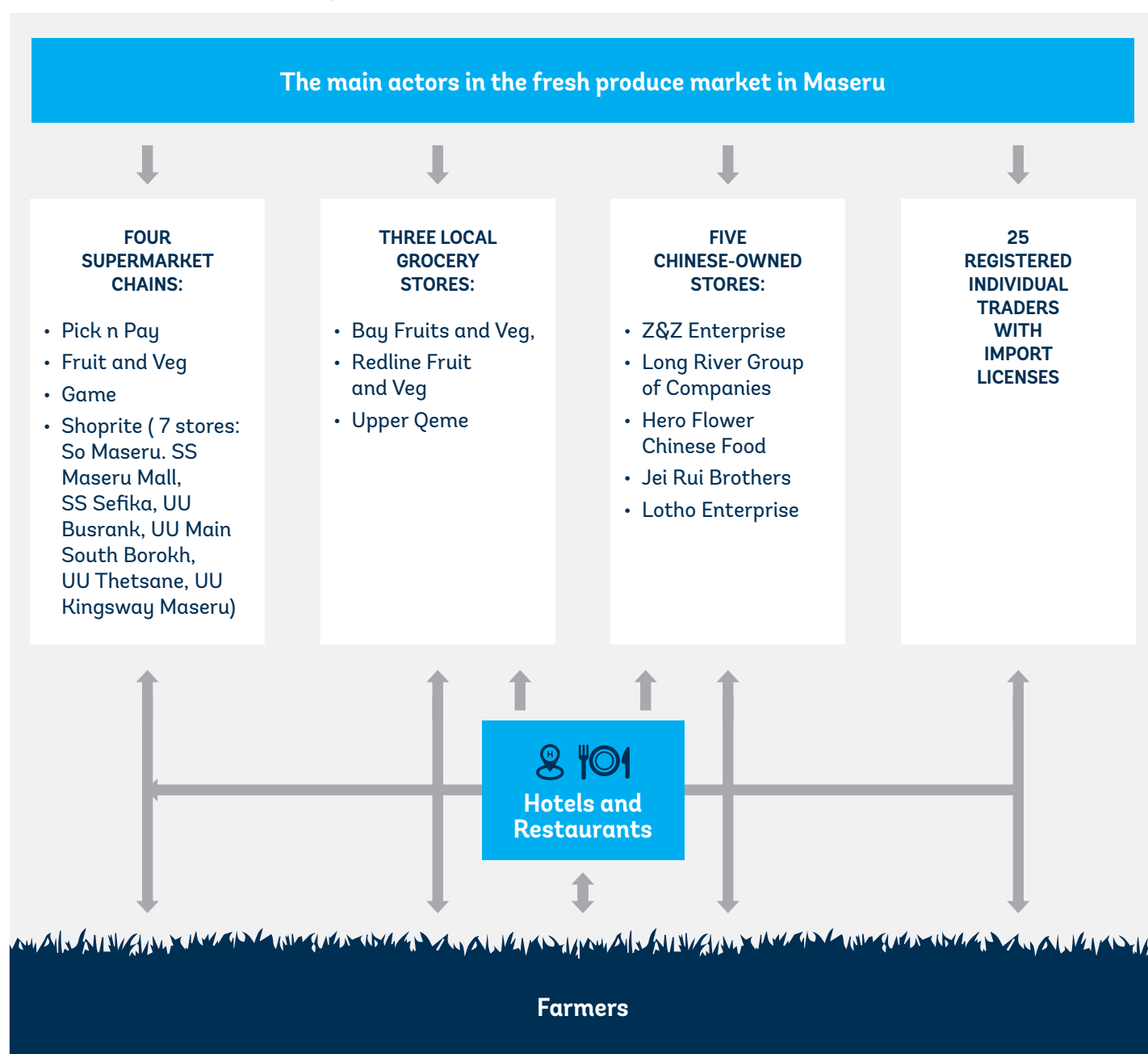
Import permits are not rigorously enforced; nevertheless, they seem to encourage large buyers such as supermarkets to give local farmers a chance. Import permits could be withheld if local produce has not been sold. However, this rarely happens in practice, as local production levels are low, and most farmers do not experience problems selling their produce. Some traders do not purchase any vegetables locally and are still granted permits. Furthermore, it seems to be difficult to enforce the system, as there are no representatives of MSBDCM at the border. So, if one has a permit for imports of 100 kilograms (kg) of cabbage but imports a larger volume, it will likely go unnoticed by MSBDCM. However, importers complained that they must pay a value-added tax (VAT) at the border on the value of the consignment. Some of the produce will not be sold or will be sold at a discounted price, but the VAT is never adjusted. This practice seems to hurt small, local traders the most, as their margins and overall volumes are low.

1.2

MAIN ACTORS IN THE FRESH PRODUCE MARKET IN MASERU

The main actors in the fresh produce market in Maseru are branches of four South African supermarkets, local wholesale/retail grocery stores, the so-called “Chinese stores,” and individual traders typically selling in the street (figure 2). The supermarket chains in Maseru include Pick n Pay, Shoprite, Fruit and Veg, and Game. Shoprite has seven stores in and around Maseru (three Shoprite stores and four Usave stores); the rest currently have one store. There are three local wholesale/retail stores, five Chinese-owned stores, and about 25 registered individual traders with import permits operating in the district (the number of individual importers fluctuates over the year). Hotels and restaurants import produce from South Africa, buy it directly from local farmers, or buy from the supermarkets in Maseru. An unknown number of informal street vendors sells small quantities of vegetables throughout the city. This study focuses on formal private buyers and excludes public institutions (hospitals, schools, and prisons) from the analysis.

FIGURE 2: Main actors in the fresh produce market in Maseru

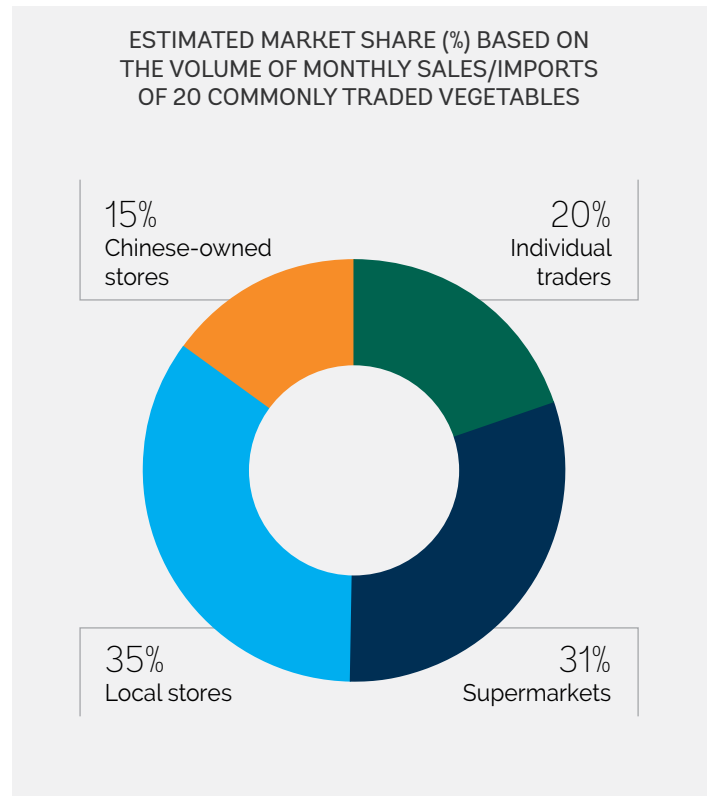


There are few statistics on fresh produce sales and import volumes at the district level. Importers provide monthly reports on the volumes and values of imported fruits and vegetables to MSBDCM. The forms are filled out by hand and importers often use non-standardized measurement units, for example, cabbage heads, spinach bunches, bags, pallets, or packets, which vary by weight even for the same commodity. The data provided by supermarkets are particularly difficult to aggregate, as the supermarkets sell produce in a variety of configurations (loose vegetables, 1 kg bags, 3 kg bags, and so forth) and the exact measurement units are not always provided in the forms. The data on import volumes are therefore difficult to systematize and have never been analyzed.

We surveyed a representative number of buyers in Maseru to understand the volumes and key parameters of demand, willingness to source locally, and main requirements for suppliers. Structured interviews were organized with 20 buyers, which included all the supermarkets and local grocery stores, four hotels, and nine restaurants. Language issues made it difficult to survey the Chinese store owners, so only one such interview was done. We also interviewed one formal and six informal street vendors. Although all the buyers were willing to share their experience of working with local suppliers, we could not obtain information on sale volumes from one of the local grocery store owners and the Chinese-owned stores. So, we estimated the approximate market shares of each of the key buyers by combining the data from the interviews with data from import declarations for the Chinese-owned stores, one of the local grocery stores, and the 25 registered individual traders.

Local grocery stores have the largest market share (by volume) relative to their competitors. The local grocery stores—Bay Fruits and Veg (operating out of the Basotho Enterprise Development Corporation (BEDCO) Trade Center), Redline, and Upper Qeme—specialize in products that are in highest demand by local consumers (regardless of income level) and have the largest market share compared with other players based on the data for 20 commonly traded vegetables (figure 3 and annex A). Three products—cabbages, potatoes, and tomatoes—account for over 60 percent of the local stores’ sales of vegetables on average. Figure 4 shows that local stores sell the highest volumes of tomatoes and onions relative to their competitors. The Chinese-owned stores operate similarly to the local shops and focus on a few vegetables that are in high demand by consumers. The Chinese-owned shops sell the most cabbages relative to other market operators (figure 4). The supermarkets offer a much larger variety of vegetables and are the only stores selling cauliflower, broccoli, baby marrows/patty pans, cocktail tomatoes, mixed greens, and other niche products. Most produce is packaged and some is sold cut, sliced, or shredded. Individual traders typically sell one or two vegetable types; they sell the most potatoes relative to other market players (figure 4).

FIGURE 3: Local grocery stores have the highest market share for 20 commonly traded vegetables in Maseru

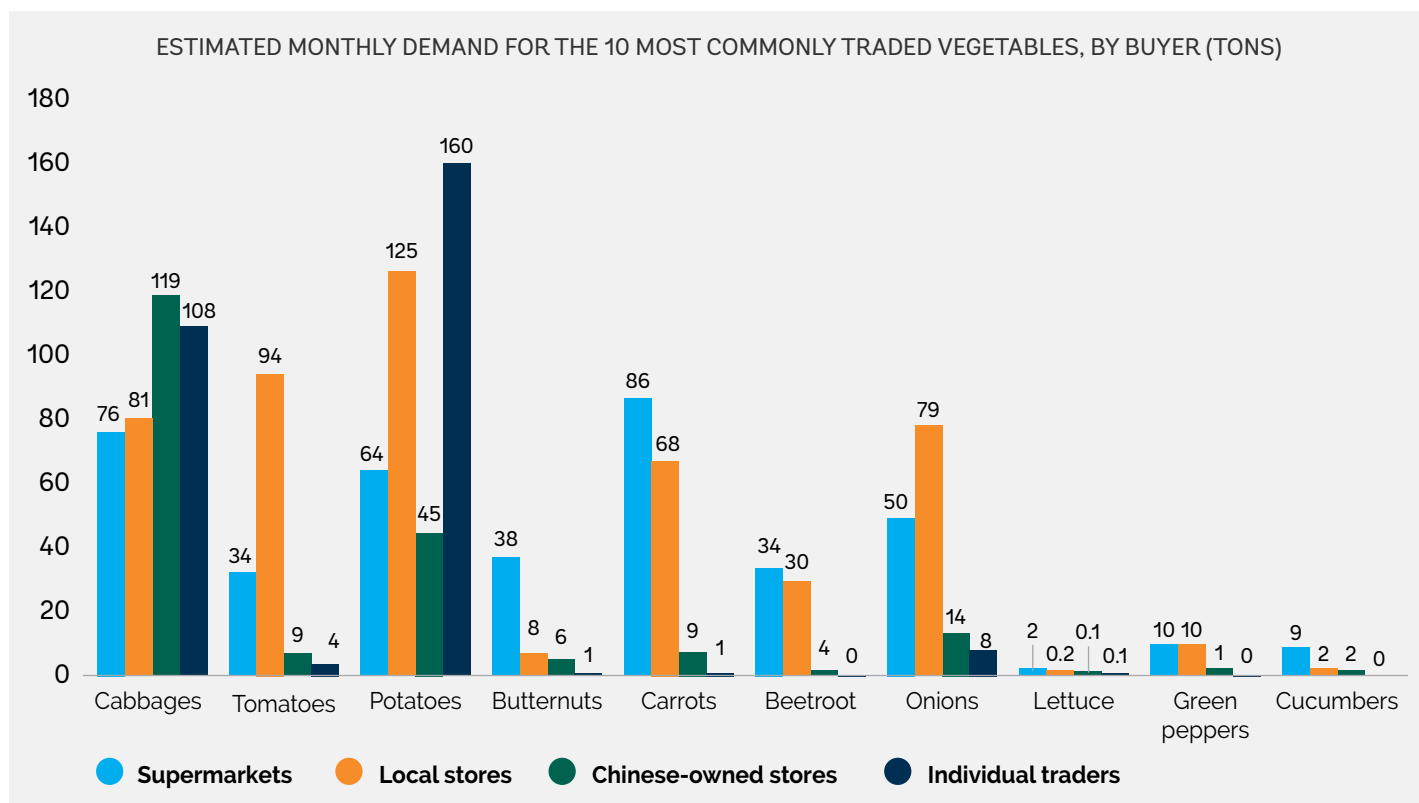


Source: World Bank Fresh Produce Buyer Survey 2019, for supermarkets and two local grocery stores; Ministry of Small Business Development, Cooperatives and Marketing for the Chinese-owned stores, one local grocery store, and individual traders (based on import declaration data for November 2018).

Note: Vegetables include cabbages, tomatoes, potatoes, butternuts, carrots, beetroots, onions, lettuce, green peppers, green beans, cucumbers, eggplants, cauliflower, broccoli, chilies, colored peppers, spinach, cocktail tomatoes, baby marrows, and patty pans.



FIGURE 4: Local stores sell the most tomatoes and onions compared with the other market players



Source: World Bank Fresh Produce Buyer Survey 2019, for supermarkets and two local grocery stores; Ministry of Small Business Development, Cooperatives and Marketing for the Chinese-owned stores, one local grocery store, and individual traders (based on import declaration data for November 2018).

Demand for most vegetables is stable throughout the year, except for cabbages (and possibly spinach), for which local grocery stores reported a decline in demand during the rainy season because many households plant for self-consumption. Demand for these crops does not change much in supermarkets, as they cater to better-off consumers. Sales tend to peak in December due to the Christmas holidays. Our estimates suggest that more than 1,400 tons of vegetables are sold monthly in Maseru. The five vegetables in highest demand are cabbages, potatoes, carrots, beetroots, and tomatoes (annex A); these products account for 87 percent of total trade in vegetables.



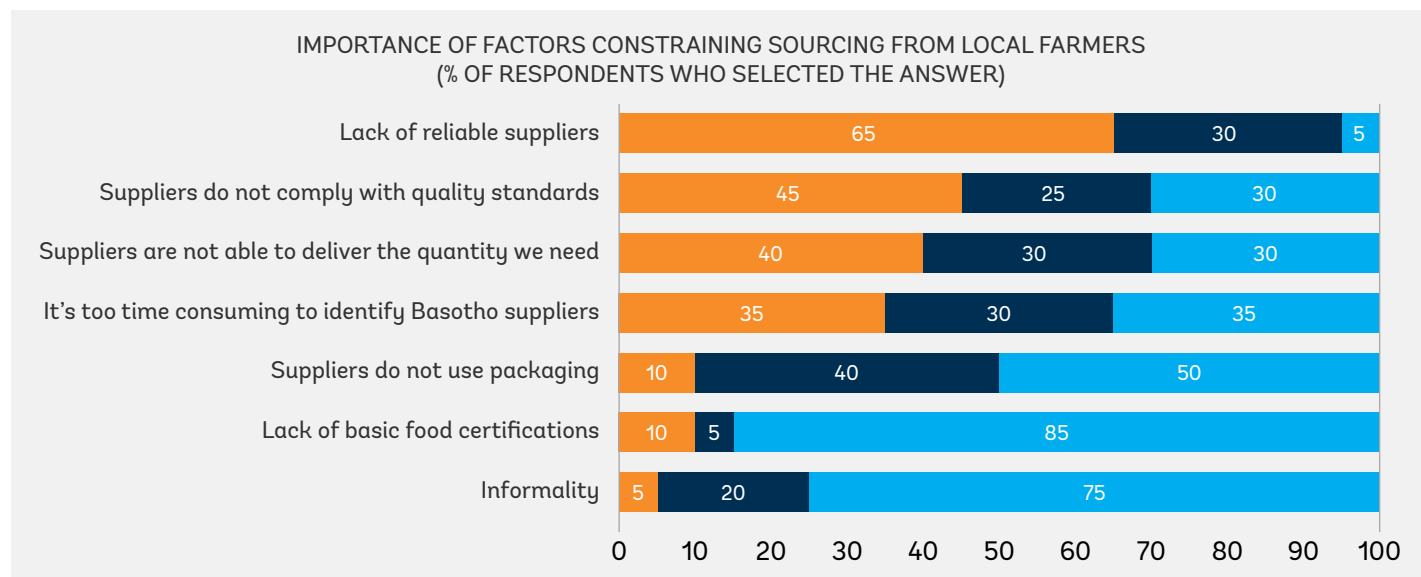
GENERAL FINDINGS

Most buyers have some experience purchasing from local farmers and would like to increase local sourcing. All 20 interviewees covered by the Fresh Produce Buyer Survey had some experience sourcing from local farmers, and the majority currently works with local vegetable suppliers. All but one buyer considered local suppliers to be cost-competitive relative to South African imports. Local vegetables also tend to be fresher than imported vegetables due to frequent delays at the border. Nevertheless, local produce constitutes less than 20 percent of the total purchases of all the interviewed buyers.

Poor reliability of supply, varying quality, and low volumes are the main constraints to greater local sourcing (figure 5). The problems of quantity and reliability of supply are primarily due to most farmers being smallholders and because few farmers space

their production or coordinate deliveries with other farmers. As a result, the market could be flooded with a particular vegetable at the peak of the growth season, but few farmers can supply the same product several weeks after the production peak. Furthermore, farmers routinely fail to deliver the agreed upon amount and/or quality of produce or do not show up on the agreed upon date without any explanation. Many buyers complained about lack of product consistency—that is, farmers bring a good sample, but the quality of the produce declines after the first two deliveries. The quality requirements currently relate primarily to products' visual appearance and packaging. Global Gap or other standards are not imposed, and buyers do not conduct phytosanitary tests. However, supermarkets may start applying phytosanitary standards in the future.

FIGURE 5: Reliability, quality, and quantity of produce are the top ranked constraints to local sourcing



Source: World Bank Fresh Produce Buyer Survey 2019.

The ranking of constraints varies by type of buyer. For example, low volumes were considered a critical constraint for large buyers—supermarkets and local grocery stores—but were not an obstacle for most restaurants. Similarly, lack of food certification and packaging was considered a critical constraint for the Pick n Pay and Shoprite supermarkets, which have corporate standards on these issues, but these factors were not problematic for local grocery stores, Fruit and Veg, and many restaurants.

Contracts with suppliers are not practiced by any of the buyers. Neither buyers nor farmers viewed contracts as desirable. Farmers felt that adverse weather events could significantly reduce production, and buyers did not want the administrative burden of dealing with multiple small contracts. Furthermore, many buyers felt that contracts would be difficult to enforce. Specifically, they were concerned that if the quality of produce declined after the first two or three deliveries, which is frequently the case, farmers may still demand the price that was agreed in the contract without understanding that the original price was linked to the quality of the produce.

Most buyers would welcome market linkage projects. Several potential interventions were discussed with the buyers and they felt that the following initiatives would be the most useful for increasing local sourcing: access to a vetted fresh produce supplier database; technical assistance to farmers on production and business management; as well as buyer-seller meetings, where potential buyers can meet local farmers and see their samples. Nearly all the interviewees also felt that an information technology platform where buyers can post offers and farmers can respond would be useful, although a few buyers thought that this would not work out, as farmers would make unrealistic commitments on quantities and quality of produce, indicating that there are some trust issues.

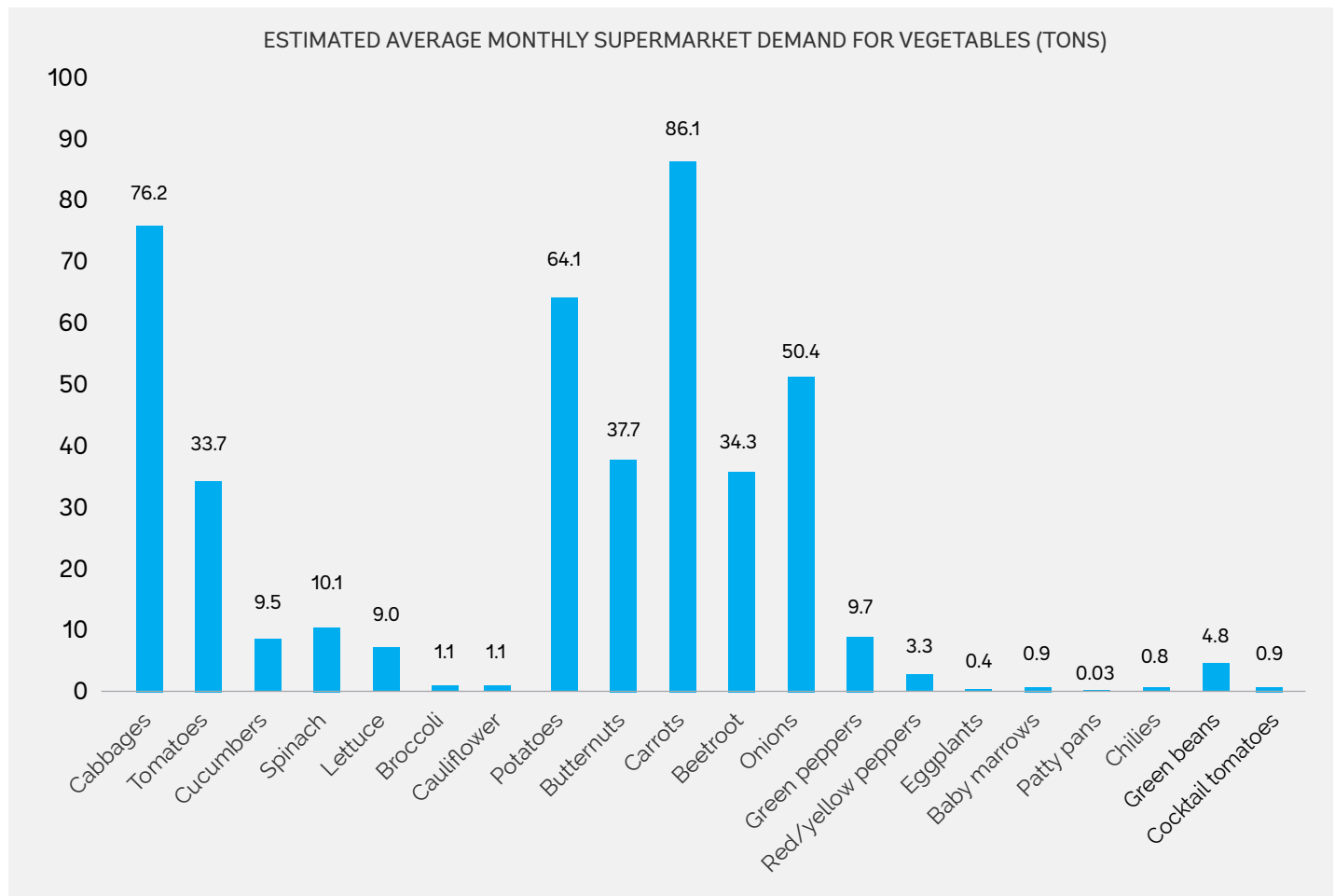
Buyers would also welcome the emergence of aggregators that could source from multiple farmers and provide continuous supply. Lastly, all the interviewed buyers would be interested in participating in a supplier development program by providing advance notice of the expected demand for different crops, opening opportunities for new suppliers, and increasing local sourcing if reliable supply could be assured.

The following narrative discusses the sourcing strategies, experience of buying locally, and key requirements for suppliers for each type of buyer.

>>> SUPERMARKETS

Supermarkets rely on their distribution centers in South Africa and purchases from wholesale fresh produce markets (primarily in Johannesburg) as the key sources of supply. The supermarkets established their operations in Lesotho over the past decade and have quickly grown in popularity. Each supermarket branch receives several deliveries of fresh produce from South Africa per week. Cabbages, carrots, and potatoes dominate supermarket sales in Lesotho, reflecting consumer demand (figure 6). However, there are opportunities for import substitution in almost every crop, as the share of locally sourced vegetables does not exceed 20 percent. Pick n Pay localized the highest share of its supply relative to the other supermarkets, but Game does not source any vegetables locally. Although all the supermarkets would like to buy local produce, none is actively engaged in identifying new suppliers. Farmers come themselves and bring product samples.

FIGURE 6: Cabbages, carrots, and potatoes have the highest sales by volume at supermarkets



Source: World Bank Fresh Produce Buyer Survey 2019.

>>> PICK N PAY

Pick n Pay has a distribution center in South Africa, but it sources more produce locally compared with the other supermarkets.

The following vegetables are currently sourced in Lesotho: spinach, lettuce, tomatoes, onions, butternuts, beetroots, cabbages and red cabbages, eggplants, peppers of all colors, green beans, garlic, and herbs. The supermarket would like to source potatoes as well, but local farmers do not grow the variety needed by the store—large, white potatoes. Pick n Pay has six regular suppliers and multiple suppliers deliver from time to time. The supermarket named lack of packaging by local farmers among the important constraints to greater local sourcing. The store often provides farmers packaging material and barcodes. Another important problem is lack of coordination among farmers in production and marketing. As a result, some crops may be oversupplied at the peak of the season—for example, cabbages are sometimes oversupplied in winter.

This supermarket also demands higher quality and gives farmers the best price relative to other buyers in Maseru. All the interviewed farmers considered Pick n Pay the best buyer. Freshness, color, and size are the key quality requirements; the store does not conduct any testing. Packaging is highly desirable but not mandatory for most products. Payments are done on a weekly basis; smaller amounts are paid in cash and larger amounts are paid by check.

However, some of the store's sourcing strategies may discourage the formation of a sustainable supply chain and hurt growth-oriented farmers.

In the words of the store manager, the supermarket tries to give everyone a chance to supply their produce, given the poverty and high unemployment rate in the country. This approach may also reflect the supermarket's risk mitigation strategy whereby it is trying to reduce the nondelivery risk by sourcing relatively small volumes of the same product from multiple suppliers rather than committing to buy a large quantity from a few preferred farmers. For example, one green pepper farmer will be asked to supply produce for two weeks, then another farmer for another week, then a third farmer, and then the first farmer again.

Rationing of deliveries hurts better performing farmers, as they are not assured of a market for their products.

Lack of certainty that Pick n Pay (or Shoprite) would buy their vegetables prevents specialization in crops with higher prices but relatively limited local demand—such as red and yellow peppers, baby marrows, cocktail tomatoes, broccoli, and cauliflower. If supermarkets do not buy these crops, it is difficult to sell them to local or Chinese-owned stores, and farmers will incur a loss.



>>> SHOPRITE

Shoprite is the supermarket with the largest presence in the country. It has 14 stores in Lesotho, seven of which are in Maseru (including Usave stores). Shoprite sources primarily from its distribution center in South Africa—Freshmark, which provides Shoprite with rebates. Rebates generally make it more attractive to source produce from Freshmark compared with buying it locally. If production volumes in Lesotho grow, Shoprite would consider opening a mini-packhouse in the country. Shoprite has about four or five regular vegetable suppliers in Lesotho. Crops that are sourced locally include cabbages, spinach, tomatoes, and green peppers. The fresh produce procurement manager felt that the key constraints to sourcing more produce locally were low volumes, lack of product consistency, poor reliability of supply, and lack of packaging. He was also concerned that farmers often do not understand Shoprite's volume requirements and make unrealistic commitments, judging by the quantity of products in the display area without realizing how often it is replenished. In addition, most farmers do not space production and want to deliver all their harvest at once, quickly running out of produce. Lastly, the absence of a quality assurance company that can ensure compliance with hygiene and phytosanitary standards is a major concern for the store.

Shoprite has several requirements for its suppliers. The ability to deliver large volumes seems to be more important for Shoprite compared with the other supermarkets. Shoprite prefers to work with local farmers who can cover the supply of a particular crop(s) for at least one of its stores and provide deliveries at least three times a week (most stores get deliveries on Tuesday, Thursday, and Saturday; big stores have four delivery days a week). Furthermore, the supermarket wants farmers to have the capacity to deliver within 24 hours if there is shortage of a particular product. In addition, farmers need to buy their own packaging and barcodes (in the past, these were provided by Shoprite). Lastly, farmers should certify their produce at the Agricultural Research Department, Ministry of Agriculture and Food Security, and have a quality assurance company do a hygiene inspection (in the absence of such company, the service is provided by the National University of Lesotho). Farmers must supply at or below Freshmark's price. None of the farmers is large enough to be officially registered with the Freshmark Distribution Center, and they are paid through a petty cash account.

>>> FRUIT AND VEG

Fruit and Veg sources most of its produce from Joburg Fresh Produce Market. The following products are bought locally: green beans, green peppers, lettuce, spinach, butternuts, cabbages, sometimes potatoes (medium size), and eggplants (although local production is very small). The store manager was satisfied with the local potato varieties, but they are not washed, packaged, or dried. The store manager was willing to increase local sourcing for all vegetables if farmers can address the volume, reliability of supply, and quality consistency issues. Prices are determined by the Joburg price less the handling fees and transportation costs, and

farmers are paid by check two weeks after delivery. The store has some minimum quantity requirements (for example, at least 50 kg for green beans), but they are not prohibitive for most commercial farmers. Packaging is done inhouse and is not considered an area of concern for this store. Interviews with farmers revealed that the supermarket is accessible for local suppliers, yet it offers lower prices than Pick n Pay and Shoprite, as it sells to final consumers at lower prices as well. Payment is done two weeks after delivery. The quality requirements seem to be less stringent than at Pick n Pay and Shoprite.

>>> GAME



Game buys all its vegetables from the Mass Fresh distribution center in South Africa and is the only store that is not purchasing any fresh produce in Lesotho at all. Procurement decisions are made in South Africa. Although the store management said that

they are interested in working with Basotho suppliers, this does not appear to be the case in practice. The fresh produce procurement manager is based in Johannesburg and was not available to comment on the store's purchasing strategy.

>>> LOCAL GROCERY STORES

The local grocery stores operate as wholesale and retail businesses and cater to a variety of consumers. They have been in operation for 15–20 years and have many established customers. All three stores—Bay Fruits and Veg (operating out of the BEDCO Trade Center), Redline, and Upper Qeme—are located in the busy bus stop area and cater to a variety of consumers. Informal street traders (operating in the city and nearby villages) visit the stores in the morning to buy a day’s worth of supplies. The stores also sell to small restaurants, caterers, and end consumers. All three stores import most of the produce from South Africa; deliveries are daily or several times a week. All the stores also buy some produce locally (table 1).

TABLE 1: Vegetables sourced locally

 LOCAL GROCERY STORE	 VEGETABLES
BAY FRUITS AND VEG	Cabbages, butternuts, green peppers, green beans, onions, potatoes, and tomatoes
REDLINE	Mainly green beans and butternuts
UPPER QEME	Spinach, tomatoes, cabbages, and potatoes

Source: World Bank Fresh Produce Buyer Survey 2019.

The key requirements are the quantity and quality of the produce. The prices must be cheaper than in South Africa because local farmers supplying these stores cannot offer the same quality. All three shops can buy unpackaged produce in nonstandard units (for example, buckets, boxes, bags, and so forth). Upper Qeme does sorting and packaging itself. The rest sell produce that is loose, in boxes (for example, for tomatoes), or in net bags (for example, for potatoes). However, proper packaging can significantly improve the quality and shelf life of vegetables and would be a win-win for farmers and shop owners. The quality standards of local stores are less stringent relative to the supermarkets’ requirements, and purchasing price tends to be lower as well.

The local stores use somewhat different business models. Redline and Upper Qeme pay on delivery and take the risk if the produce is not sold. Bay Fruits and Veg prefers to buy based on the spot price and add a commission (paying farmers once the produce is sold). This model is similar to the one practiced by South African fresh produce markets. Box 1 provides more information on Bay Fruits and Veg.

BOX 1 BAY FRUITS AND VEG BUSINESS MODEL

Bay Fruits and Veg provides a platform for farmers to sell their produce and operates on commission. The commission can vary based on the volume and quality of the produce and is typically around 10 percent. Prices fluctuate daily, and the store manager will call the farmer if the product is not selling, to discuss price reductions; similarly, prices increase if the market is good. Most of the store’s local suppliers have bank accounts and are paid through a bank transfer after the produce is sold; the store manager is also ready to pay upon delivery for small suppliers.

Produce quality is not a significant problem if the price is right, because the store has different types of customers. Vendors that sell in the city want first-grade produce, while those that sell in the villages are willing to buy low-grade and low-price products. Low-income households mostly consume cooked vegetables (in stews as opposed to fresh salads), so lower grade produce can typically find a customer. Nevertheless, demand for first grade produce is rising. The store manager would like 70 percent of his perishable produce, such as tomatoes, to be top grade. He also wants vegetables to be sorted by color and size and would be willing to pay more for such produce.

The store manager prefers to buy local produce and is even willing to send his truck to collect vegetables from the local farms, as the transportation costs would be lower than importing from South Africa. He thought that it would be very useful to have a database of active commercial farmers to facilitate linkages between farmers and buyers. The store manager also felt that vegetable farming and fresh produce retail sectors have good opportunities for growth in Lesotho.

>>> CHINESE-OWNED STORES

Chinese-owned stores sell a variety of products, from flour and sugar to fresh fruits and vegetables. There are five Chinese-owned stores in Maseru district that are registered with MSBDCM for fresh produce import permits. Two of the stores—Z&Z Enterprises and Long River—run relatively large operations, importing more than 90 tons of vegetables a month each (based on MSBDCM data for November 2018). Cabbages and potatoes account for over 80 percent of the stores' imports (MSBDCM, November 2018).

The other three stores sell small amounts of vegetables and tend to focus on produce with a relatively long shelf life, with lettuce, tomatoes, and green peppers accounting for a small share of imports/sales. The interview with one of the Chinese store owners and Basotho farmers suggested that Chinese-owned stores are very open to buying locally and not very demanding on quality, but they tend to offer lower prices than other buyers and pass them on to consumers.

>>> HOTELS AND RESTAURANTS

We interviewed four of the largest hotels in Maseru and nine restaurants. The interviewed hotels—Avani (Avani Maseru and Avani Lesotho), Kick4Life, Lancer's Inn, and Mpilo—have regular restaurant and conference services. There are at least 10 more lodges and bed and breakfasts in Maseru, but they do not offer regular meal services other than breakfast. The nine restaurants include a mix of fast food and higher end establishments as well as different cuisines. There are many more restaurants in Maseru. Our analysis is illustrative of the average volumes of fresh produce they require and the sourcing strategies they employ. We also interviewed several catering companies, but their volumes were too small and delivery times too unpredictable to be of interest for the fresh produce market linkages program.

Most of the hotels and restaurants buy the bulk of their produce from supermarkets and local or Chinese-owned grocery stores. However, almost 70 percent of the interviewed hotels and restaurants source at least some of their produce directly from farmers, and all the interviewees would like to increase local sourcing. The main reason for wishing to buy more directly from farmers is lower prices, but some of the managers were ready to pay the Pick n Pay price and their main motivation was to support local production. Convenience (farmers deliver to the restaurants' doors) and product freshness were also mentioned among important factors in favor of buying directly from farmers. The constraints were similar to those mentioned by the other buyers, with reliability of supply and business ethics mentioned as the most

critical constraints (many restaurants had negative experiences with farmers promising to deliver on a particular date but then not showing up, without any notice). Most restaurants can work with formal and informal suppliers and pay cash on delivery if needed.

Weekly volume requirements are small (annex B) and delivery must be once or twice a week. Some hotels and restaurants want farmers to deliver at short notice (that is, the same day), while others are able to plan delivery dates and volumes in advance. Average weekly demand ranges from 95 kg for potatoes to 6 kg for cucumbers and 1.7 kg for garlic, for those that buy these products. Many higher end hotels and restaurants want farmers to produce niche products, such as microgreens, heirloom and cocktail tomatoes, and baby vegetables, yet the weekly demand for these products is low even among the restaurants that have these vegetables on their regular menus. For example, weekly demand for cocktail tomatoes ranges from 1.8 to 20 kg, depending on the restaurant, which is too low to incentivize specialization in this crop.

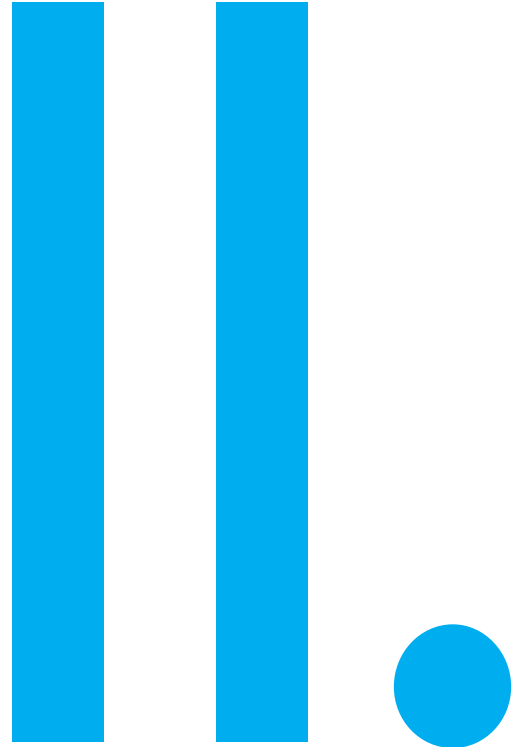


>>> INDIVIDUAL FORMAL AND INFORMAL TRADERS

In Maseru, there are 25 individual traders with import permits (annex C) and an unknown number of informal traders. Two-thirds of the registered individual traders import just one or two product categories, typically cabbages and potatoes. There is also an unknown number of informal traders who operate near the bus stop area, close to industrial estates, in the downtown area, and in

other busy locations. The informal traders buy produce from the three local wholesale stores, the Chinese-owned stores, and direct from farmers. Most farmers need to deliver to street vendors, yet some traders own or rent trucks and buy produce at the farm gate, paying farmers on the spot. None of the informal traders has warehouse facilities and all trade small volumes.

PART





Production and Marketing Practices of Commercial Vegetable Farmers in Maseru

2.1

GENERAL FINDINGS



Protected vegetable farming is a relatively new economic activity in Lesotho and most farmers have been growing under shade nets or greenhouses for five years or fewer. Open field cultivation is quite risky for Lesotho's climate, due to frequent adverse weather events such as hail, so for many crops, commercialization requires the use of protective equipment. Government and donor support provided a major impetus to the development of protected farming and contributed to the emergence of entrepreneurial vegetable farmers, some of whom can meet the standards of supermarkets and local wholesalers. The government and donor support mostly focused on the provision of grants for greenhouses, hail nets, and small-scale irrigation systems, as well as basic training on production and record keeping. Although this support was sufficient to help the most entrepreneurial farmers take off, it was not always enough to help them efficiently compete with imported produce in formal markets.

We conducted semi-structured interviews with 30 vegetable farmers and farmers associations to understand their production and marketing strategies. In addition, we met with the owner of Alosang farm, a leading supplier of tomatoes, peppers, and onions to Lesotho's supermarkets (given that she is not a typical farmer, her experience is discussed separately). All but three interviews were done through on-farm visits, so we could directly observe farmers' cultivation practices. The farmers were identified through (1) meetings with buyers (supermarkets, local grocery stores, hotels, and restaurants) who provided the contact information of their suppliers, (2) the databases of beneficiaries of the SADP and EIF projects and (3) referrals from the surveyed farmers. The focus was deliberately on market-oriented farmers currently in production. The objective was to understand the constraints on and opportunities for further business expansion. All the interviewed farmers were from Maseru and Berea districts within an hour's drive from the capital city, the main center of demand in the country.

Most of the interviewed commercial farmers own their land, are registered as businesses, and use irrigation. All but one farmer

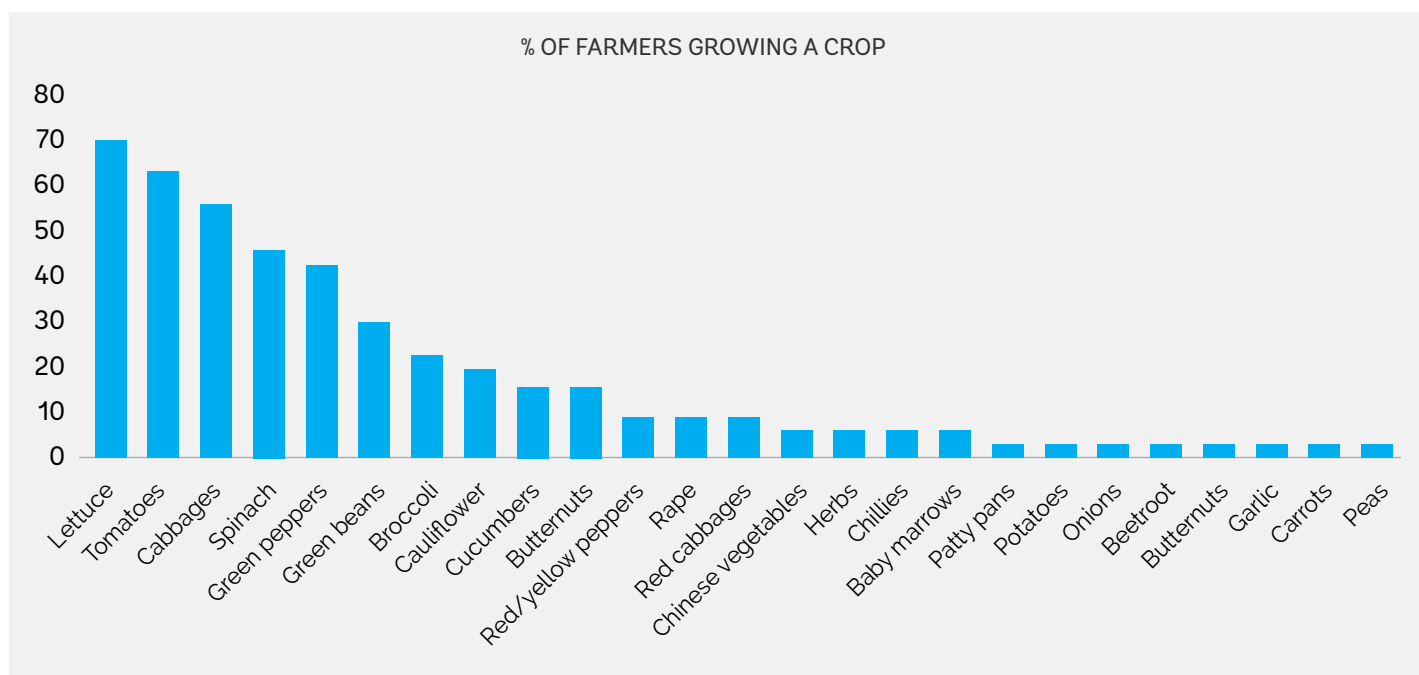
owned their land (although some were also renting additional plots for open field cultivation). The typical farm size was about 0.7 ha but ranged from 0.04 to 30 ha (including crops under open field cultivation). Agriculture was the main occupation for all but three farmers (two combined it with government jobs and one with a private sector job). The majority of farmers (70 percent) was focused solely on vegetable crops; the rest also cultivated maize and/or had livestock. About 80 percent of the interviewed farmers benefited from EIF or SADP support and some had received grants from both programs. For many, the provision of tunnels, shade nets, boreholes, and irrigation systems was the starting point, or an expansion point, for a commercially oriented farming enterprise. All the interviewed farmers used irrigation, mostly drip, for crops grown under greenhouses/shade nets. Although drip irrigation allows for the efficient use of water, farmers can still experience water shortages in times of drought if the borehole/community dam dries up. Fifty percent of the commercial farmers were men, 13 percent were family-owned businesses or associations, and the rest were owned by women. Table 2 provides a snapshot of the farmer profile.

TABLE 2: Characteristics of the interviewed commercial vegetable farmers

 CHARACTERISTIC	 MEASURE
Land ownership: own their land (%)	97
Formality: registered businesses (%)	90
Median farm size (ha)	0.7
Area under protected farming: farmers with less than 0.1 ha under greenhouse or hail net (%)	80
Diversification: grow only vegetables (%)	70
Benefitted from donor support (%)	80
Experience in protected vegetable farming (years)	1-5
Farms fully or partially female owned (%)	50

Commercial vegetable farmers grow a variety of crops, with lettuce, tomatoes, and cabbages being the most popular (figure 7). The main factor in crop selection was perceived demand from buyers. Large farmers often grow multiple vegetables, including niche crops such as patty pans, broccoli, cauliflower, and colored peppers, and crop selection is influenced by the demand from supermarkets. Farmers with less than a hectare under protected farming usually grow one or two crops. Tomatoes and green peppers are commonly grown in the summer and cabbages, spinach, green beans, or lettuce in the winter. In addition, cabbages, potatoes, onions, and butternuts are often grown in the open field.

FIGURE 7: Lettuce, tomatoes, and cabbages are the most popular crops



Source: World Bank 2019 Commercial Vegetable Farmer Survey.

Less experienced/knowledgeable smallholders sometimes diversify across multiple crops as a risk management strategy to avoid potential income loss due to pest infestation or other crop diseases. For example, one interviewed farmer with 0.1 ha of land was growing seven types of crops during the summer season to mitigate climate and pest-related risks. By contrast, more advanced smallholders have realized the benefits of specialization and grow one crop per season, which allows them to offer greater volumes and more stable product supply to buyers.

There is market demand for niche produce, such as patty pans and baby marrows, but it is fraught with risk. First, offtake demand is limited and usually only bought by Pick n Pay, Shoprite, and hotels and restaurants. Second, demand is erratic, with no firm offtake agreements driving production schedules. The risk is that when production reaches the volume required for sale, the offtaker has already secured stock from elsewhere. Even a week can put the size of baby marrows outside the requirement window, leaving the producer without a market. Lack of purchase agreements with buyers is a key constraint for growing niche products where profit margins tend to be larger, but the market prospects are uncertain.

Crop choices are therefore made primarily based on the level of belief that produce can be sold rather than on the expected price. Market price determination was seen to be fair regardless of what was produced, and multiple distribution channels existed for

commonly grown vegetables, which enabled sale at reasonable prices. It was also apparent that these distribution channels can take most of the "common" produce, from poor quality to first grade.

Emerging commercial farmers in Lesotho are not uniform in their production practices and entrepreneurial capabilities. There is dramatic variation in yields (linked to agronomic knowledge), record keeping, marketing, and business management skills. Table 3 provides a schematic description of the different types of farmers.



TABLE 3: Commercial vegetable farmers are at different stages in their development

CATEGORIES OF COMMERCIAL VEGETABLE FARMERS		
CATEGORY 1	CATEGORY 2	CATEGORY 3
<ul style="list-style-type: none"> • Farmers are knowledgeable about production practices. • The quality of the produce is good to high and the yields are good to excellent. • Farmers produce crops that have good and sustained access to the wholesale and retail markets. • Record keeping and knowledge of business management is above average (for Lesotho). • Farmers have commercial mind-sets, are entrepreneurial, and have an interest in expanding. • Farmers' ability to raise capital or access additional resources is relatively good. 	<ul style="list-style-type: none"> • Farmers are less knowledgeable about production practices and have been exposed to disease and pest attacks that they have struggled to manage. • The quality of produce and production yields are average. Although the farmers can supply wholesale and retail markets, their supply has been variable. The farmers often target hotels and restaurants. • Farmers' record keeping is not complete and they have limited business management skills. • Farmers aim to increase production, but their entrepreneurial capacity and limited ability to access additional resources may limit their growth. 	<ul style="list-style-type: none"> • Farmers have basic knowledge of production practices, but this is not adequate to maintain consistent production; the farmers often experience massive losses to pests and diseases. • The quality of produce is average and production yields are low. • Markets tend to be local and end consumer-driven or focused on small stores and street vendors because of volume and continuity constraints. • Farmers aim to produce enough to stay in business; it is premature for them to consider commercial expansion. Many of the farmers are currently operating at a loss and are financially constrained.

Our fieldwork revealed that some entrepreneurial farmers in Lesotho treat agriculture as a business, have invested in learning, proactively reach out to buyers, and manage to foster good relationships with their key customers (typically supermarkets or local wholesalers). About 30 percent of the interviewees belong to this category. The second type of farmers achieve average yields and have realized some sales to wholesale and retail markets. Their lack of knowledge on agronomic practices makes them vulnerable to pests and plant diseases. As a result, these farmers provide occasional supplies to retailers and street vendors or focus on hotels and restaurants that require relatively small volumes. Overall, the second group of farmers is the most diverse and includes farmers with potential to transition into the first group if proper support is provided. About 60 percent of the interviewees falls in this category. Category 1 farmers are disproportionately men, while women-headed businesses tend to fall into category 2 enterprises. This may be indicative of some barriers to growth for women-headed farms that could include time, access to knowledge, or lack of collateral.

The third group of farmers is the least entrepreneurial. Their crop yields are extremely low, and the main markets are informal traders, end consumers in rural markets, and small local stores. Given that our focus was deliberately on growth-oriented farmers, only 10 percent of our interviewees fell into this category. Their share in the general population must be larger.



Despite the differences among the categories of farmers, some of the constraints to growth they face are similar.

These include the following:

- **Access to and cost of water for irrigation (impacts all categories of farmers).** Three main sources of water were used by the interviewed farmers—borehole, municipal water, and surface water. Those with boreholes often do not have enough water to pump or report that the costs of petrol for pumping can be prohibitively high. Municipal water is expensive, can contain unwanted substances, and the supply is not always reliable. Some farmers complained that municipal water can be turned off for two weeks at the peak of the production season, requiring the purchase of even more expensive bulk water. In one extreme case, the farmer was paying workers to carry water in buckets and manually water the plants. Lastly, community dam water users have to operate within the boundaries of fair usage, and this severely limits production in the dry season and during droughts.
- **Lack of a functioning land market (key constraint to new investors).** As described in Reva (2018), lack of a functioning land market is a major constraint for new investors and farmers who want to expand production. There is no website or database of land that is available for sale. Farmers wishing to acquire new land plots must go from village to village looking for available land. Information on average land prices by location is also lacking. Some farmers have started with renting land before they acquired their plots; this arrangement has some risks, as rental agreements are typically informal, and landlords do not always honor them.
- **Knowledge gaps on agronomic practices and business management.** The severity of knowledge gaps on input use, pest management, marketing, and financial management varies significantly by type of farmer, yet even the best performing farmers would benefit from deepening their skills in production and business management. Overall, none of the interviewed farmers had any educational background in horticulture. They moved into commercial vegetable cultivation after being engaged in other agricultural activities (such as chicken production), subsistence farming, or a different field such as accounting.
- **Weak understanding of the demand in the formal market and the requirements to supply it.** Although farmers can sell their produce, they are not always able to sell it in the formal market due to lack of knowledge on the volumes and standards required.

The latter two issues are described in greater detail in the following subsections.

2.2

CHALLENGES IN PRODUCTION AND FARM MANAGEMENT

Common constraints to production include lack of knowledge on cultivation under greenhouses, plant spacing, and variety choice. Category 3 and some of the category 2 farmers are still in the process of figuring out the kinds of varieties that are best suited for greenhouse cultivation, and many are experimenting with multiple cultivars. Similarly, emerging farmers often do not know the recommended plant spacing, and planting too far apart or too close together has been reported. Furthermore, there is extreme heat, humidity, and lack of air circulation in some greenhouses (particularly among SADP beneficiaries), possibly linked to flaws in design or that many farmers do not open the upper compartments to allow for ventilation. The resulting extreme temperatures may hurt plant development and contribute to the spread of pests.

Lack of soil testing often results in the suboptimal use of inputs and has a negative impact on yields. Soil testing is critical for proper application of fertilizer and chemicals and for variety selection. Two-thirds of the farmers have done soil testing at least once, but some have never received the results. The government facility offers soil testing at low cost, but it does not always have the needed chemicals and the wait time to get back the results often exceeds six months. Some of the category 1 farmers invested in their own soil testing kits (although these kits measure a limited set of variables) or took their soil samples to South Africa. Lack of proper soil assessments contributes to inappropriate use of fertilizer and chemicals. Many farmers use kraal manure as an alternative to chemical fertilizer due to lower costs; however, without soil testing this may offer little value. The interviewed farmers who spend more on inputs do not necessarily have higher yields.

There are significant yield gaps between the different types of farmers. Many farmers do not accurately measure yields, yet most admit that they are lower than expected. There are significant yield gaps between the top and bottom performing farmers living within an hour's drive of each other, which suggests that there are good opportunities for catch up based on the knowledge already available in the country. For example, reported tomato yields were 8-12 kg per plant per season among the top performing farmers, which is in line with expectations for the varieties used. The average yield was around 6 kg per plant, while some of the category 3 farmers reported yields of just 1 kg per plant. Furthermore, product waste due to plant diseases or appearance ranges from 5 to 10 percent for the best performing farmers to over 70 percent for the struggling farmers. This situation is not peculiar to Lesotho; it has also been documented in other low-income economies (IFC 2019).

Poor agronomic practices and disease and pest management contribute to significant crop losses, particularly among category 2 and category 3 farmers. Improper water and soil nutrient management, pruning, plant spacing, as well as pest and disease control have often resulted in massive crop losses. For example, most tomato farmers have been attacked by *Tuta absoluta*, a pest that in some cases has destroyed an entire crop. Although many farmers have been impacted by this disease, few have identified an effective treatment and some of the interviewed farmers have switched to other crops to avoid further losses. Other common pests and plant diseases include aphids, nematodes, early and late blight, end rot, spider mite, and cracking of tomatoes. (Photos 1 to 4 show examples of diseased plants.) Most of the farmers said that many of the observed plant diseases are not common for open field vegetable cultivation and therefore were new to them.

PHOTOS 1 TO 4. DISEASED TOMATO PLANTS IN BEREA



Input suppliers in South Africa were the most effective recourse for farmers experiencing plant diseases. The interviewed farmers used different strategies to prevent and cope with plant diseases. The best performing farmers emphasized disease prevention, had regular consultations with the South African input suppliers, and followed the prescribed regime of spraying and applying other inputs. If they did have a disease outbreak, they would send a photo with a description to the South African input supplier and ask for advice or bring a sample to South Africa in person. Farmers often emphasized that there was no expertise on disease management locally. Other common coping mechanisms included talking to other farmers in the community and trying to identify the problem and solution online.

Several local stores sell agrochemicals, but the selection is limited and the guidance on input use offered by these providers is not comparable to that of South Africa. Several stores in Maseru sell seeds, artificial fertilizers, and agrochemicals. The main supplier is Garden Centre, which provides access to a range of inputs at prices that are somewhat higher than those in South Africa; however, the cost of travel to South Africa for purchasing small quantities or specific items would negate any savings. Among farmers who buy some inputs locally, this is the most popular store. There is also a Metcash store that offers a small selection of inputs (primarily for households and noncommercial farmers) as well as the government store, which provides inputs at subsidized prices. The latter offers limited choice on a "first come, first served basis." Furthermore, some farmers complained that the government store sells seeds of lower quality compared with the Garden Centre, which results in poor germination rates. Overall, more than half the farmers purchase at least some of their inputs in South Africa.

The main issue with inputs is that local stores have limited varieties that are not necessarily best suited for the season or for farmers' needs. For example, lettuce can be grown all year round if the correct variety is chosen: Musketeer tolerates heat well and Esky tolerates cold well; Major tolerates heat and frost and has a low incidence of bottom rot. Furthermore, issues with thermodynamic dormancy in germinating lettuce seeds (occurring at temperatures above 20-25 °C) can be managed by procuring primed seed or controlling the environment, but these options were not known to the farmers. Variety selection is very important to ensure the correct environment, yields and disease resistance³. Local stores stock very few varieties and as a result, farmers are not typically planting the optimal variety for each season or for their growing environments.

Extension services are typically unable to offer much help to farmers. All but three of the farmers did not find extension services helpful in resolving their problems. The farmers felt that the extension service staff was not properly trained on vegetable cultivation under greenhouses. The local universities do not offer degrees in horticulture, and greenhouse vegetable farming has only taken off over the past five years, so there are few specialists in this field. Category 1 farmers felt that they were more knowledgeable than the extension service staff and did not reach out to the extension office for help. Most farmers who did contact extension services said that they never came despite multiple calls. Lack of staff and transport may contribute to the low response rate from the extension services. A few farmers mentioned that the extension service specialist had to use her own vehicle to visit the farm. Lastly, there are no microbiological facilities in Lesotho, which makes it difficult to identify plant diseases.

Owing to government and donor support, farmer networks have emerged recently and are enabling better information flows. Most of the farmers who were interviewed are part of What's Up groups. Some have also joined formal or informal farmer associations and attend monthly farmer meetings. Farmers use these networks mostly to consult with each other on variety selection and pest and disease management. Nevertheless, members often lack sufficient knowledge to deal effectively with situations that are new (such as *Tuta absoluta* infestations) or spreading rapidly. There is also little collaboration around joint purchase of fertilizer, chemicals, and seeds, which could reduce costs, particularly for those buying inputs in South Africa. Only one such example was identified during the interviews. Members of the Fresh Produce Farmer Association (which consists of six former EIF beneficiaries) purchase some inputs jointly; they are also considering planting the same varieties next season and doing some marketing together.

Although most farmers keep some records (for example, on sales or spending), few have good enough data to enable knowledge-based decisions on future production practices and estimate profitability. Very few farmers keep detailed records on production, such as planting and harvesting dates, varieties planted, germination rates, number of seedlings transplanted, success rate of transplanted seedlings, or yields. This was also apparent in disease and pest management data, such as application dates, impacts, reapplication, or use of alternative products. The net outcome is that there are largely no data to estimate the financial impacts of production decisions (such as yield obtained versus input costs) and plan the next production cycle.

Our estimates show that vegetable farming is a viable business and many category 1 and some category 2 farmers have healthy profits. The major costs were labor, petrol for water pumping and transportation, as well as inputs. Many farmers seem to be using more workers per hectare than is typically the case in other countries, suggesting that there are inefficiencies in production. Profitability depends on many factors, including (1) agronomic practices and ability to manage pests and (2) achieving some scale to ensure continuity of supply (by acquiring more land or specializing in a few crops). Those selling primarily to formal buyers tend to be more profitable. Given the poor accounting practices and lack of willingness of some farmers to share their records, it was not possible to establish average profitability. Although we met some farmers who were operating at a loss, the majority registered some profit. Among the farmers who kept records, estimated profits ranged from M 110,000 (\$7,857) to more than M 1 million (\$71,429) per season in per hectare equivalent (for vegetables grown under nets or in greenhouses).⁴ Most of the interviewees reported lower profits, as few of them have more than 0.1 ha under protected farming. Box 2 highlights the experiences of three farmers.

³ See for example the website of the Sakata seed company for information on sweet pepper variety characteristics, <https://sakata.co.za/wp-content/uploads/2019/01/SWEET-PEPPER-QUICK-REFERENCE-TABLE.pdf>.

⁴ We do not have data on the production costs and sales of South African vegetable producers, so we cannot compare the profitability of farmers in the two countries. Interviews with buyers suggested that local produce is cost-competitive relative to imports.

GREEN PEPPER FARMER, MAHLOENYENG

A young accountant from Maseru District decided to move into vegetable farming because he saw a business opportunity. He got an Enhanced Integrated Framework (EIF) greenhouse and a shade net in 2016. The farmer has approximately 408 square meters (sqm) of land under protected farming and another 1,200 sqm under open field cultivation. In the summer, the farmer specializes in growing green peppers on the entire area of the green house and shade net. He has done soil testing, buys seedlings and other inputs in South Africa, and follows the recommended pest control program. The farmer sells most of his green peppers to Pick n Pay and the Chinese-owned store in the community (when the supermarket cannot absorb all of his harvest). His profit for the summer season is M 64,527 (\$4,609), which is equivalent to more than M 1.5 million (\$107,143) in per hectare equivalent. During the winter, the farmer cultivates cabbages and spinach in the open field and under the net/greenhouse and obtains an additional profit of M 16,160 (or M 101,000 in per hectare equivalent) (\$1,154 and \$7,214, respectively). The farmer sees good opportunities for growth. He feels that improved access to water for irrigation (he is currently using a diesel generator for pumping) and better skills are the key enablers for further business expansion.

TOMATO FAMILY FARM, SEKAMANENG

A family from Berea has been growing vegetables in the open field since 2010 using traditional techniques. In 2017, they got two greenhouses from the Smallholder Agriculture Development Project (600 sqm total). They are now planting tomatoes in the summer season and cabbages and green beans in the winter season. They sell mostly to the local store in the community and occasionally to hawkers and supermarkets in Maseru. The price for tomatoes is M 50 per box for the community store and M 60 for individual consumers (\$3.6 and \$4.3, respectively), which is similar to Maseru's prices. The farm owners buy seeds in the government store and most inputs from the Garden Centre in Maseru. The family farm experiences problems with pest management. They believed they had blight but did not know what to do about it and could not find help in Maseru. As a result, yields were 6 kilograms (kg) per tomato plant compared with the expected 12 kg for the variety planted. Nevertheless, the farmers had a net profit of M 11,116 (\$794) for the summer season (for 600 sqm of land under tomato cultivation in the greenhouses), which is equivalent to M 185,266 (\$13,233) per hectare. The farmers identified two factors that can strengthen their business—training on protected vegetable cultivation from South Africa and better soil testing, which they believed was too slow and unreliable.

CHINESE CABBAGE AND BOK CHOY FARMER, HA TIKOE

A young automotive engineer started farming in 2014, inspired by the success of his neighbor who got an EIF grant. The farmer subsequently received the grant as well. Similar to other EIF beneficiaries, he initially planted tomatoes, green peppers, cucumbers, and lettuce. Yet, he soon realized that there is strong demand and hardly any competition for the Chinese vegetables - bok choy and Chinese cabbage. Both vegetables are easy to cultivate and command higher prices among the Chinese-owned stores and restaurants compared with the more commonly grown produce. Indeed, one Chinese cabbage can be sold at M 27 compared with about M 10 for the regular cabbage. Chinese cabbages and bok choy can be grown for two seasons in the winter and rotated for tomatoes and green peppers in the summer. The farmer estimates that his small farm of 408 sqm brings him a profit of about M 49,254 (\$3,518) for the Chinese vegetables. This is equivalent to M 1.2 million (\$85,714) per hectare. In addition, the farmer makes a profit of M 15,415 (\$1,101) on tomatoes and peppers over the summer or M 375,976 (\$26,855) per hectare. The farmer's current clients are two Chinese restaurants, but the demand is much stronger than he can possibly satisfy with his small farm. The farmer wants to grow his business, which in his view will require overcoming the following obstacles: (1) identifying affordable land in peri-urban Maseru (he believes it will cost M 80,000 to M 200,000), (2) improving access to water by investing in a borehole (he currently has Water and Sewerage Company of Lesotho water, which is unreliable), and (3) improving skills through continuous training.

Note: The estimates of profitability are based on expenditure and sales data reported by the farmers.

There is strong evidence of rationality in market selection. The more ambitious farmers and those with larger volumes target supermarkets and wholesalers, while the less productive focus on informal vendors. Pick n Pay is universally considered the best buyer, as it offers the highest prices for good quality produce (table 4). Wholesalers offer lower prices compared with supermarkets, as wholesalers buy in bulk. This arrangement works well for relatively large farmers or those focused on one crop with good volume. Informal traders offer higher prices than wholesalers and Chinese-owned stores, but informal traders buy in small quantities. Smallholder farmers who target informal traders often must spend a considerable amount of time going from vendor to vendor to sell

their produce. The interviewed informal traders in the bus stop area reported buying four boxes of tomatoes (about 6 kg each) and one box of green peppers on average. Farmers with limited production and who live farther away from Maseru tend to sell most of their produce in the village market (that is, to small local or Chinese-owned shops or directly to consumers). Interestingly, village prices are not always lower than those in Maseru, likely due to the low supply and lack of competition in rural markets. Hotels and restaurants are "add-on" buyers for the relatively large farmers who regularly bring their produce to town and for the small, peri-urban producers for whom they are the main market.

TABLE 4: Prices vary substantially by buyer

PRODUCT	BUYER	PRICE (M)
Cabbages (per head)	Pick n Pay	12-13
	Shoprite	10
	Upper Qeme	7
	Chinese-owned store	7-8
Tomatoes (per kg)	Pick n Pay	12
	Fruit and Veg	9
	Chinese-owned stores	6 -6.7 (M 35 – 40 per box of 6-7 kg)
	Bay Fruits and Veg (local wholesaler operating out of BEDCO Trade Center)	6.7 (M 40 per box)
	Informal traders	10 (M 50-60 per box)
Green peppers (per kg)	Pick n Pay	28-45 (depending on the time of the year)
	Chinese-owned store	20
Herbs (per box)	Pick n Pay	8.50
	Shoprite	5

Source: Based on interviews with farmers.

Two farmers have realized some exports to South Africa. One of them sold spinach to SPAR, and the other sold broccoli and cauliflower in Bloemfontein market. Although the farmers exported because the local supermarkets could not absorb their produce, both farmers learned from this experience and would like to explore export opportunities in the future. Furthermore, two more farmers are considering growing higher value niche crops (for example, broccoli and cocktail tomatoes), for which the domestic market is quite small, so they want to export to South Africa. Trade statistics show that overall vegetable exports from Lesotho are negligible; they were worth just \$27,000 in 2017.

Most farmers who supply formal buyers sort and package their produce. Although many farmers report sorting and grading their produce prior to delivery, the color, size, and quality of vegetables in the same batch are often not uniform. Improving the consistency

of product appearance could increase the price that supermarkets and formal retailers would be willing to pay, but few farmers seem to realize this. Photos 5 and 6 compare locally packaged and South African tomatoes sold at Bay Fruits and Veg (BEDCO Trade Center). The packaging materials include cardboard boxes for tomatoes; polystyrene trays and clear plastic clingwrap for lettuce; and small, clear plastic punnets for herbs. To reduce costs, most tomato boxes are reused ZZ2 boxes (from a major South African supplier), although two farmers were importing generic boxes from South Africa. Overall, packaging material is mostly sourced locally, although some farmers complained about the lack of certain products in Maseru, for example, clingwrap being too thick and not tightly molding around lettuce heads, which affects presentation. Costs could be reduced if farmers collaborated and bought materials in bulk, but this was not evident.

PHOTO 5 AND 6. COMPARISON OF LOCAL AND IMPORTED TOMATOES



Note: Local tomatoes are in the white box in photo 5 (and in front of it in photo 6) and have different colors and sizes; imported tomatoes are in the yellow box in photo 5 and the plastic bag in photo 6 and have uniform size and color.

There were no examples of smallholder farmers working together to space production of the same crop and take turns supplying it to wholesalers or retailers. These actions could allow mitigating scale and volume constraints and ensure more stable supply. Fear of competition is one of the factors that is limiting collaboration on marketing issues, such as sharing information on the products that command a higher price or are in high demand by formal buyers. This is particularly true for niche products whose prices are relatively high, but demand is limited. For example, one interviewed farmer reported that he used to be the only person supplying red cabbages to Pick n Pay; however, once this became known, other farmers approached Pick n Pay with the same product and the first farmer experienced a decline in sales to the supermarket.

None of the local farms has taken a strong role in aggregation. None of the current suppliers to formal buyers has considered systematic sourcing from other farmers. Furthermore, despite a high share of third grade produce, there are no processing enterprises. Alosang farm is the most advanced vegetable farm in the vicinity of Maseru (box 3). The owners sometimes buy produce from a few neighboring farmers when they have a large order that cannot be fulfilled with their own production. It is also the only farm enterprise that has a cooling facility and some processing equipment. Although the owners are open to sourcing from other farmers, close linkages with smallholders have not emerged. This could be partly because of competition issues (ambitious smallholder farmers want to supply directly to buyers) and because less advanced farmers may not have thought of contacting Alosang and may not be able to meet the quality expectations of the owners.

BOX 3**ALOSANG FARM RUNS A SOPHISTICATED OPERATION AND COULD POTENTIALLY PLAY A ROLE IN AGGREGATION**

Alosang farm is a trusted supplier of Pick n Pay and Shoprite supermarkets. It is the only farm that provides a continuous supply of products (mostly tomatoes, colored and green peppers, and onions) to supermarkets and is not subject to quotas or volume rationing. The owners have about 10 hectares of vegetables under protected farming and 10 hectares under the open field. The farm has 30 permanent employees. The enterprise has its own packing house and cooling facility as well as cutting and frying equipment. Most vegetables are packaged prior to delivery, and plain and branded packaging is used, depending on the buyer's requirements. The cooling facility is used at 5-10 percent of capacity and the farmer is open to sourcing from smallholders, packaging, and delivering to supermarkets.

PHOTO B3.1. SORTING AND PACKING**PHOTO B3.2. FACILITIES**

PART





Linking Farmers to Markets: A Supplier Development Program

Multiple stakeholders support commercial vegetable farming in Lesotho and the upcoming SADP II project will address several challenges facing the sector. There is strong interest among many stakeholders to strengthen commercial vegetable farming in Lesotho to create jobs, increase incomes, and improve the efficiency of the supply chain and quality of products available to final consumers (box 4). The upcoming SADP II project will address several of the important problems documented in part II of this study. Specifically, the project will support (1) development of irrigation infrastructure; (2) establishment of a soil testing laboratory and fertilizer blending facility (the latter will help formulate fertilizers to address site-specific soil deficiencies and meet crop nutrient requirements); (3) training of extension officers, farmers, and agro-input dealers in climate-smart agricultural technologies; and (4) improvement of data availability on commercial agriculture (including vegetable farming) and development of agri-weather services, among other interventions. The project will also provide matching grant support for increasing smallholder productivity (for example, to support investments in greenhouses, shade nets, small-scale irrigation systems, and water storage equipment) and aim to build horizontal alliances between farmers and potential off-takers.

Several ministries organize training workshops for farmers. These are useful initiatives, but there is room to improve government coordination and better target the curriculum to farmers' needs. The Ministry of Agriculture, Ministry of Trade and Industry, and Ministry of Small Business Development, Cooperatives and Marketing (MSBDCM) organize short workshops on specific issues related to production or marketing. Farmers often find these events useful for networking and gaining new knowledge; however, the training sessions tend to be too short and often are not targeted to farmers' needs. Farmers who are at different levels of commercialization are often invited to attend the same session. As a result, the specific needs of the different categories of farmers are not addressed. Similarly, MSBDCM organizes regular buyer-seller meetings to encourage linkages. Several of the farmers and buyers who were interviewed found these events useful for developing business relations. The format of the events could be further improved if buyers are matched with the relevant types of farmers. That is, the Ministry should invite wholesalers to meetings with farmers who can produce at some scale and restaurant owners to meetings with smallholders. It would also be useful to create a database of active commercial vegetable producers and beneficiaries of the various grant projects who are still engaged in farming; it seems that every ministry is working with its own group of farmers. Lastly, it will be important to promote land titling, as this will enable farmers to use their land as collateral, among other benefits.

With the support of the Enhanced Integrated Framework, the government has invested in establishing the Fresh Produce Market Center. A factory shell on the Ha Tikoe industrial estate was converted into a Market Center and equipped with a cold room and some cutting and processing equipment (photo B4.1). The Market Center has been idle for over a year. The government is currently in negotiations with the South African investor to operate it. The exact modality is not yet known, but the Market Center can potentially address many of the problems associated with sorting, grading, packaging, and warehousing and provide bulk offtake opportunities for larger farmers.

PHOTO B4.1. MARKET CENTER IN HA TIKOE



B4.1



In this context, we propose to implement a Supplier Development Program (SDP) that will build on the ongoing government initiatives and catalyze the activities planned under the SADP II project. Implementation of the proposed program would develop agricultural entrepreneurship, increase incomes, reduce vegetable imports, and increase the efficiency of the fresh produce supply chain. Furthermore, it would aid in the government's efforts to attract investment in the Fresh Produce Market Center, packing houses across the country, and Basotho Cannery. Having a pool of vegetable suppliers that can produce at scale and meet buyers' requirements will make Lesotho a more attractive investment destination for agribusiness. Lastly, the lessons learned from a demand-driven SDP aimed at growth-oriented entrepreneurs would inform the design of entrepreneurship projects in other sectors.

OBJECTIVES AND FOCUS OF THE FRESH VEGETABLE SUPPLIER DEVELOPMENT PROGRAM

The main objective of the pilot SDP is to increase farmers' productivity and link them with formal buyers. This initiative is motivated by the interest expressed by most of the interviewed buyers in Maseru to participate in the program, which will match vegetable buyers' needs with production. The intervention will help farmers improve agronomic practices, financial management, and profitability. It will also improve the sourcing experience for buyers by providing them with fresher produce (compared with imports) in a timely manner. The results will be achieved through continuous work with the buyers on demand forecasting, facilitated interactions between farmers and buyers, as well as intensive tailor-made technical assistance to farmers. Furthermore, support should also be provided to local input suppliers to strengthen their ability to advise farmers on product choice.

The SDP requires matching buyer demand with supplier capabilities, which entails (1) determination of buyers' needs for types of products, quality, quantity, pricing, and delivery timing to ensure purchasing activity (demand-side management); (2) determination of suppliers' capability in quality, quantity, costing, and delivery timing to ensure profitability (supply-side management); and (3) management of the interface between buyers and farmers.

It is proposed that the SDP targets wholesale and retail buyers in Maseru over consumer or end markets. Specifically, the target buyers include supermarkets, three local wholesale/retail stores in the bus stop area, as well as the Market Center if it becomes operational during the project implementation. The focus on these buyers is justified because there is greater potential for (1) demand

scalability (increased production can be better assimilated), (2) marketing efficiency (increased production can be marketed more economically), and (3) reduced risks related to offtake demand (knowledge of demand requirements is more formal). Direct supply to end users such as restaurants and hotels may serve as a "sink" in cases where supply exceeds demand from the wholesale and retail markets. Offtake agreements would preferably be formal. However, initially, given the need to build trust between suppliers and buyers, increase the capacity of farmers to supply to buyers' specifications, and improve buyers' forecast accuracy, the agreements will likely be transient and negotiated for very short timeframes.

The SDP could be focused on several crops that are in high demand by buyers. These should also be the crops that farmers are comfortable growing. It is proposed that the following vegetables form the basis of the SDP: tomatoes, green peppers, lettuce, and cabbages (table 5 provides the production schedule for these crops). These vegetables are proposed because demand is centered across multiple buyers, there is clear potential for import substitution, and there is a need for quantity and quality improvements to satisfy buyers' purchasing decisions and gain their trust. Furthermore, some of the proposed crops (cabbages and lettuce) can be grown year-round to provide farmers with income and buyers with supply certainty. Lastly, the cultivation practices for these crops, although not optimized, are known to the farmers and their belief in viable and accessible markets is high. Other crops, such as green beans, colored peppers, cucumbers, broccoli, and cauliflower, could be considered if buyers make a commitment to purchase specific quantities of these vegetables.

TABLE 5: Estimated production schedule for core SDP crops

CROP	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Tomatoes	H	H	H	H	H				P	P	P	P/H
Green peppers	H	H	H	H				P	P	P/H	P/H	P/H
Lettuce	H	P	P	P	P/H	P/H	P/H	P/H	P/H	P/H	H	H
Cabbages	H		P	P	P	P/H	P/H	P/H	P/H	P/H	P/H	H

Note: H = harvest; P = plant.



Program participants should be chosen through a competitive selection process. The program should focus on growth-oriented farmers and include the following selection criteria: (1) having a greenhouse or a shade net as well as year-round access to irrigation (in Lesotho's climate conditions, open field farming has high risks due to frequent wind and hail storms as well as drought), (2) a minimum of three years of farm management experience, (3) an increase in sales in the past two years, and (4) at least some experience selling to formal buyers.

To ensure trust and a positive experience for buyers, it is proposed that the program initially focuses primarily on category 1 farmers, with some support to category 2 farmers. Given the multiple negative experiences of buyers when farmers were not able to deliver the quantity and quality needed, building trust will be a key objective of the first phase of the SDP. Therefore, it is logical for the SDP to target category 1 farmers. These farmers are most likely to meet the buyers' requirements. Category 1 farmers also have the mindset that embraces business development as well as some of the needed resources for scaling their operations. Category 2 farmers are not uniform in their resources and capabilities, and some of them may be on the way to growing their businesses. It is therefore proposed that the SDP focuses primarily on category 1 farmers but includes support activities to encourage selected category 2 farmers, to increase the quality and quantity of production and their access to improved markets. The category 2 farmers who show potential could then be integrated into category 1 in the first phase of the SDP or in future phases.

Farmers in different groups would receive somewhat different assistance packages. The difference in the mode of support would be that category 1 farmers would receive on-farm support targeted at their specific circumstances along with group support in workshops, training classes, and field visits. Category 2 farmers would only receive group support, for example, workshops on plant diseases in tomatoes or record keeping, and the occasional farm visit. The group support approach would allow the SDP to increase reach and help improve production and pest management in a cost-effective manner, while identifying the potential of each category 2 farmer to become a category 1 farmer. The focus of resources would be 70 percent to category 1 farmers and 30 percent to category 2 farmers.

The pilot SDP would run for 18 months and include at least one summer season and one winter season. It is envisaged that several months will be needed for finding the project team and organizing a competitive selection of farmers. Upon the end of the 18-month period, the program should be evaluated, and the results of the evaluation should inform adjustment in the scope of activities, level of support to farmers, as well as program expansion to cover more farmers and locations.

Several potential models were considered for SDP implementation (table 6). Independent farmer production with direct delivery to buyers (model 1) appears to be the most viable model for the first phase of the SDP. This approach may have the highest benefit-to-cost ratio and build trust in buyers that local farmers can gradually increase outputs in terms of quality, quantity, and consistency to supply their requirements over time. Model 2 would allow for meeting larger orders and extending the supply season; however, it comes with serious challenges involving significant coordination and quality assurance by the SDP

staff. It also requires trust and close collaboration among farmers, which may be difficult to achieve in the short time period. Moving toward model 2 could be an objective for the second phase of the SDP and elements of it may be targeted in the first phase. Model 3 has multiple advantages but requires the existence of a functional aggregation facility, such as the Market Center, which is not yet operational. Therefore, it is not currently an option but should be considered if the Market Center is opened during the lifespan of the program. Annex D provides a description of the advantages and disadvantages of the three models.

TABLE 6: Potential SDP models

1. INDEPENDENT FARMER PRODUCTION WITH DIRECT DELIVERY TO WHOLESALE AND RETAIL BUYERS	2. COORDINATED FARMER PRODUCTION WITH DIRECT DELIVERY TO WHOLESALE AND RETAIL BUYERS	3. INDEPENDENT OR COORDINATED FARMER PRODUCTION WITH DELIVERY TO AN AGGREGATION FACILITY
<p>This is currently the model in operation for the surveyed farmers. Individual farmers produce vegetables independently and deliver directly to the buyers on an independent basis.</p> <p>The SDP intervention requires that the quality, quantity, and timing for delivery to the buyers is met by each farmer and will add value by helping farmers to improve production and by facilitating linkages between individual farmers and buyers.</p> <p>This model does not require coordinated production nor facilities for aggregation, as each farmer will provide produce and supply directly to the buyers.</p>	<p>This model requires that farmers agree to collaborate around a supply schedule and deliver directly to the buyers. In effect, this is a producer cooperative model.</p> <p>The SDP intervention requires that the quality, quantity, and timing for delivery to the buyers is adhered to across a group of farmers. This will require considerable coordination among farmers and oversight, but the model does not call for aggregation prior to independent delivery to buyers.</p>	<p>This model calls for delivery of farmers' produce to an aggregation facility as an intermediate step between the farm and wholesale/retail buyers.</p> <p>The SDP intervention would rely on the aggregation facility, which will provide cleaning, sorting, grading, storage, packaging, and distribution to wholesale and retail buyers and allow for increased management of the supply/demand interface to ensure that quality, quantity, and delivery match buyers' requirements.</p> <p>This intervention requires functioning aggregation facilities, which are not currently available.</p>
PROPOSED MODEL FOR PHASE 1	POTENTIAL MODEL FOR FUTURE PHASES	

In the medium-long term, it will be important to incentivize the establishment of aggregators. Operationalizing the Market Center is the most obvious scenario. If an open tender is announced, the Market Center could potentially attract interest from multiple South African investors. For example, the management of Tshwane Market,⁵ who were interviewed for this study, were interested in visiting Maseru to understand the characteristics of the local market and explore business opportunities. Other options that could be explored include upgrading local wholesale grocery stores through training on food hygiene and facilitated access to

credit to install cold room facilities. Lastly, Alosang Farm, which has a cold room and some cutting equipment, has expressed interest in sourcing produce from other farmers, but this has not happened in practice. Regardless of the option, the emergence of aggregation facilities is crucial for sustainable development of the fresh produce supply chain and providing farmers with a market that offers bulk offtake potential. It may also have additional benefits. For example, an investor may be interested in working with the farmers to standardize the varieties and production techniques, provide inputs, and develop outgrower schemes.

5. Tshwane Market is the second largest fresh produce market in South Africa.

The SDP's support package will be focused on technical assistance to beneficiary farmers and no financial support is envisaged. Category 1 farmers are in the best position to manage the operational requirements. The SDP will provide support in optimizing cash flow and strengthening financial management. This may provide motivation to banks to make financing available to program beneficiaries. The program will not provide grants or direct financial support to the beneficiaries.

The proposed SDP would have three main components: (1) improving linkages with buyers, (2) providing technical assistance to farmers, and (3) building linkages with input suppliers. Whenever possible, the program will also support interactions with extension offices and business development providers working on agricultural entrepreneurship. Interviews with the farmers and the local Small, Micro and Medium Enterprises Network revealed that there is a shortage of public and private providers with expertise in protected vegetable farming. So, including them in the project will help mitigate knowledge gaps.



››› IMPROVING LINKAGES WITH BUYERS

Buyers' quantity and delivery timing requirements need to be regularly forecasted and made known to farmers. Quantity requirements are variable across all the buyers that were surveyed. However, historical and typical volume ranges could be used as indicators of demand on a weekly or monthly basis. There is a need for constant monitoring of demand volumes for target crops, with feedback to farmers. Similarly, delivery timing requirements will need to be agreed with buyers and farmers in advance. Buyers' quality requirements may include size, color, stage of ripening, acceptable production practices (for example, correct use of agrochemicals), and packaging. These requirements need to be communicated to farmers prior to production.

››› TECHNICAL ASSISTANCE TO FARMERS

Technical assistance to farmers will include interventions to improve the quantity and quality of supply. Improving product quantity and quality will involve addressing one or more of the following knowledge gaps: seed variety selection, cultivation practices, soil nutrient testing and amelioration, pest and disease management, water management, tunnel management practices, yield determination and benchmarking, product standards, and financial management. To achieve these objectives, category 1 farmers will receive intensive on-farm assistance combined with group training. Category 2 farmers will be supported primarily through group training, with limited on-farm activity. Group

interactions will be strongly encouraged, to build trust and collaboration among the farmers. Furthermore, the SDP can assist farmers in purchasing inputs and packaging materials in bulk to reduce costs.

The SDP will also coordinate the timing of delivery to the buyers, to avoid oversupply and undersupply and maintain the buyers' trust in the program. The SDP would advise farmers on production planning before the start of the growing season and on crop spacing, to help them gain from low-season price increases and participate in high-season price falls.

>>> BUILDING LINKAGES WITH INPUT SUPPLIERS

The SDP will work with local input suppliers to improve linkages within the value chain. It will be important to raise awareness among local agro-dealers about the inputs that are frequently needed by vegetable farmers, the types of seed varieties that do well in Lesotho's climate conditions, use of plant protection products, and crop husbandry practices. In doing so, the program management could consider partnering with Scope Insight and the International Finance Corporation, which have developed an assessment tool and training program to improve the capacity of agro-dealers. Observations during the field study indicated that there is a base from which to expand technical knowledge and product ranges. However, there are gaps in both areas that include the absence of certain artificial fertilizers and lack of knowledge around fertilizer mixes for optimizing production. Even less is understood about plant nutrition and product taste profiles. Developing an interface between local input suppliers and the project team will help agro-input providers not only to increase application knowledge, but also to adapt their product range to assist farmers in buying more effective products. Finally, facilitation of these linkages may also result in lower cost of seeds and agrochemicals during the project period due to bulk purchases.

The SDP will also explore opportunities to connect input suppliers in Maseru with foreign-based counterparts. The objective is to improve the product and service offerings of the local input providers and capacitate them to support farmers. Seed, fertilizer, weed, pesticide, and disease control companies

and infrastructure suppliers are present in Lesotho through their distributors, but there is a need to improve the flow of more appropriate products and knowledge.⁶ Seed suppliers, such as Syngenta, Stark-Ayres, Sakata, and Rijk Zwaan, all have a presence in South Africa and some in the neighboring Free State, and their support personnel could play an important role in knowledge transfer and the identification of varieties that are best suited to the agroclimatic conditions in Lesotho. For example, trial plots on the land of participating farmers could have a significant impact on the ability of farmers to select varieties that are better suited for their markets. This could be facilitated by the project team with support from these commercial suppliers. The same is true for agrochemical suppliers, such as Bayer, and the application of different products to disease and pest infestations could identify more effective treatment regimes. The motivation for foreign input suppliers to participate in this initiative would be to improve their position as suppliers to the growing Lesotho vegetable sector.



>>> KNOWLEDGE TRANSFER TO EXTENSION STAFF AND PRIVATE SERVICE PROVIDERS

The SDP should involve existing public and private service providers in the project activities, such as relevant training sessions and on-farm visits. Although the project will not specifically focus on these groups, there are clear synergies between their work and the SDP's activities. The SDP will have skilled personnel to support category 1 and category 2 farmers, which offers opportunities to undertake capacity building and knowledge transfer to the extension service, private sector consultants, and staff of other donor or government projects. The two-way flow of information would also assist the SDP team in better contextualizing its approach. Specifically, the SDP could include extension staff, agricultural research staff, private consultants, and staff from relevant government and donor projects in providing "action learning" in the field and invite them to the training workshops (Box 5 summarizes the key training themes). This approach would strengthen the availability of local expertise that should last beyond the project duration.

BOX 5 PROPOSED TRAINING AREAS

- Variety selection and planting cycles for optimal production and market access
- Soil chemical analysis and remedial actions
- Disease and pest management
- Cultivation practices
- Input/output record keeping
- Yield calculations
- Harvesting and sorting
- Good agricultural practices and marketing (such as market selection, presentation, and pricing).

⁶ An example of the gap was cited by some farmers affected by the Tuta absoluta infestation who could not locally obtain an effective product to deal with this disease.

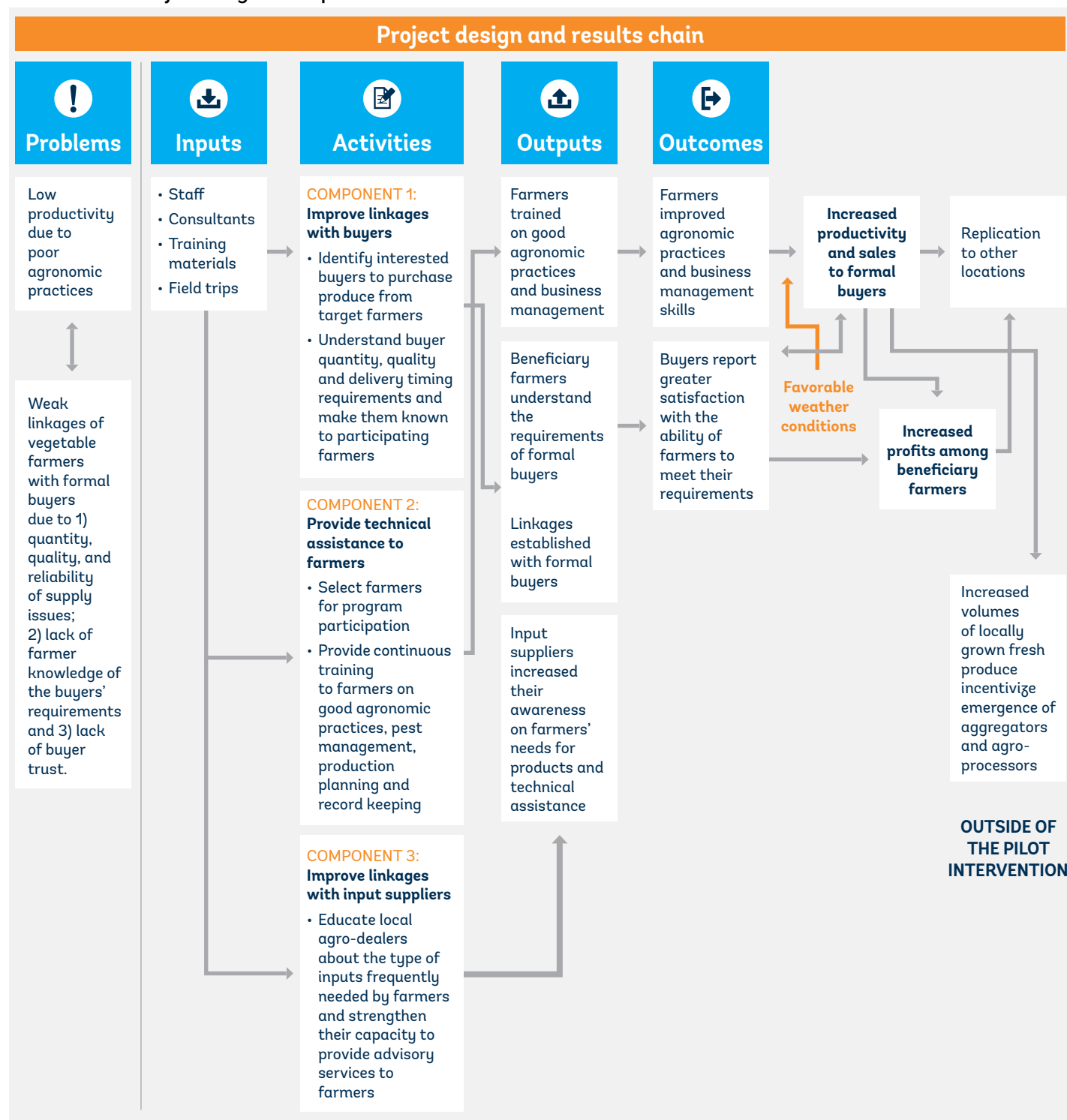
3.3

EXPECTED RESULTS AND MONITORING AND EVALUATION

The SDP is expected to contribute to several results. In the short term, the pilot program will contribute to increased volumes of vegetable production, yields, sales, and profits of beneficiary farmers and stronger links with the formal market. It will also produce a tested model for providing technical assistance to

emerging commercial farmers that can then be scaled to include more farmers and locations. In the medium term, the increase in domestic production would encourage investment in aggregation and agroprocessing activities. Figure 8 illustrates the theory of change.

FIGURE 8: Theory of change for the pilot intervention



The program should be continuously monitored throughout the implementation period to allow for course corrections. At the start of the program, it will be important to collect baseline data on key parameters such as yields, production volumes, sales, and profitability. Some farmers do not keep records and efforts should be made to estimate the baseline figures as accurately as possible. A midterm assessment is recommended after the first harvest cycle, to measure the progress on the key parameters. Changes in yields and profitability could occur due to crop choices as well as external environmental and market effects. The assessment should account for these factors and make recommendations to inform project implementation.

A final evaluation is strongly recommended to compare changes in the yields, sales, and profitability of beneficiary farmers over the duration of the program, using the baseline data and midterm assessment to determine the impact of the support interventions. The final evaluation should also include a review of the entire program against the set objectives and provide recommendations for the next phase of the program. An impact evaluation, such as a randomized control trial, where the results achieved by the program participants are compared with those of farmers with similar characteristics who did not benefit from the program, would provide robust estimates of the SDP's results. Table 7 presents the monitoring and evaluation plan.

TABLE 7: Proposed monitoring and evaluation plan for the pilot SDP

Results	Indicators	Data collection methods
OUTCOMES		
Beneficiary farmers improved productivity	<ul style="list-style-type: none">• Category 1 farmers increased yields by at least 15% and reduced production losses by at least 20%.• Category 2 farmers increased yields by at least 10% and reduced production losses by at least 15%.	At the start of the program, the previous year's data on yields, production losses, sales, and profitability should be collected (based on interviews with beneficiaries and farm visits) to establish the baseline. Similarly, data should be collected before and after each harvest season and the final evaluation should be done at the end of the program.
Beneficiary farmers increased sales to the wholesale and retail markets	<ul style="list-style-type: none">• Category 1 farmers increased sales to wholesale and retail markets by at least 20% and category 2 farmers by at least 15%.	
Beneficiary farmers increased profitability	<ul style="list-style-type: none">• Category 1 farmers increased profitability by at least 15% and category 2 farmers by at least 10%.	
OUTPUTS		
Farmers improve their knowledge of agronomic practices and business management skills	<ul style="list-style-type: none">• 12 category 1 farmers and 15 category 2 farmers trained on good agronomic practices and business management skills.• At least 70% of farmers are satisfied with the training received.	Satisfaction survey after training; on-farm assessments of productivity
Buyers report greater satisfaction with the ability of beneficiary farmers to meet their requirements	<ul style="list-style-type: none">• 70% of target buyers report improvements in farmer ability to meet their quantity, quality, and delivery timing requirements.	Buyer interviews
Input suppliers learn about the products in high demand by vegetable farmers	<ul style="list-style-type: none">• Workshops organized for the local input suppliers to discuss the types of seed varieties that do well in Lesotho's climate conditions, use of plant protection products, and crop husbandry practices.	Satisfaction survey
Knowledge generated on the demand-driven approach to development of entrepreneurship projects in horticulture	<ul style="list-style-type: none">• Lessons learned note on the implementation of the Supplier Development Program to inform future interventions.	To be prepared by the Supplier Development Program team based on the project records

Note: The numbers of category 1 and category 2 farmers are indicative; the actual numbers will depend on the number and quality of applications and the project budget.

3.4

SDP'S STAFFING, WORK PROGRAM, AND BUDGET

The SDP will require a staff of at least three people in addition to the program coordinator. It is assumed that the SDP will be sponsored by a government agency or donor organization that will appoint a program coordinator. The SDP will need a qualified vegetable production specialist, a business manager, and an administrative assistant. A vegetable production specialist will work with farmers on issues such as seed variety selection; rotation, germination, and planting sequences to match offtake requirements; soil and fertilizer management; pest and disease management; tunnel, shade net, and open field cultivation practices; water management; yield management; and harvesting and post-harvest grading, storage, and transportation. A business manager will interface with buyers and farmers in identifying supply and offtake commitments, supporting group procurement of inputs and packaging, assisting

in selling price negotiations, helping farmers with record keeping, and overseeing quality commitments. An administrative assistant will provide overall program support.

Table 8 provides a summary of the indicative 18-month work program and delineates key activities and deliverables. The program will start with appointment of the team members, selection of category 1 and category 2 farmers, and presentation of the SDP to formal buyers. The SDP team will then engage in supply negotiations with key buyers, ensure technical assistance to farmers, provide ongoing market linkage support, and organize the midterm and final project evaluations. Annex E provides a timeline of activities.

TABLE 8: Indicative work program

Activity	Measurable deliverable
1. IDENTIFICATION OF CATEGORY 1 AND CATEGORY 2 FARMER PARTICIPANTS	
1.1. Development of selection criteria for category 1 and category 2 farmer identification	1.1.1. Selection criteria identified
1.2. Publication of criteria and call for applications	1.2.1. Advertisement copy
1.3. Application by, and preselection of, 12 category 1 farmers and up to 15 category 2 farmers	1.3.1. Applicant database and selection process records
1.4. Orientation to SDP and objectives in two workshops	1.4.1. Workshop record with 15 category 1 farmers and up to 20 category 2 farmers
1.5. Baseline survey of each potential category 1 farmers on farming practices, yields, sales, and costs	1.5.1. Baseline survey report
1.6. Contracting with 12 category 1 farmers and up to 15 category 2 farmers	1.6.1. Confirmed commitment of 12 participating category 1 farmers and 15 category 2 farmers
2. MARKET LINKAGE DEVELOPMENT	
2.1. Presentation of project to market offtakers	2.1.1. Records of meetings and presentations
2.2. Supply negotiations and commitments by lead offtakers	2.2.1. Offtake volumes per month from category 1 farmers by lead offtakers
2.3. Ongoing market linkage development with existing and new offtakers	2.3.1. Increase in offtake volumes month on month (%) from category 1 farmers
	2.3.2. Monthly activity reports for category 1 and category 2 farmers

Activity	Measurable deliverable
3. INPUT LINKAGES	
3.1. Identification of input supplier linkages	3.1.1. Report identifying input suppliers to be targeted
3.2. Negotiation of support packages with input suppliers	3.2.1. Agreements for support by input suppliers 3.2.2. Monthly records of input supplier interactions
4. PRODUCTION SUPPORT	
4.1. Agreement on year 1 production cycles	4.1.1. Master production schedule per category 1 farm
4.2. Financial obligations and facilitation of access to finance	4.2.1. Records of finance raising initiatives for category 1 farmers
4.3. Input selection and ongoing management support	4.3.1. Input management records for category 1 farmers
4.4. Production support	4.4.1. Monthly activity records and monthly farm production reports for category 1 farmers 4.4.2. Workshop and meeting records for category 2 farmers
4.5. Business management support	4.5.1. Monthly activity records and monthly farm accounts for category 1 farmers 4.5.2. Workshop and meeting records for category 2 farmers
5. EVALUATION	
5.1. Midterm production and profitability assessment	5.1.1. Evaluation reports for category 1 and category 2 farmers on changes in key metrics such as yields, sales, and profits over baseline data and recommendations for improvement
5.2. Final production and profitability assessment	5.2.1. Evaluation reports for category 1 and category 2 farmers on changes in yields, sales, and profits over baseline and mid-term data and recommendations for phase 2 interventions
5.3. Overall program outcome report	5.3.1. Final report on program outcomes

The project budget will be influenced by several factors and significant cost savings could be achieved if the SDP team shares the office, administrative support staff, and vehicle expenditures with another program (for example, if the SDP staff are located in the office of the government or donor organization and no rent is required). Table 9 illustrates potential expenditure categories and provides some rough estimates of key costs.

SDP staff costs are the main expenditure category. It is assumed that the salary, benefits, and any related travel of the program coordinator responsible for the overall SDP implementation will be

borne by the government or donor agency sponsoring the program. The expenditures associated with the program coordinator are not included in the calculations here. A business manager who will be responsible for interactions with buyers could be found locally. However, in Lesotho there is a dire shortage of experienced agronomists with knowledge of greenhouse vegetable cultivation. So, a vegetable production specialist will likely need to be hired in South Africa. Depending on the arrangement, the project may need to provide for relocation benefits, which may increase the staff-related expenditures relative to the estimates in table 9.

TABLE 9: Illustrative SDP budget for an 18-month period

Expenditure Item	US\$
1. STAFF BUDGET	
Vegetable Production Specialist (18 months) @ US\$5,000/month	90,000
Business Manager (18 months) @ US\$3,000/month	54,000
Project Assistant (18 months) @ 1,000/month	18,000
Consultant to prepare the SDP evaluation report and recommendations for Phase II	10,000
	172,000
2. VEHICLES	
Two 4 x 2 double cab vehicles on 18-month full maintenance lease at \$2,500/month	45,000
Fuel assuming 10,000km/month @ \$1.2/liter	32,400
Transport incidentals (oil, puncture repairs, and so forth)	1,000
	78,400
3. OFFICE ACCOMMODATION	
18 months rental @ \$700/month	12,600
Furnishings (3 x desks, 3 x chairs, meeting table with 6 chairs)	2,500
3 x laptops	2,000
Photocopier rental for 18 months (including consumables)	2,500
3 x cell phone contracts	6,000
Insurance	1,500
	27,100
4. TRAVEL AND ACCOMMODATION	
Accommodation: 18 nights x 2 rooms @ \$100/night	3,600
Subsistence allowance @ \$40/day	1,440
	5,040
5. MEETING ROOM/SEMINAR ROOM HIRE WITH CATERING	
3 x per month @ \$400/meeting	21,600
Subtotal	304,140
Contingency of 5%	15,207
Total	319,347



References

Bureau of Statistics. 2010. *2009/2010 Agricultural Census*. Maseru, Lesotho: Bureau of Statistics.

———. 2016. *Horticulture Statistics Report 2015/16*. Maseru, Lesotho: Bureau of Statistics.

IFC (International Finance Corporation). 2019. *Working with Smallholders: A Handbook for Firms Building Sustainable Supply Chains*. Washington, DC: IFC.

Reva, Anna. 2018. *Unlocking the Potential of Lesotho's Private Sector: A Focus on Apparel, Horticulture and ICT*. Washington, DC: World Bank Group.

World Bank. 2019. *World Development Indicators*. Washington, DC: World Bank.

ANNEX A. ESTIMATED MONTHLY DEMAND FOR VEGETABLES IN MASERU (KILOGRAMS)

Buyer type	Supermarkets: Pick n Pay, Shoprite, Fruit and Veg and Game	Local Stores: Bay Fruit and Veg (BEDCO Trade Center), Red Line, Upper Oeme	Chinese stores: Z&Z Enterprise, Long River, Hero Flower Chinese Food, Jei Rui Brothers, Lotho Enterprise	Individual traders: 25 registered traders with import permitst	Total
Cabbages	76,198	80,595	119,220	108,420	384,433
Tomatoes	33,671	93,582	8,809	4,416	140,478
Potatoes	64,138	124,700	45,130	159,750	393,718
Butternuts	37,718	7,738	6,040	500	51,996
Carrots	86,068	67,500	8,695	515	162,778
Beetroot	34,347	29,740	4,000	200	68,287
Onions	50,356	78,578	13,566	8,400	150,900
Lettuce	8,957	150	66	100	9,273
Green peppers	9,723	9,832	1,063	127	20,745
Green beans	4,805	1,560	1,224	6	7,595
Cucumbers	9,495	1,720	1,601		12,816
Eggplants	384		166		550
Broccoli	1,119				1,119
Cauliflower	1,123				1,123
Chilies	844	60	910		1,814
Red/yellow peppers	3,269		20		3,289
Cocktail tomatoes	928				928
Baby marrows	933				933
Patty pans	33				33
Spinach	10,105			12	10,117
Total	434,214	495,755	210,510	282,446	1,422,925

Sources: World Bank Fresh Produce Buyer Survey 2019, for supermarkets and two local grocery stores; Ministry of Small Business Development, Cooperatives and Marketing for the Chinese-owned stores, one local grocery store, and individual traders (based on the import declaration data for November 2018).

ANNEX B. ILLUSTRATION OF THE DEMAND VOLUMES OF HOTELS AND RESTAURANTS

MONTHLY DEMAND FOR VEGETABLES BY FOUR HOTELS AND NINE RESTAURANTS (KG)			
Product	Hotels	Restaurants	Total
Potatoes	1,690	3,028	4,718
Butternuts	862	1,372	2,234
Onions	829	1,136	1,965
Spinach	130	1,652	1,782
Tomatoes	805	908	1,713
Carrots	635	492	1,127
Lettuce	164	644	808
Cabbages	253	518	771
Green peppers	195	432	627
Cucumbers	203	258	461
Baby marrows	319	50	369
Red/yellow peppers	170	164	334
Beetroots	126	200	326
Green beans	27	194	221
Cauliflower	169	16	185
Mixed lettuce leaves	104	70	173
Broccoli	149	0	149
Cocktail tomatoes	No data	110	110
Chilies	25	69	94
Eggplants	68	24	92
Pumpkins	60	0	60
Garlic	30	15	45

Source: World Bank Fresh Produce Buyer Survey 2019.

Note: The survey covered the following hotels: Avani (Avani Maseru and Avani Lesotho), Mpilo, Kick4Life, and Lancer's Inn; and restaurants: Barcello's at Pioneer Mall, Steers at Pioneer Mall, Spur at Pioneer Mall, Piri Piri, Regal, Capello, Kingdom Lounge, Primi Piatti, and Roman's Pizza.

ANNEX C. LIST OF INDIVIDUAL VEGETABLE TRADERS WITH IMPORT PERMITS

#	Trader or company name
1	Teboho Motemekoane
2	Khoarai Khoarai, Cathedral, Maseru
3	Nthabiseng Mphale, Maseru
4	Maflipi Likotsi
5	Mameisi Kafobane, Lithabaneng, Maseru
6	Maphethiso Banginyama, Seapoint Maseru
7	Bafokeng G Café, Lower Thamae, Maseru
8	Mohobo G. Cafe, Koalabata, Maseru
9	Motlatsi Ramphielo, Fairways Maseru
10	Mohato Ncholu, Rothe Maseru
11	A.A. Enterprise (Pty) Ltd, Seipobi Building, Maseru
12	Malqole Malikalike
13	Call Caters, Industrial, Maseru
14	Alber Fruits and Veg
15	Lebohang Chabeli, Machache, Maseru
16	Moseti Fruits n Veg, Arrival Centre, Maseru
17	M.Mphasa, Maseru
18	Tlali Lebesa, Thetsane, Maseru
19	Maflipi Likotsi
20	Patlo Ncheke, Goaling, Maseru
21	Maletsema Putsoa, Manonyane, Maseru
22	Makuena Lekholoane, Maseru
23	Thabang Makosane, Maseru
24	Mohato Ncholu, Thetsane, Maseru
25	Puleng Senyane, Ellof Bus stop, Maseru

ANNEX D. STRENGTHS AND WEAKNESSES OF THE POTENTIAL SDP IMPLEMENTATION MODELS

MODEL 1. Independent farmer production with direct delivery to wholesale and retail buyers	MODEL 2. Coordinated farmer production with direct delivery to wholesale and retail buyers	MODEL 3. Independent or coordinated farmer production with delivery to aggregation facility	
		Existing facility	New facility
ADVANTAGES			
<ul style="list-style-type: none">1. Easily implemented2. Focuses on farmers who can meet demand requirements3. Very adaptable in matching supply and demand	<ul style="list-style-type: none">1. Larger orders can be met2. Potential for longer season supply3. Increased trust by buyers in suppliers	<ul style="list-style-type: none">1. Will facilitate more consistent quality and quantity of supply2. Will allow management of increased supply (for example, reduce losses)3. Immediate access if usage agreed with owner4. More consistent quality for buyers	<ul style="list-style-type: none">1. Will facilitate more consistent quality and quantity of supply2. Will allow management of increased supply (for example, reduce losses)3. Can be independently run/owned
DISADVANTAGES			
<ul style="list-style-type: none">1. More difficult to meet quantity and quality requirements of bulk buyers2. Potential for erratic supply	<ul style="list-style-type: none">1. High degree of farmer collaboration and coordination needed, which is untested2. Relies on each farmer having the capacity to meet requirements3. Absence of aggregation activity can result in produce quality variability	<ul style="list-style-type: none">1. Controlled by third party2. External suppliers may not receive priority if capacity is fully utilized	<ul style="list-style-type: none">1. Cost of establishment2. Time for establishment3. Viability undetermined (especially in light of the already constructed Market Center)

ANNEX E. ILLUSTRATION OF THE WORK PROGRAM, BY MONTH

#	Main activity	Sub-activity	Responsibility	Month																			
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	Appointment of project staff	Development of detailed terms of reference	Project coordinator																				
		Advertisement	Project coordinator																				
		Short listing and interviews	Project coordinator																				
		Appointment	Project coordinator																				
		Relocation (as needed)	Project staff																				
		Identification of offices	Project coordinator																				
		Equipping of office	Project staff																				
2	Farmer selection	Process for selection identified (capability)	Project coordinator																				
		Implementation of selection process	Project staff																				
		Advertisement	Project coordinator																				
		Receipt of applications	Project coordinator																				
		Evaluation of applications and site visits	Project coordinator																				
		Farmers selected	Project coordinator																				
3	Market linkages	Presentation of project to market buyers	Project coordinator																				
		Supply negotiations and commitments	Project staff+farmers																				
		Ongoing market linkage development	Project Staff																				
4	Input supply	Identification of input supplier linkages	Project Staff																				
		Negotiation of support packages	Project Staff																				
5	Farmer support	Agreement on year 1 production cycles	Project staff+farmers																				
		Financial obligations and facilitation	Project staff+farmers																				
		Input selection and support	Project staff+farmers																				
		Production support	Project staff																				
		Business management support	Project staff																				
6	Evaluation	Baseline production and profitability assessment	Project staff+assessor																				
		Midterm production and profitability assessment	Project staff+assessor																				
		Final production and profitability assessment	Project staff+assessor																				

