

Annual Impact and ESG Report 2017  
The Silverlands Fund





*1,700 people work on the 350 ha of table grapes vineyards in Namibia.*



*Apple trees in blossom at Crookes Brothers' deciduous fruit farms, South Africa.*

*Cover photographs, from top:*

- 1. Ada Magelanga (known to most as Mama G), a small-scale poultry farmer in Iringa, Tanzania.*
- 2. Mateu Mutungulwa, a cane cutter at Crookes Brothers' Hagiar Kim Estate, Zambia.*
- 3. Stella Mgavano, Supervisor, Silverlands Tanzania.*

## Welcome

Welcome to our fifth Annual ESG report.

In early September I listened to a very well thought out presentation at the AGRF conference in Cote D'Ivoire. This clarified for me the extraordinary development opportunity presented by small-holder farmers in Africa.

The presenter was Joe Studwell, author of 'How Asia Works'. His study of the Asian miracle highlighted an often overlooked key driver of the huge growth spurt achieved in Asia since the 1960's: the 'Green Revolution' in which small-holder crop yields were multiplied through focused support and development.

The potential in Africa looks equally compelling now and, in his words a "perfect developmental goal". I thought it useful to share the powerful points that he made with some extra commentary:

- 1) **Large target group:** 70% of families in the tropical zone of Africa live on small-scale farms and are reliant on the incomes from these farms. They typically farm 1-2 ha, plant low value crops, for example maize and cassava, and achieve very low yields per hectare. This puts them in the poorest group in the country.
- 2) **Productivity step function:** These farmers' productivity is low and their yields per hectare can be doubled through relatively low-cost/low-tech solutions: better inputs, better farming techniques. This is an extraordinary step function in revenues. One never sees this sort of potential productivity enhancement in other sectors such as in manufacturing for example. A doubling of yields means that the farmer's revenue doubles but his/her net income will grow by a multiple of that. As we show later, an increase in maize yields from an average of 1.5 t/ha to 4 t/ha results in an almost five-fold increase in net profits to the farmer. This step function can be achieved in a single year through training. This is a truly extraordinary and sustainable boost to income.
- 3) **Broad-based:** This increase in income will have a broad-based benefit, not just on an elite. It benefits 70% of the population and they are in the poorest group. In that sense, this is an almost perfect developmental target – benefiting the poorest, broad-based and a huge step up in income. We are not building shopping malls in African capitals to sell Gucci products to the elite, we are targeting food production by the poorest group.
- 4) **Removes Hunger:** If this yield improvement can be done then food deficits will be removed in Africa. This takes away the need to import food and removes a drag/block on growth. Asia and Latin America were stuck in a low growth/inflationary environment in the 60's until they removed their food production deficits. Their growth then picked up markedly.
- 5) **Leads to Entrepreneurship:** A large part of the population will now be able to buy more goods, driving the development of the rest of the economy, for example the manufacturing of goods that they buy as their incomes improve.
- 6) **Welfare system:** Women benefit disproportionately. A high proportion of small-holder farmers are women and, in some agricultural sectors such as poultry farming, women are the large majority, as we have found out in our Tanzanian out-grower program where over 80% are women. Additionally, removal of food shortages improves social stability bringing a lower chance of conflicts or wars.

Targeting this extraordinary development goal requires capital, expertise and collaboration between multiple partners. I attended a workshop held by the World Bank in April and in one of the break-out groups we grappled with the respective roles of the various players in developing the African agricultural sector. Our contribution to the debate is summarised as follows and I am sure that you will recognise the features that we have successfully put into practice in your fund.

The case study that I used in the workshop was the establishment of the first soya processing plant in Tanzania as this has had a huge developmental impact. Starting with a blank sheet of paper, how should one look to fund such a project?

Area to be funded	External resource needed	Comments
Build processing plant, storage facilities etc	Equity	Ideally from patient and ethical long-term investors. Could be corporates as well as institutional investors such as pension funds, foundations and large family offices. These institutions require reasonable returns to meet their fiduciary requirements and we target 15% net returns on capital. Silverlands I has 83% institutional investors and 17% DFI's.
Political Risk Insurance	Insurance	This is needed if the equity is to be raised from institutional investors outside of Africa. Silverlands I has PRI from the World Bank (MIGA) and OPIC (US government). The mediation role played by these multi-laterals is an important benefit.
Working Capital Finance	Development Financial Institutions	This is usually overlooked in project proposals that we see. Bank debt is expensive in Africa, typically 10-20% interest is payable. The working capital needs for a processing plant are typically around the same size as the cost to build and establish it. We have the OPIC debt facility in Silverlands I and our average debt cost through this is ~3% per annum and the facility is for the life of the fund. We particularly like the OPIC model whereby the US government simply brings a guarantee so no tax-payer money is needed implying a very efficient use of government budgets. OPIC actually brings a positive net cash flow to the US government!
Training and Extension work	Philanthropic donation	This is a very efficient way to focus scarce philanthropic donations. We have worked with NGOs' and philanthropic groups such as World Poultry Foundation, Musika (DFID), the Bill and Melinda Gates Foundation, One Acre Farm, Caritas (previously 'Catholic Relief Services') and Foundations for Farming.
Management team	Africa-based expertise	Aside from selection of the best projects, this is one of our key contributions: finding the top management teams with a record in executing complex strategies in Africa. The team needs to be able to partner with multiple other players: communities, institutional funders, DFI's, philanthropic groups and Multi-Laterals such as the World Bank. The main cause of failure in Africa is getting the team wrong.

This introduction seems to imply that I spend most of my time in conferences – hopefully you know me well enough to recognise that this is not my “bag”! As a statistician I feel compelled to highlight a few key numbers from the report; we are benefiting ~170,000 people economically; we employ ~6,000 people; our crop production excluding sugar is up close to eight-fold since acquisition of the companies. I hope that you enjoy this year's report as much as I have. Thank-you again for your support.



**Gary Vaughan-Smith**  
Chief Investment Officer

## Glossary of Terms and Abbreviations

AZ	Hagiar Kim Estate as part of CBL Agri Zambia, Mazabuka, Zambia
CBL	Crookes Brothers Limited
CLO	Community Liaison Officer
CSI	Corporate Social Investment
EHS	Environmental, Health and Safety
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
ESG	Environment, Social and Governance
ESIA	Environmental and Social Impact Assessment
ESAP	Environmental and Social Action Plan
IFC	International Finance Corporation
ILO	International Labour Organisation
IPM	Integrated Pest Management
JV	Joint venture
KO	Komatipoort, Mpumalanga, SA
LT	Livestock Technician
MCS	Mpambanyoni Construction Supplies
MM	Murrimo Macadamias, Zambezia Province, Mozambique
MP	Mpambanyoni/Renishaw, KwaZulu Natal, SA
MT	Mthayiza Farming, Mpumalanga, SA
NGO	Non-governmental Organisation
OW	Ouwerf, Western Cape, SA
PPE	Personal Protective Equipment
PS	Performance Standard (i.e. IFC Performance Standard)
QBV	Quinta da Bella Vista Limitada
RIC	Responsible Investment Code
SA	South Africa
SASL	Silverlands Agriculture Services Limited
SEMS	Social and Environmental Management System
SLIC	Silverlands Livestock Improvement Community Programme
SNL	Silverlands Ndolela Limited (previously NAPL)
SRL	Silverlands Ranching Limited
STL	Silverlands Tanzania Limited
SVL	Silverlands Vineyards (Proprietary) Limited
SW	Crookes Plantations Limited, including Bar J, Big Bend, Swaziland
SZL	Silverlands Zambia Limited
\$	US Dollar

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**Disclaimer:**

SilverStreet Capital has taken all reasonable care to ensure that the facts stated in this report are true and accurate in all material respects. All statements of opinion and/or belief contained in this report, all views expressed and all projections, forecasts or statements relating to expectations regarding future events or the possible future performance of the Silverlands Fund represent SilverStreet Capital’s own assessment and interpretation of the information available to it as at the date of this report. No representation is made or assurance given that such statements, views, projections or forecasts are correct or that the objectives of the Silverlands Fund will be achieved.

# 1 Introduction

This is the fifth Annual ESG Review of the Silverlands Fund. The aim of this report is to provide investors with an update on the Fund's social impact and review of ESG compliance within the portfolio. The Fund's ESG annual reporting obligations are shown in Appendix 1.

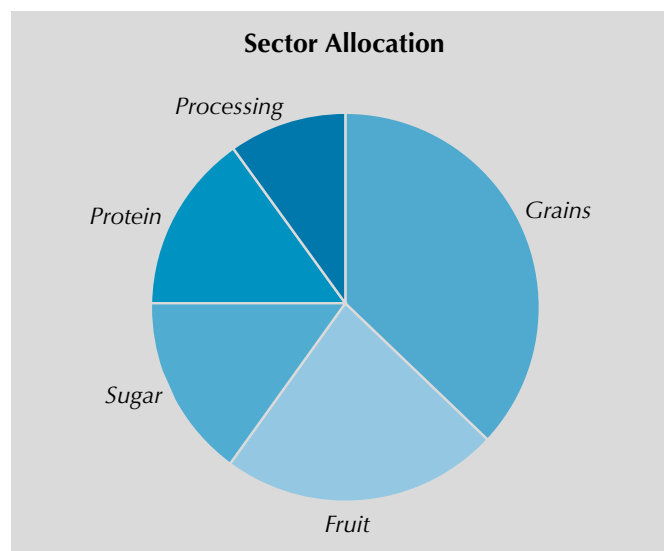
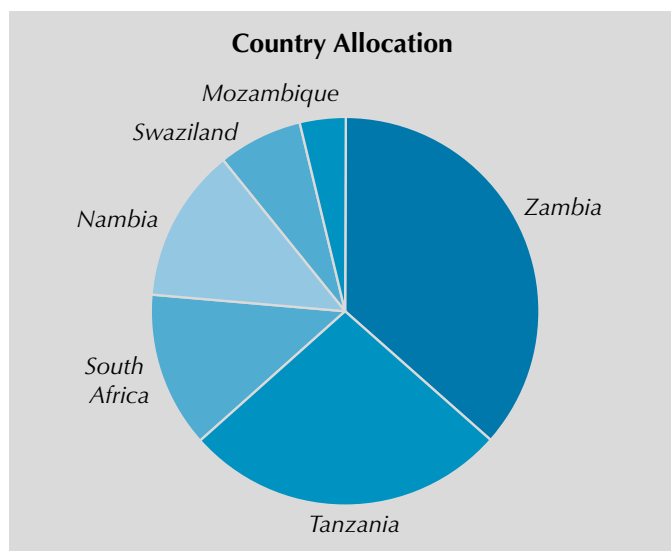
This report is for the period from 1st July 2016 to 30th June 2017. It provides summaries of each Portfolio Company's development impact, compliance with the Fund's Responsible Investment Code and progress against ESG Action Plans. Detailed reports on each Portfolio Company are available on request.

## 1.1 Silverlands Fund Portfolio Companies

The Silverlands Fund is invested in eight Portfolio Companies across six countries in Southern and East Africa:

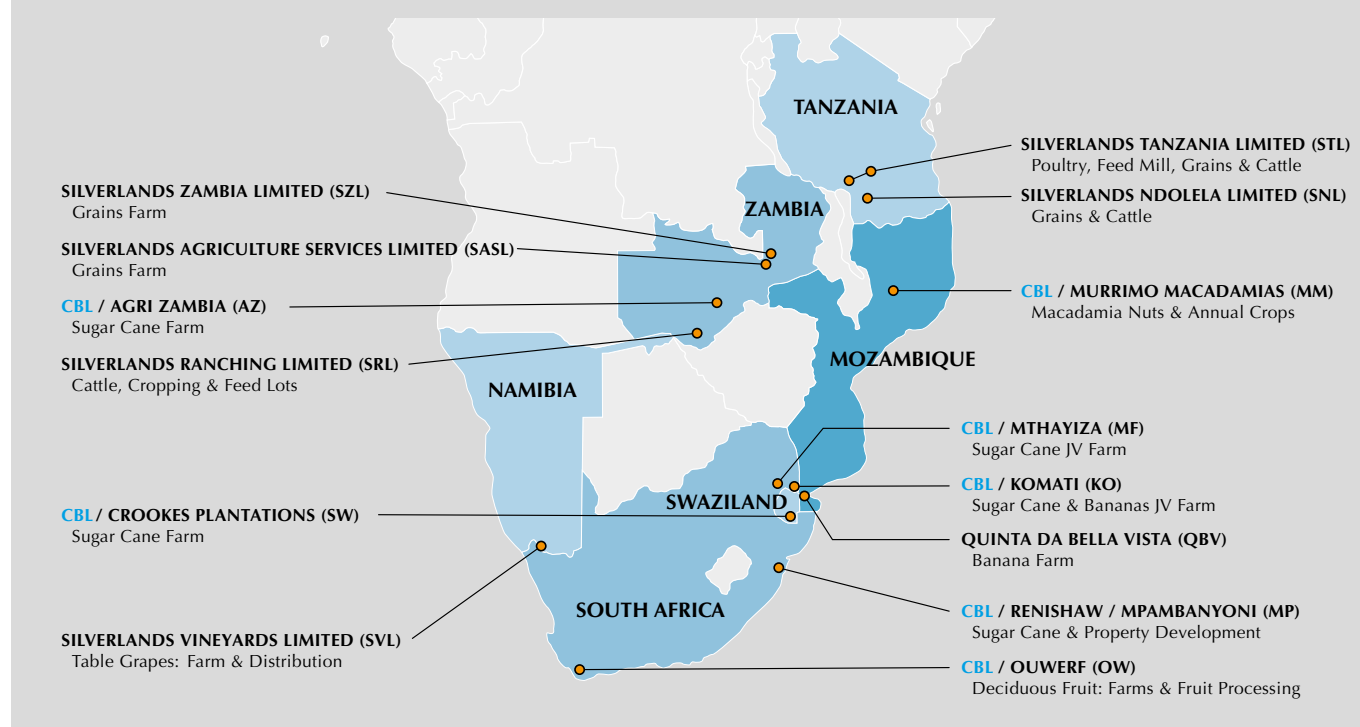
Portfolio Company Name	Abbreviation	Country	Business/Product
Silverlands Tanzania Limited	STL	Tanzania	Poultry, feed-mill, grains and cattle
Silverlands Ndolela Limited	SNL	Tanzania	Grains and cattle
Silverlands Zambia Limited	SZL	Zambia	Grains
Silverlands Agriculture Services Limited	SASL	Zambia	Grains
Silverlands Ranching Limited	SRL	Zambia	Cattle, cropping, feedlots
Quinta da Bella Vista	QBV	Mozambique	Bananas
Silverlands Vineyards (Proprietary) Limited	SVL	Namibia	Table grapes and distribution
Crookes Brothers Limited	CBL	Zambia, Mozambique, South Africa, Swaziland	Sugar cane, fruit (apples, pears, bananas), macadamia nuts, annual crops

## 1.2 Country and Sector Allocations





## Location of the Silverlands Fund Portfolio Companies across Southern and East Africa



## 1.2 Summary of Silverlands' Impact

Number of people who achieve a positive economic impact due to Silverlands' operations:

How impact is created	Number of People Impacted
Employment	6,200
Additional jobs created and household persons benefiting	63,000
Small-scale farmers selling grains to Silverlands Tanzania	17,000
Small-scale farmers purchasing day-old-chicks and poultry feed from Silverlands Tanzania	20,000
Small-scale farmers dipping cattle or selling grains to Silverlands Ranching	1,000
Small-scale farmers benefiting from high-yielding seed grown in Tanzania	52,000
People benefiting from community JVs (2,500 families each with ~5 people)	12,500
<b>Total</b>	<b>171,700</b>

## 2 Silverlands Social Impact Strategy

### 2.1 Mission

Silverlands is a socially and environmentally responsible fund that aims to use the power of capital and markets to advance and develop African communities.

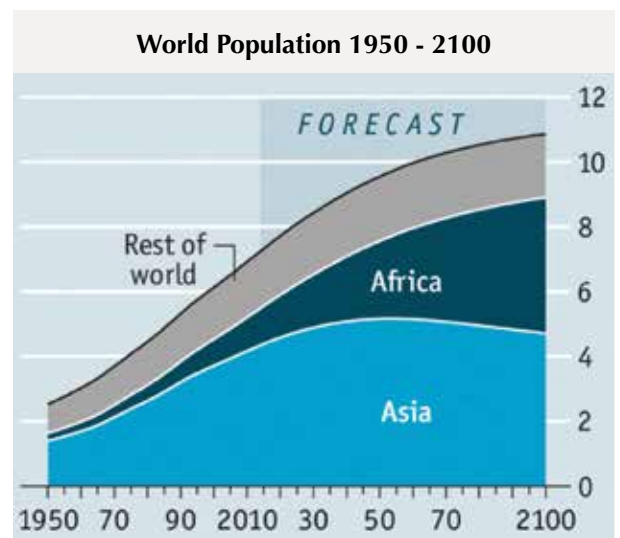
We are building major agricultural businesses across Sub-Saharan Africa that:

- Produce market-rate returns for investors.
- Strengthen the agricultural sector through investment in infrastructure, systems and people.
- Benefit ordinary people by providing technical assistance, creating markets and encouraging entrepreneurial activity.

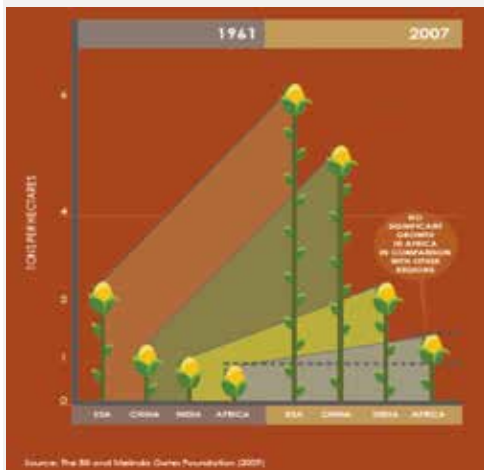
### 2.2 The Problem

Sub-Saharan Africa has:

- Poverty: persistent under-employment and inadequate nutrition.
- The world's most significant population growth.
- Increasing ecological damage.
- Immense under-exploited agricultural potential.



**Yields per hectare:  
comparing 1961 to 2007**



#### Issues in African Agriculture

African agriculture lags behind other parts of the developing world. Yields are lower and volume of production is increasing less rapidly.

Most small-holder farmers produce low-value crops such as maize and cassava for subsistence and local community consumption. They cannot easily store, transport, process, or market their produce. Around 30% of the small-holder crop spoils because of lack of storage facilities. They cannot therefore make significant profits and have little incentive to produce surpluses or diversify into higher-value products.

This lack of profitability creates a vicious cycle that hampers development.

#### Causes

The key causes are:

- Shortages of **inputs** in particular, hybrid seed and fertilisers, delivered and implemented on time.
- Small-holder farmers utilizing sub-optimal **farming techniques**.
- The lack of **market for higher valued crops**. A 'market' for most crops implies some sort of processing plant and distribution network.

The underlying cause of these issues is **lack of a well-resourced commercial sector** and consequent under-investment in basic infrastructure, extension support and processing.

This set of factors creates a poverty trap in rural Africa. It keeps families tied to low-paying work; encourages environmental degradation; and contributes to serious social problems such as child labour, urbanization and emigration, food shortages and political instability.

### Solution Set

Silverlands work addresses the root causes of this situation. Developing the commercial agricultural sector required long term, patient, equity capital.

Our goal is to be the seed capital of Africa's agricultural and economic ascent.

Our theory of change is:

If value is created across Africa's agricultural chain of supply and production, a sustainable infrastructure can be built that will permanently raise standards of living for farmers, avert environmental damage and create a multiplier effect across local economies to increase overall prosperity.

### Design Principles

1. **Profits are essential:** The development of the sector cannot be done simply with precious donor or philanthropic capital. Silverlands invests only in carefully chosen opportunities that offer optimal agricultural conditions and a high probability of return. We bring infrastructure, high-quality inputs world-class expertise in agricultural and business management to pursue returns aggressively.
2. **Commercial agriculture is a catalyst:** A large-scale commercial enterprise brings an area direct benefits, such as jobs on site and in associated services.

It also serves as an economic hub. For example, establishing a processing plant for a high value crop allows local farmers to act as 'out-growers' and to earn more profits annually and sustainably thereafter.

3. **Community inclusion and engagement are key:** Silverlands ensures community acceptance and works toward community participation.

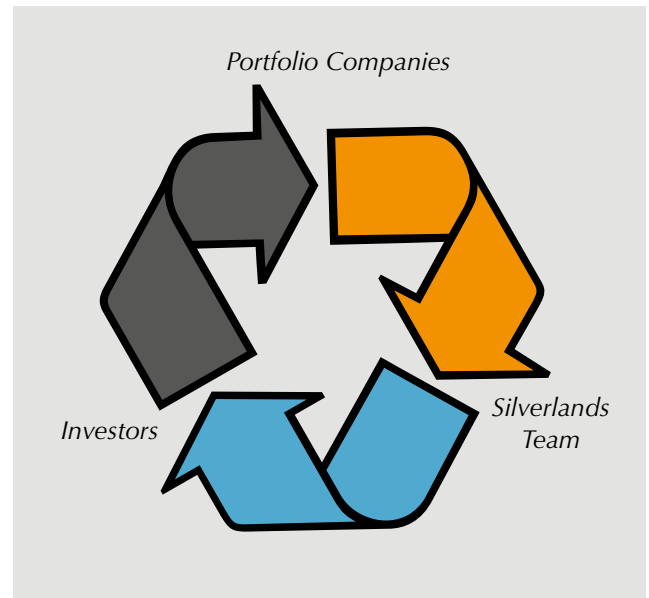
In some cases, Silverlands enters into 10-20 year joint ventures with communities, sharing profits at least equally with landholders. Partnering with local and international NGOs, Silverlands collaborates with communities, offering technical assistance, high-quality inputs and access to markets and services.

Silverlands also has a program in corporate philanthropy, donating toward projects such as schools, clinics and agricultural education centers.

### 2.3 The Business Model in Detail

Successful commercial operations are at the core of Silverlands' social impact strategy, since business success underwrites the human and social development we seek. Positive social impact is nevertheless a priority for our business philosophy. Our funding, management and strategic choices reflect this orientation:

- **Investment partners:** We are backed by patient investors, managing institutional or government funds, that share our objectives and do not urge us to pursue short-term profits at the expense of long-term benefit.
- **Ethical business practices:** Silverlands is governed by a Responsible Investment Code and we adhere to the IFC performance standards of the World Bank and the UN Principles for Responsible Investment in Farmland. We are aiming to be certified as a B-Corporation dedicated to promoting public benefit. We, and our partners, support honest and transparent governance and reporting standards.
- **Social and environmental responsibility:** Silverlands has adopted the internationally-recognized Environmental, Social and Governance (ESG) Criteria as company guidelines. We have submitted to external reviews and monitor: environmental and social risk management, fair labour practices, the conservation of resources and reduction of pollution, community health and safety, the preservation of biodiversity and safeguarding cultural heritage. We publish annual reports giving full details of our ESG compliance and actions in progress.
- **Stability through risk mitigation and diversification:** Silverlands sees its ultimate impact in terms of decades rather than years. We are aiming for a robust, diversified portfolio that offsets risk and allows us to make high-cost investments in infrastructure that will recoup sunk costs only over considerable periods of time.



We mitigate risk through meticulous site and business selection. Our metrics include climate and geography; access to water, transport and labour; community willingness; and political risk management. We have political risk insurance through OPIC (US government) and MIGA (World Bank).

The Fund is also diversified across six countries and various climatic regions. Our products range across grains, fruit, proteins and sugar, and include soya, wheat, deciduous fruits, table grapes, chickens, cattle and sugar cane. We also invest across the value chain, from inputs such as seed and livestock genetics, through to cultivation and husbandry, storage (e.g. silo construction), processing (e.g. the largest feed-mill in East Africa), to marketing. In some instances, we have also realized higher land values through development.

Our end goal is to help build a sustainable business environment that will survive the fund and make a lasting contribution to stronger economies in Sub-Saharan Africa.

## 2.4 Social Engagement and Impact Detail

We have three modes of positive social impact:

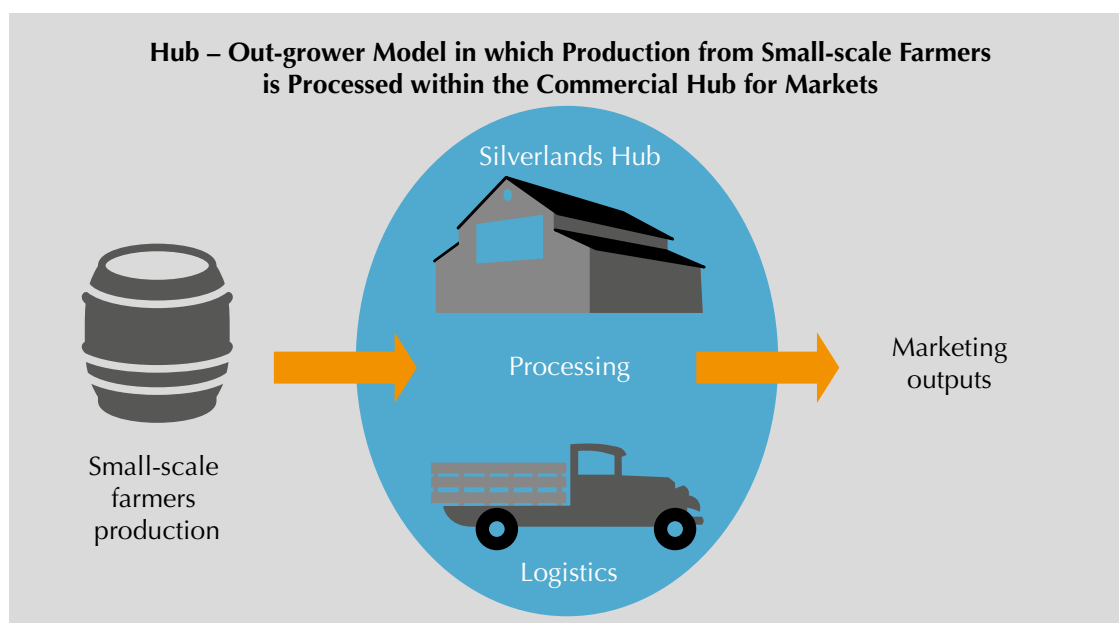
1. The direct impact of investment, with multiplier effects
  2. The 'out-grower' model
  3. Community joint ventures
- **Direct Impact:** The presence of a large commercial operation has a significant impact in itself. Silverlands directly employs almost over six thousand people in African who earn salaries totaling over \$20 million per annum. Multiplier effects suggest job creation will be at three times the number of permanent jobs; household members impacted will be at nine times total employment. Silverlands would therefore bring economic benefit to over 60,000 people.

Most of Silverlands' produce is for **consumption within country** or region, strengthening local economies and increasing food security.

Silverlands also provides access to higher quality inputs for farmers (from seed and fertilizer to animals with more commercially viable genetics), **technical assistance** (in conservation farming and animal husbandry), access to infrastructural improvements and business advice. Training programs and management development improve local expertise.

Growing improved **seed** has an enormous multiplier effect because yields per hectare can rise 60-70% on average by simply converting from farm-saved seed, practised widely, to hybrid seed which is adapted to local conditions. Seed produced by Silverlands is deployed on over 80,000 ha of farmland, almost all belonging to small-holder farmers.

- **Out-grower model:** This hub-and-spoke model deploys surrounding farmers as producers for a central processing facility, generally developed by Silverlands. Silverlands benefits by having access to greater volume; growers benefit by being able to produce higher value crops that Silverlands will process and market. Current outgrowing projects include soya, cattle, sunflower and chickens.



Collective marketing of product to the hub businesses reduces the take of middle men. Silo storage helps increase the ability for countries to manage the seasonality in supplies.

- **The community joint venture:** This structure allows Silverlands to deploy the resources controlled by a local community (usually land rights) for mutual benefit.



*Mthayisa sugar cane community joint venture: South Africa.*

Typically, community leaders negotiate a joint venture agreement to be in effect for 10-20 years. The JV company leases community lands, a portfolio company manages it, and the proceeds are shared. Typically, the community will receive 51-55% and 2,500 families, on average, will benefit in the amount of about ~\$1,000 p.a. through their indirect ownership.

The model benefits Silverlands in that the company does not have to expend capital on acquiring land. It also benefits struggling communities by bringing in expertise, training, and new income.

## 2.5 Sustainable Development Goals



The Sustainable Development Goals, developed in 2015, are aimed at improving the quality of life for all people and our planet. Most of our work is in rural areas where people are dependent on land, livestock and agriculture for their livelihoods. These people also tend to be the poorest in our geographies. We feel we are privileged to have the opportunity to take financing, knowledge and resources into these areas to make a significant difference to the lives of people in rural Africa.

The average GDP per capita in our operating countries is ~\$2,400. If we exclude South Africa and Namibia, both middle income economies with GDP per capita of ~\$4,000-5,000, then the balance of the portfolio is countries with lower incomes per capita. Looking at just Mozambique, Tanzania and Zambia, the average GDP per capita is only ~\$800. We really are operating in poor countries where we can have a large impact.

Country	GDP per capita, 2016 (\$)
Mozambique	382
Namibia	4,140
South Africa	5,274
Swaziland	2,775
Tanzania	879
Zambia	1,178
<b>Average</b>	<b>2,438</b>

Source: World Bank.

Our key impacts, structured within the framework of the Sustainable Development Goals, are described below:

Sustainable Development Goal	How we make a difference
 <p>1 NO POVERTY</p>	<ul style="list-style-type: none"> <li>• Creating a market for high value crops such as soya in Tanzania has led to increased incomes for small-holder farmers.</li> <li>• Creating 6,200 jobs and paying at wages totalling \$22.5m/yr.</li> <li>• Stimulating the economy surrounding our operations through indirect job creation, purchases and services.</li> <li>• Training to employees and small-scale cattle, poultry and grains farmers, to sustainably improve their livelihoods in the long-term.</li> <li>• Providing services for employees on the farms and neighbouring communities (boreholes, power, clinics, schools etc) (1.4: <i>access to basic services</i>).</li> <li>• CSR donations and assistance.</li> </ul>
 <p>2 ZERO HUNGER</p>	<ul style="list-style-type: none"> <li>• Producing 680,000 tonnes of food (e.g. Silverlands wheat is 8% of Zambia's national production in 2017).</li> <li>• Growing 2,600 t of high-yielding hybrid seed, which may then be used by over 52,000 small-scale farmers.</li> <li>• Increased agricultural yields through training in conservation farming techniques (2.3: <i>double the agricultural productivity and incomes of small-scale food producers</i>).</li> <li>• Promoting access to poultry, for meat and eggs, across Tanzania.</li> </ul>

Sustainable Development Goal	How we make a difference
	<ul style="list-style-type: none"> <li>• Improving cattle health and increasing the size of small-scale herds (16 cattle per household in 2015 up to 20 cattle now).</li> <li>• Provision of a market for crops (maize, soya, sunflower, etc.) and cattle. In addition, increasing soya production improves soil health and yields of other crops grown by small-scale farmers.</li> <li>• Our farms aim to maximise productivity by practicing sustainable agriculture. This includes, minimum tillage, efficient use of water and energy, minimising use of agrochemicals as far as possible, and protecting the ecosystems in which we operate. (2.4: <i>resilient agricultural practices; increase productivity and production; maintain ecosystems; improve land and soil quality</i>)</li> </ul>



- 80%+ of the poultry out-growers in Tanzania are women.
- The poultry project in Tanzania, in partnership with the World Poultry Foundation, is specifically focused on training and empowering women through small-scale poultry production.
- We promote hiring women as far as possible. Some areas of operations are especially women-dominated such as: in poultry houses; managing seed-maize (de-tassling and de-cobbing); picking and packing fruit; pest/disease teams in sugar cane. Of note, most chopper harvester operators contracted to work on the Swaziland sugar cane operation are women; and a female assistant farm manager was recently hired at one of the JVs, Mthayiza (see section 3 in report below).
- Our operations are committed to non-discrimination and have a zero tolerance for harassment.

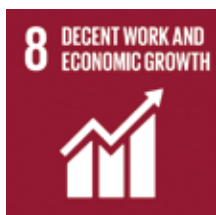


- We improve access to water for our neighbouring communities by contributing to boreholes, wells, water tanks, etc. (6.1: *access to safe and affordable drinking water*).
- Drinking water is routinely tested, and treated if necessary (6.1).
- Agrochemicals are carefully managed and applied (see SDG12 below). Also, water flowing off our farms is tested to ensure we are not impacting downstream users (6.3: *minimizing release of hazardous chemicals and materials*).
- Water use efficiency continues to be improved e.g. by converting to more efficient irrigation technologies such as drip; careful irrigation planning and adjustments for weather changes; monitoring use with flow meters and soil moisture measurements; reporting, benchmarking etc. (6.4: *substantially increase water-use efficiency*).
- We create buffer zones around our cropping areas, conserve riverine and other sensitive habitats and remove alien vegetation (6.6: *protect and restore water-related ecosystems*).



## Sustainable Development Goal

## How we make a difference



- We employ over 6,000 people in rural areas of Southern and East Africa. The fund's annual salary payments have grown on average by 23-fold since the purchase of the portfolio companies (8.5: *equal pay for work of equal value*).
- We are committed to preventing forced/child labour on our farms and in our supply chains.
- We encourage union representation and collective bargaining.
- To ensure the health and safety of our employees, we allocate responsibilities, provide training and PPE (and ensure usage), monitor injuries and implement corrective actions. (8.8: *promote safe and secure working environments*).
- We encourage all employees to have bank accounts and facilitate training of them (8.10: *encourage and expand access to banking*).



- Encouraging small-holder farmers to use conservation farming techniques which emphasise organic techniques, crop rotation, soil protection and soil replenishment.
- Establishment of a cattle outgrower program which has reduced mortality rates for the cattle from 6% to 1.5-2%. Calving rates up from ~50% to 60-65%.
- Poultry training centre and extension service to promote better poultry management for small-holder farmers.
- Our farmers are careful to minimise the loss of the food they have grown, for example by maintaining continuous cold chains during storage and transport of fruit (12.3: *reduce food losses along production and supply chains*).
- See SDG6 for efficient water use (12.2: *sustainable management and efficient use of natural resources*).
- Agrochemicals are very carefully managed. This includes Integrated Pest Management to minimise use of pesticides; leaf and soil analyses to precisely plan fertiliser applications; correct storage and handling; use of PPE; responsible disposal of old chemical containers; care during application; contouring fields to reduce runoff; monitoring streams/rivers downstream to ensure no negative impacts; and adhering to expert advice (12.4: *environmentally sound management of chemicals and all wastes*).
- ESG information is reported via this and other reports (12.6: *integrate sustainability information into their reporting cycle*).



- Non-arable areas on the farms, which in some cases cover large areas of woodland, forest and wetland, are protected from illegal poaching and harvesting (15.1: *conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems*).
- Alien species are continuously removed (15.8: *reduce the impact of invasive alien species*).



- Small-holder farmers are organised into 'clubs' of typically 20 people. This encourages the development of grass-roots development of institutions with democratic bases.
- We have a zero-tolerance for bribery and corruption (16.5: *reduce corruption and bribery in all their forms*).
- All farms are audited and adhere to strict reporting schedules (16.6: *effective, accountable and transparent institutions*).

“Our success in these ventures is achieved by establishing a strong mutual trust with the communities and their leadership, through regular communication and by taking a strong and active interest in the community well-being.”

*Crookes Brothers Integrated Report 2017*

## 3 Update on Our Community Joint Ventures

### 3.1 The Model

The joint venture model is an excellent opportunity to work closely with large communities and empower them sustainably for the long term. In this model, the portfolio company partners with a community for lengthy periods, typically 15-20 years. A joint venture company is set up which leases the farms from the community and pays a management fee to CBL. Profits are split between the community and CBL. The community therefore earns both by leasing their properties to the JV, and from the profits of the JV, of which they typically own 51-55%.

The communities appreciate this model as the farms are run professionally resulting in more reliable income. In addition, community members have opportunities to work for the JV, which includes valuable training over the long term. Over time, the relationship between the company and community strengthens and we have seen a positive sense of ownership by the communities develop.

This model is beneficial to the portfolio company as it is capital-lite. The company does not need to buy into the farm, yet still benefits from the stream of profits from the JV. The model works well for crops which require scale and are too expensive per hectare to be an option for small-scale farmers. It has been deployed in South Africa where a land transformation process is in place and where there is a shortage of skills to manage the farms post-transition.

#### **Impact:**

JVs with communities benefit large numbers of families as profits are shared between the community and the management company. The Fund has three JVs in South Africa, two in sugar cane and one in deciduous fruit. The JVs provide incomes to over 2,500 families, likely over 30,000 people. In 2016, these JVs earned a total of \$3.6m, or \$1,418 per family. This is a passive income for these families. In most cases family members also have income from jobs elsewhere or managing their own businesses/farms.

#### **Impact of Joint Venture Projects**

Name of JV	Location in South Africa	Community	Number of Families Benefiting	Total Profit in 2016	% JV Owned by Community	Community Profits + Rental	Income per Family
Mawecro Farming	Komatipoort	Mawewe	558	\$4.433m	51%	\$3.212	\$5,757
Mthayiza Farming	Malelane	Libuyile	1,964	\$0.379m	55%	\$0.409	\$209
Bellevueview	Villiersdorp	Ex-employees	13	-\$0.054m	55%	-\$0.027m*	\$0
<b>Total or Average</b>			<b>2,535</b>	<b>\$4.758m</b>		<b>\$3.594m</b>	<b>(Avg) \$1,418</b>

\*No rental to Bellevueview JV in 2016 as the JV had yet to be finalised with the government.

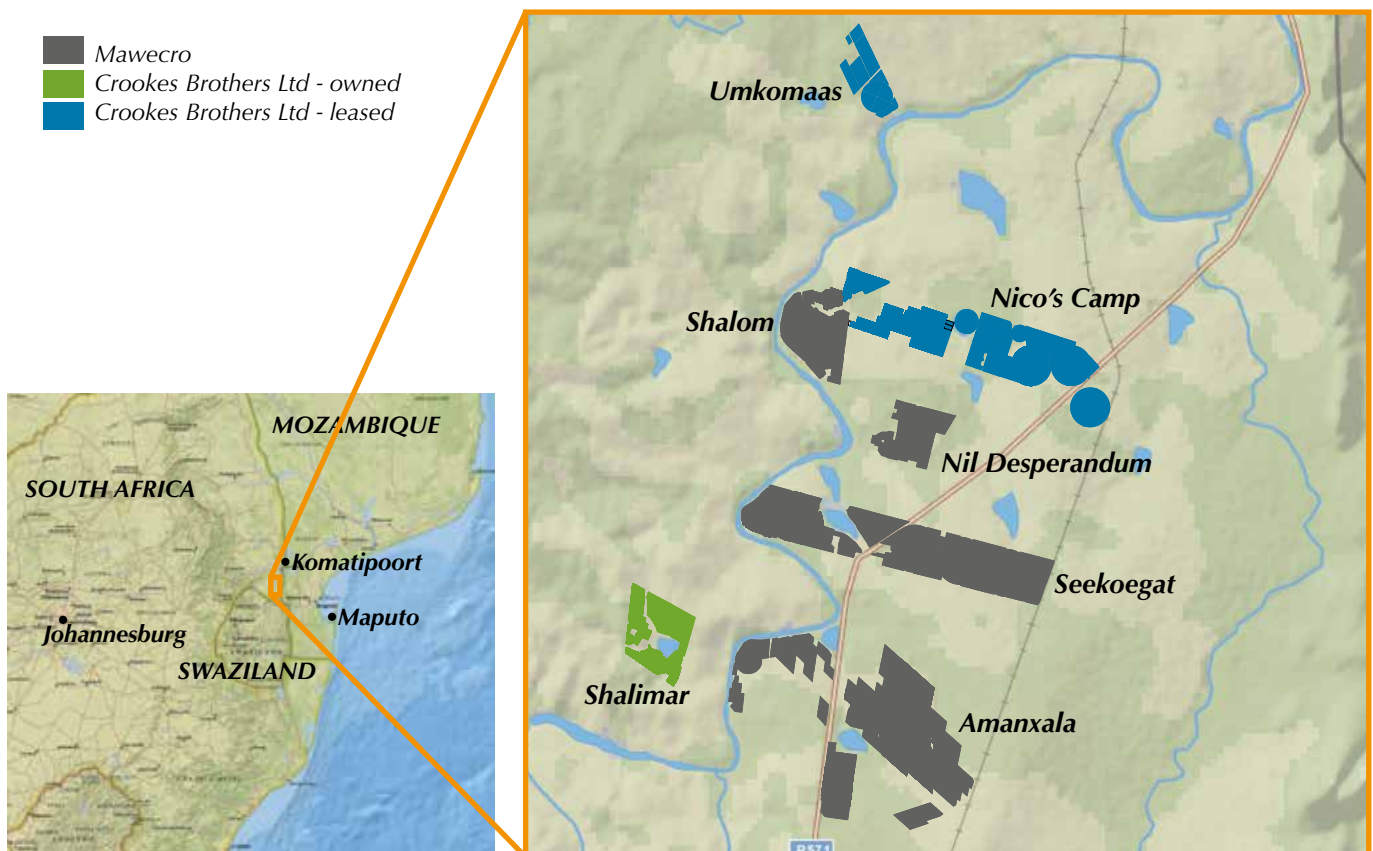
### 3.2 Mawecro Farming

Crookes Brothers' previous 5-year lease on this farm was converted to a 20-year lease with the signing of the joint venture with the Mawewe community in November 2015. The JV began operating in April 2016 with CBL receiving 49% of profits.

The Mawecro Farming JV achieved exceptional profits this year primarily due to good crop prices which offset the lower than average drought-induced yields. Adding the profits to the annual land lease fee, the community paid its first dividend to beneficiaries, estimated at \$5,757 to each of the 558 families. This is fantastic for the first year of operation of the new JV. Due to the currently lower sugar price (15% reduction since the Mawecro FYE in March 2017), the profits are expected to be lower in this coming year (\$2m compared to \$4.4m in 2016).

Since starting operations in April 2016, the relationship between Crookes Brothers and the community leaders has been strengthening. Initial challenges of working with the community related primarily to governance issues. For example, a desire to hire family members irrespective of qualifications, and a refusal to register for tax. These have since been resolved with the board receiving training in corporate governance. The Mawecro Farming brand is also developing and is seen positively by all within the organisation.

The JV manages 1,800 ha of cropping, including mostly sugar cane and 259 ha of bananas. CBL are currently leasing an additional 600 ha of cropping area from government and this will be transferred to the community. This may be incorporated into the JV in time although this requires negotiation with the community. These discussions are ongoing. Crookes Brothers look forward to further developing the relationship with the community and benefiting from its 49% ownership over the remaining 19 years.





*Mawecro Farming includes 259 ha of bananas.*



*The Mthayiza Joint Venture Farming Operation.*

### 3.3 Mthayiza Farming

**We will be the biggest cane producers in this Nkomazi area.**

*Chief Khumalo, Chairman Libuyile Community Trust*



*Mthayiza Farming operations showing the new 300 ha area added in 2016. Two CBL areas are also managed by the JV.*

The Mthayisa community joint venture has now been running several years and comprises the management of a farm in South Africa with some 800 ha of irrigated sugar cane. The farm was run down and loss-making when the JV commenced in 2008, with yields of ~60 t/ha. The joint venture was initially established between the Community and Crookes Brothers for 15 years.

Crookes Brothers injected management and has been providing capacity building and training on all facets of the farm business including long term capex planning, producing reliable annual budgets, financial reporting and operational management of the farm. Yields have been improved to around 100-105 t/ha and up to 120 t/ha under drip irrigation. The business is now profitable.



*The board of Mthayiza Farming, a JV between Crookes Brothers and the Libuyile community.*

The community has reacted positively and the land under the JVs management was increased (by the community) from 800 ha to 1,100 ha in 2016. The life-span of the JV was also extended by a further 15 years. Both these changes reflect the strong community buy-in arising from patient, long term development of the farm and of the team who work on the farm. The farm represents a model of community farm ownership in South Africa where most farms that have transferred to communities have seen a collapse in production.



**Tshepo Sangwane** is a member of the Libuyile community and began working for Mthayiza Farming as a trainee in 2010. After completing the five sections of the CBL Building Blocks programme aimed at developing farm managers, he was promoted to Irrigation Supervisor and then Assistant Farm Manager. Tsepo received a Diploma in Plant Production at the Lowveld Agricultural College (now known as the Mpumalanga University) funded by Mthayiza. In April 2017, he was promoted to Farm Manager.

**Desire Sekele** was a supervisor in the banana pack-house at CBL's Komati estate (now Mawecro Farming) and began as Assistant Farm Manager at Mthayiza in April 2017. Although not a member of the Libuyile community, she was selected by the Mthayiza board (which includes Libuyile community members) as the best candidate for the position. This shows good governance. She is also one of the few female managers in a typically male environment. We hope to develop more female managers in time.



**The partnership that we now have, it's like we are now brothers, not necessarily that we are working with Crookes Brothers. We are like family all of us.**

*Chief Khumalo, Chairman Libuyile Community Trust  
February 2017*

- Press Exposure

**A common cause of failure in land-reform projects in this country has been a lack of support for farmers once they become landowners**

*Mr Guy Clarke, managing director of Crooks Brothers Limited (CBL)*

### **Those Who Till The Land Will Reap Benefits For All Corridor Gazette, July 2017**

MALALANE – “We believe that it is our duty to assist and uplift the communities in which we operate,” said Mr Guy Clarke, managing director of Crooks Brothers Limited (CBL).

CBL is one of South and Southern Africa’s leading producers which has, over the past 10 years, pursued a strategy of proactively supporting the transformation of the industry with communities that have received farms through the land-claims process.

Through these partnerships, locals are sent to college to be educated in agriculture and the management thereof.

This with the hope that they will return and make their land prosperous and profitable for all.

The first of these bursary recipients was the Mthayiza Farm, owned by the Libuyile community under Chief Musa Khumalo.

With the assistance of CBL, the community was able to rehabilitate over 1 000 hectares of sugar-cane land that was rundown.

“It has been a long road to get this farm to this condition,” said Clarke.

The secret in making the farms that CBL partners profitable, is investing in the community and enable it to better manage them.

One is Tshepo Ntsangwane (29) from KaMhlushwa, who never imagined that he would be involved in agriculture.

His family members are the beneficiaries of the Mthayiza Farm under the Libuyile community.

Today he is the farm manager of Mthayiza.

Not everyone returns or sees it through to the end.

“They are afraid of spending many hours in the sun,” Ntsangwane joked.

“I really enjoy it. I get to take care of my family and mentor others who also want to be involved in farming.”



*Mr Tshepo Ntsangwane, farm manager of Mthayiza.*

He obtained his diploma at the Lowveld College of Agriculture, now known as Mpumalanga University, in 2008. He worked his way up the ranks to where he is today.

“A common cause of failure in land-reform projects in this country has been a lack of support for farmers once they become landowners,” said Clarke.

“By providing ongoing strong support, we expect to see continued, long-term, sustainable economic benefits deriving from both.”

CBL is also in partnership with the Mawewe community in Komati in its banana and sugar-cane farms.

### 3.4 Belleview

In 2012, Belleview, a 43 ha deciduous fruit farm in the Western Cape (South Africa), was sold by Crookes Brothers as a land transformation project to the Department of Rural Development and Land Reform. CBL subsequently applied to become JV partners with the ex-employees of the farm.

After five years of delays, the Government released the recapitalisation funds for the operation in April 2017 and CBL were approved as the strategic partner for the Belleview deciduous fruit farm JV. The 40 ha farm was previously owned by CBL who are now finalising the JV with ex-employees to allow formal handover. The 13 ex-employees will now own 55% of the enterprise. Despite the delays, CBL continued to operate the farm to ensure the orchards remained active and facilities were maintained. All parties are now excited to be entering the full operation of the JV.



*Piet Davids, an ex-employee and Manager-in-training of the Belleview farm.*



*Entrance to the Belleview farm.*



## 4 Hub – Out-grower Projects

### 4.1 The Model

Under this model the farming hub adds processing of a product and reaches out to small-scale farmers to help grow this product. The key to achieving a positive impact is to provide a market for a high value crop. By doing this the small-scale farmer can diversify from lower value crops and thus make a higher income. The hub can also provide technical support and training.

### 4.2 Tanzanian Business

#### **The Tanzanian Poultry Sector – Soya constraints**

Silverlands has invested ~\$46 million in the southern highlands of Tanzania across the soya and poultry sectors to create an integrated business venture and social impact enterprise.

Tanzania has a population of 53 million and some 70% of this population lives on small-scale farms of under 5 ha. It is a protein-poor nation, with significant effects on health and children's growth. Poultry and eggs are the most efficient means of providing protein, but Tanzania's poultry industry has been fragmented, inefficient and has not developed in line with the strong economic growth over the last 15 years, typically 6-7% p.a. Poultry consumption per capita is only 12% of South Africa's. A significant restraint is the lack of suitable inputs to produce feed, particularly the protein content.

In most countries globally, the protein content of feed is largely provided by soya. Before Silverlands invested there was virtually no soya grown in Tanzania, despite the ideal conditions in the southern highlands, primarily because there was no soya processing plant. The primary market for soya beans is a processing plant as soya is processed into soya cake for use in feed (~80%) and soya oil (~20%).

Fish meal produced from Lake Victoria in Tanzania was previously used as the protein content of feed in Tanzania but this was environmentally damaging and carried the risk of salmonella. When Silverlands started operations in 2013, almost all soya cake was imported from India being the only viable source of non-GMO soya beans. Tanzania's central and southern plateau is well suited to soya cultivation, being on a similar latitude to the main soya producing areas of Brazil, the largest producer of soya globally.

### Silverlands Tanzania builds the first Soya Processing Plant in Tanzania

Given this background, we identified an exciting opportunity to invest into the poultry sector. We felt that the sector could achieve explosive growth if access to soya beans could be unlocked and that this would also lead to substantial social impact as these soya beans could be grown by small-holder farmers in Tanzania, increasing their incomes.

The Silverlands soya processing plant at Iringa is the first in Tanzania, and the facility includes storage and the largest feed-milling capacity in East Africa. Due to substantial demand, storage capacity was increased in 2017 to 32,000 tonnes and a larger feedmill commissioned which can process up to 40 tonnes an hour, a significant increase over the previous 5 tonnes per hour plant.



*Silverlands Tanzania's hub near Iringa: the weighbridge leading to 32,000 t of silo storage and new 40 t/hr feed mill housed on the right.*



*Due to substantial demand, storage capacity was increased in 2017 to 32,000 t.*



*The feedmill can process 40 t/hr – one of the largest in East Africa.*

### 4.3 Tanzania Impact 1: Small-scale Grain Farmers

The soya processing plant and feed-mill hub was positioned in Iringa, part of the Southern Highlands in Tanzania. This was primarily to be based in the area where there was substantial potential for small-holder farmers to grow soya beans.

In partnership with a number of NGOs, primarily Caritas, small-scale farmers have been recruited to grow soya in the southern highlands, a crop barely produced three years ago.

Farmers are taught conservation farming techniques (such as minimum tillage, rotation, mulching and composting). Previously, farmers in the region generally mono-cropped maize leading to medium term issues with disease pressure and low fertility of the soils. Now, farmers have started rotating maize with soya. As a legume, soya fixes nitrates in the soil, naturally replenishing it and resulting in higher maize yields the following year. By rotating crops, the farmers also reduce disease pressure because maize and soya are from different families (the grass and legume families respectively) and pests and disease tend to be specific to plant groups. Also, composting and using crop residues as mulch reduces carbon emissions and fertiliser requirements.

Silverlands buys the soya crop at fair market value, providing the transportation, storage, and processing required to produce soya cake for poultry feed. Soya production can more than double annual incomes for participating farmers. Maize, the staple crop, typically sells for around \$150 per tonne while soya typically commands around \$400-\$500 per tonne.

#### Conservation Farming Techniques

Conservation farming includes a range of practices, each important to ensure careful plant management, improved soil quality and ultimately greatest possible yields.



*Straight lines*



*Plant spacing to maximise light*



*Precise placements of inputs*



*Composting*



*Rotate with legumes*



*Minimum tillage and mulch*

## The Benefits for Small-Holder Farmers

A market for a high value crop	By building the first soya processing plant in Tanzania, Silverlands has created a market for soya beans, a much higher value crop for small-scale farmers. Soya prices may be more than 3 times greater than maize prices and can more than double farmers incomes.
Minimising the effect of middle-men	Farmers are encouraged to market collectively. By cutting out middle-men, farmers achieve better prices.
Technical Support	STL works with various NGOs who promote soya production, and provide technical training and assistance to farmers. Training is often centred around demonstration plots run by small-scale farmers in key areas.
Pest control	Soya (a legume), and maize (a grass) are subject to different pests. Under monocropping, pesticides are needed to break the pest cycle. Small-scale farmers cannot afford these expensive and environmentally unfriendly pesticides, so yields fall and plots may be abandoned. Farmers may then cut down more woodland to continue cropping. Rotating crops is more sustainable for both the farmer and the environment.
Soil replenishment	Soya is in the legume family, which usefully fix nitrates in the soil. Nitrates are a key ingredient for plant growth and constitute a large part of fertilisers. Soya naturally replenishes the soil with nitrates, thereby improving maize yields the following year.
Improved yields	Prior to receiving technical support, farmers soya yields may be as low as 240Kg/acre (0.6 t/ha). After implementing improved agricultural practices included in training sessions, yields can increase 3 times, up to 720Kg/acre (1.8 t/ha).
Lower carbon footprint	Minimum tillage involves leaving the residue from the previous crop on the land. This is then incorporated into the soil, resulting in an increase in carbon in the soil and associated reduction in carbon in the atmosphere.

## Small-scale Product Purchased

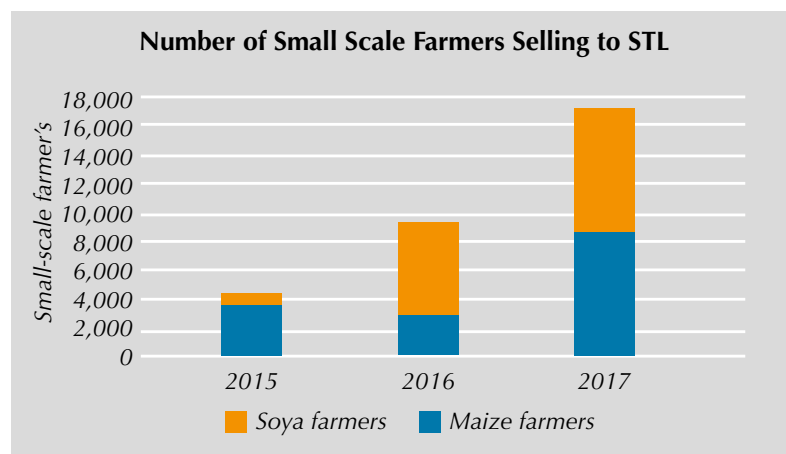
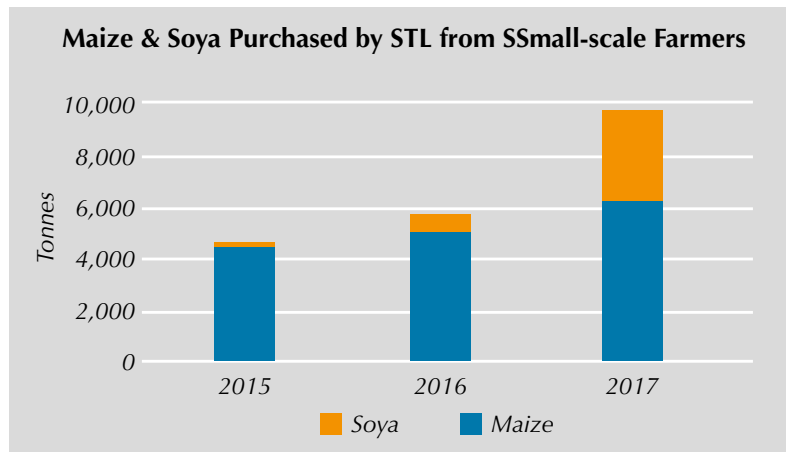
In the 2016-17 growing season, STL purchased ~9,800 t of grains from ~17,000 small-scale farmers. There has been an extraordinary step up in soya bean production amongst small-holder farmers with ~9,000 farmers growing soya in the 2016-17 season, up from close to zero as little as 3 years' ago. Soya purchases have increased 4 times from 860 tonnes in 2016 to 3,500 tonnes in 2017. This is up from a mere 80 tonnes in 2015. The maize procurement season is in progress and STL expect to purchase a total of ~6,300 tonnes from roughly 8,6000 farmers.

### Silverlands Tanzania: 2016-17 season purchases from small-scale farmers

Crop	Tonnes	Number of small-scale farmers
Maize	6,283	8,639
Soya	3,500	8,750
<b>Total</b>	<b>9,783</b>	<b>17,389</b>

*Figures based on average yields and cropping areas.*

In general, small-scale farmers in this area grow between 2 and 4 hectares of maize. Over the last 3 seasons, their areas of soya have increased from effectively zero to 0.5 to 1 hectares. As land is limited, their total production area has not changed on average, rather some maize has been substituted for soya. The increase in soya grown will improve soil health and yields across the region. STL are assisting Caritas to potentially start processing soya into soya cake on a small-scale basis, which STL would purchase, and soya oil which may be sold separately. This can help to create value locally for these farmers.



\* 2017 figures based on expected purchases for the year, average yields and cropping areas.

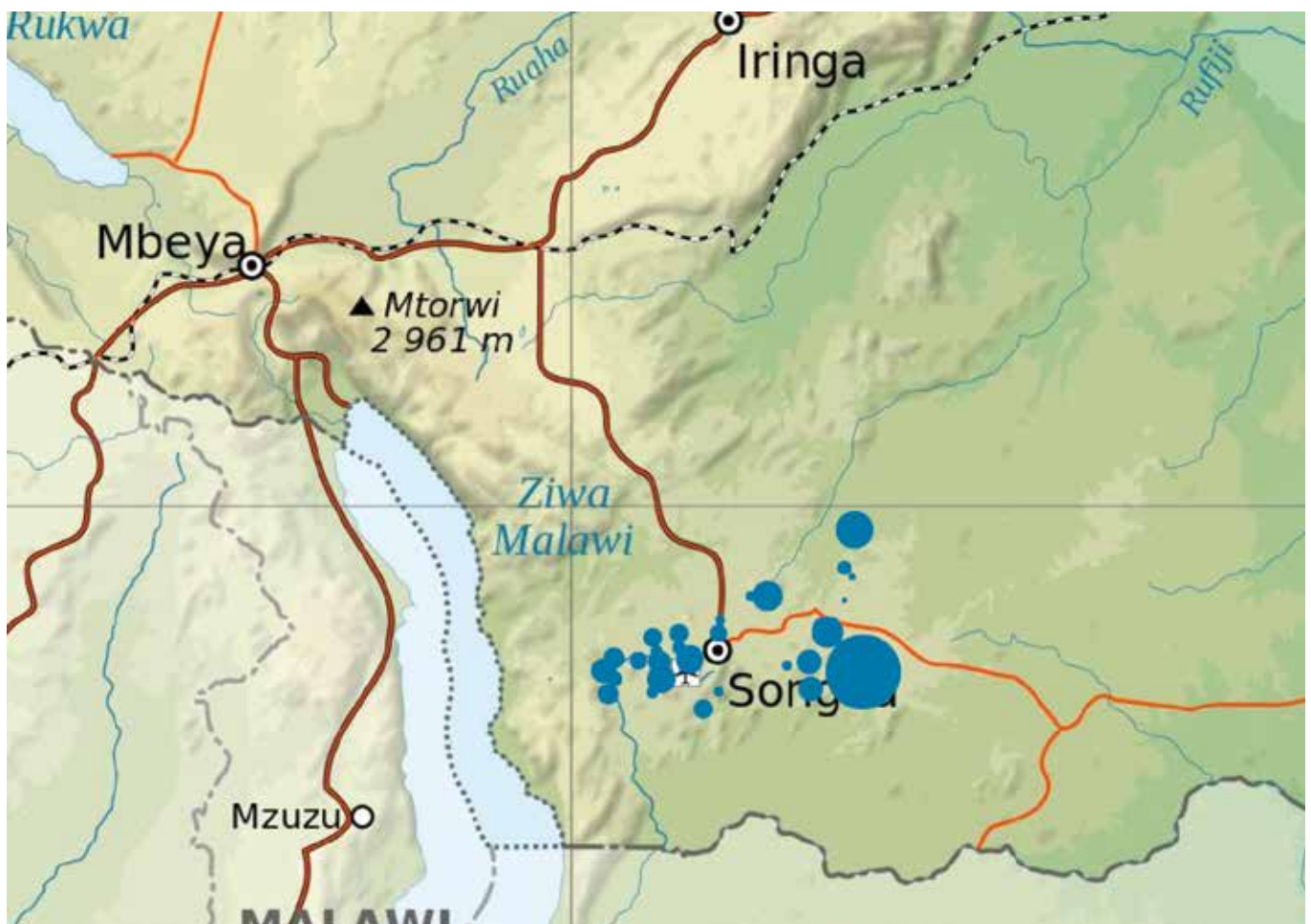


Small-scale farmers and their demonstration plots in the Songea area.

### Working with Caritas

Silverlands works closely with the NGO Caritas, a Catholic Church funded organisation. Caritas has implemented a value chain project, known as Soya ni Pesa, across 50 villages in Namtumbo and Songea in southern Tanzania. This area is ideal for growing soya. Caritas provide training and encourage farmers to work in groups to procure inputs and market collectively. Overall, Soya ni Pesa has reached over 20,000 farmers of varying ages in the Morogoro, Ruvuma and Njombe regions. Through Soya ni Pesa, farmers have been able to increase their incomes and improve their standard of living. Farmers are now better able to meet school needs for their children, pay for medical services, improve their houses and invest in micro enterprises.

Caritas increased dispersion of knowledge in the last year via a radio programme led by Farm Radio International, using Radio Maria FM as the local radio station. Topics in the programme included: soyabean agronomic practices, agro-inputs, harvesting, collective marketing, collection centres, potential buyers, and financial management.



*Locations of small-scale farmers working with Caritas in the Songea region.*

### Small-Scale Farmer Testimonies

The following farmers reported how they spent their earnings from producing soya beans:

**Shafi Sadick Mbilo** is 53 years old and lives with his wife, two children, mother and two young brothers in Namtumbo District, Ruvuma Region. The family began growing soya in 2014/15 and in 2016, they earned TZS 3,338m (\$1,490) from soya alone. Average income on farms without soya is typically \$600-700. The earnings were used to extend the house by two rooms and replace the thatch with iron roofing. The remainder was transferred to Shafis brother who is working as a teacher.



*The Mbilo family in front of their old house.*



*Mr Mbilo in front of his extended house with improved roofing.*



*Mr Osmund Ngaponda, a disabled man benefiting from significantly improved soya yields.*

**Mr Osmund Ngaponda** is a disabled man living in the Lipokera Village in Songea Rural with his wife and 6 children. His yield has improved from 0.19 t/ha to 0.3 t/ha over the last two seasons. With the money earned from selling soya beans his target is to purchase a motorbike to improve his mobility.



*Ponciana Kiyihle.*

**Ponciana Kiyihle** joined the programme in late 2016. In the season prior to this, she had grown 1 acre of soya with a yield of 240Kg/acre (0.6 t/ha). In the 2016/17 season she was growing two acres of soya (and one acre less maize) and was expecting a yield of closer to 720Kg/acre (1.8 t/ha). With her extra finances, she was aiming to make improvements to her houses and purchase inputs for the following season.

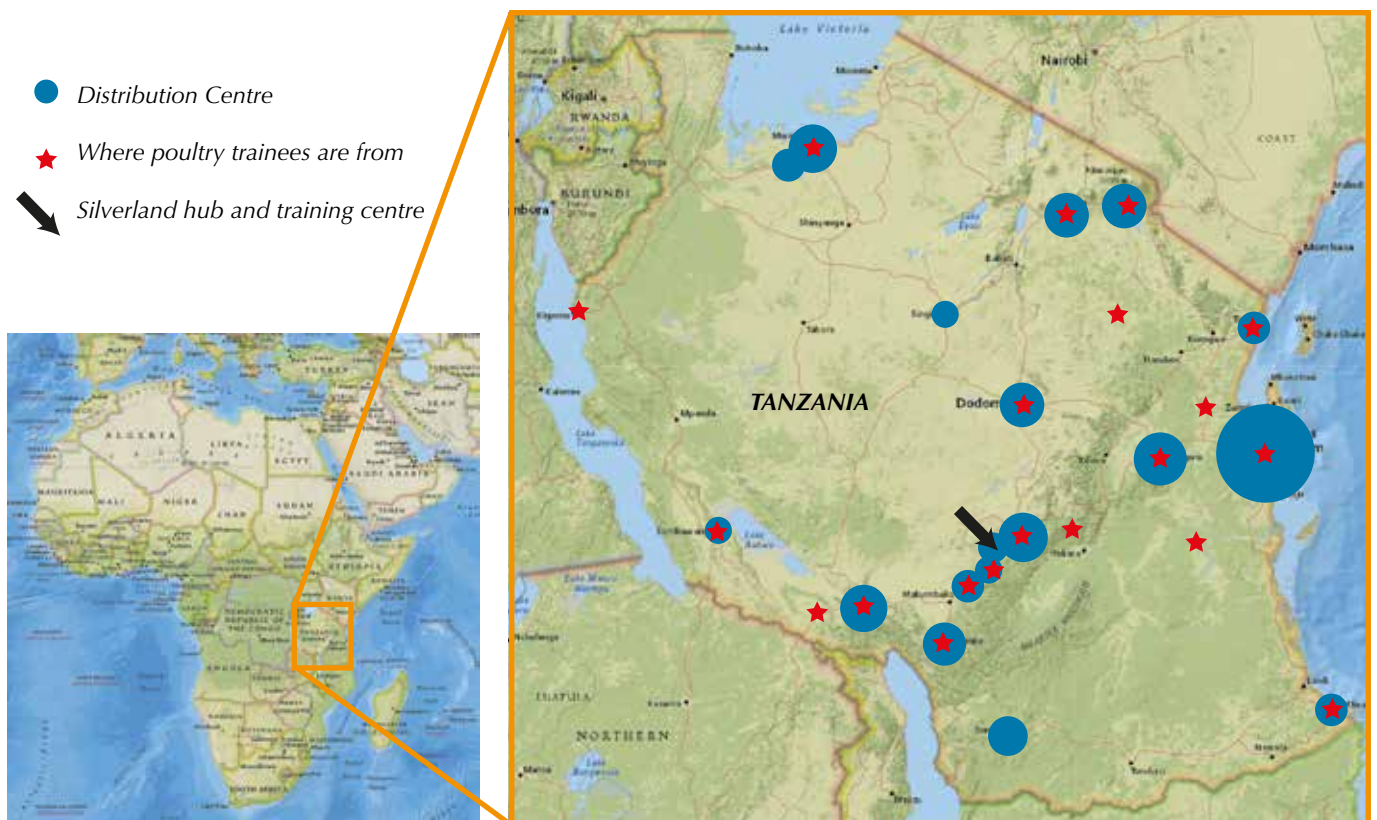
#### 4.4 Tanzania Impact 2: Poultry Farmers

The grains grown by small-scale farmers discussed above, is being used to produce poultry feed. Silverlands Tanzania produces day-old chicks and sells the feed alongside these chicks. Silverlands is focusing on providing chicks with better food-conversion ratios, high quality feed and provision of training to develop the poultry industry and thereby improve health and nutrition in Tanzania.

More than three million day-old chicks were hatched by Silverlands in 2016, up from zero three years ago. These have been sold to small-scale producers for use as layers or broilers. Silverlands use breeds that mature relatively quickly compared to traditional village chickens but are robust enough to cope with free range activities, typical of small-holder poultry farmers. The key breed focused on is the Sasso bird which Silverlands has exclusivity on in Tanzania. Silverlands sells day-old-chicks and high quality poultry feed at distribution centres across Tanzania.

A Poultry Training Centre has been built by Silverlands to provide training for small-holder poultry farmers. STL has hired 20 extension officers to help provide technical support to small-holder poultry farmers. This extension work for the famers is helped by a \$3.6m grant from the World Poultry Foundation which was allocated to STL in January 2017. Instruction is offered in poultry management, health and hygiene, and business management. A key focus of this project is on women who make up 80-90% of small-holder poultry farmers in Tanzania.

**Silverlands distribution centres across Tanzania. Point sizes represent relative sales magnitudes.**





## Quality Feed

High quality poultry feed is crucial for efficient poultry production. The Silverlands feed formulations are specially designed by a professional international nutritionist in accordance with the breed standards. Different feeds are produced specifically for the varying energy and nutritional requirements of birds of different ages and breed. An egg laying bird has different nutritional requirements to a broiler for example.

One key differentiator is the production of pellets by Silverlands. By eating pellets, chickens receive all the important micro-nutrients as well as the proteins in a single pellet. When pecking mash, a chicken may miss the smaller grains which may contain vital nutrition. Pelletised food tends to produce better food-conversion ratios.

Quality control is essential for maintaining an excellent product. As such, the composition of every single batch of feed is tested using near-infrared (NIR) spectroscopy (with the machine calibrated by an independent consultant). NIR certificates are kept indefinitely and samples of every batch are stored for the life of the product.

Poultry performs extremely well when fed with Silverlands feed. The operation has received many satisfactory reports from both small scale and commercial users. The most recent report from a large commercial operator in Dar Es Salaam highlighted exceptional performance using the Silverlands range of pelleted broiler feed. Their average bird weight achieved in 36 days was 1,76Kg.



*Testing feed composition with a near-infrared spectroscopy machine.*

## Better Food-Conversion Ratios




Not all chickens are equal. Different breeds have been developed to maximise efficiency in different ways. Some are broilers which have been bred to rapidly develop meat. On the other hand, layers produce high numbers of quality eggs. Breeds look different too.

Silverlands have introduced a new breed to Tanzania, developed in France. This Sasso breed has multiple advantages. Importantly, it is a dual-purpose bird that can be used both as a broiler for meat or as an egg-layer. This greatly helps small-holders flexibility in managing variations in demand for chicken. Most modern broilers are bred to simply produce meat.

As a multi-coloured bird the Sasso is also acceptable within rural Tanzania, where traditionally chickens are multi-coloured. It also performs well both in terms of time to maturity and egg production. Lastly, it is generally more resilient to the climate, pests and diseases which one may encounter as a chicken in rural Tanzania. This is a significant benefit when compared to the normal broiler such as the Cobb, widely used in the West, which are now bred to produce meat quickly, but are not adapted to walking around in a free-range environment.

**The goals of this project are to improve household nutrition, to increase productivity, we want to create jobs and we want to empower women. Our attraction to Silverlands in this project was number one their ability to scale very quickly, but also they had a business model already in Tanzania and were already well respected in this area.**

*Randall Ennis – World Poultry Foundation*

	Village Chicken	Sasso	Cobb
			
Days to 1.2kg	80	35	28
Feather colour	Mulit-coloured	Multi-coloured	White
Resilience	High	Medium	Low

Chickens are generally considered full size at about 1.2 Kg. It takes a traditional village chicken about 80 days to reach this size, compared to 28 to 35 days for breeds sold by Silverlands. Farmers therefore feed the poultry for shorter periods, which saves on feed and improves profits.

Since beginning operations, over half (57%) of the day-old-chicks sold are of the Sasso breed. The remainder are the Cobb broilers (27%) and Hyline layers (16%).

**African Poultry Multiplication Initiative**

A new project, the African Poultry Multiplication Initiative (APMI), has initiated at Silverlands Tanzania with a grant of \$3.6m from the World Poultry Foundation. The aim of the project is to increase poultry production by women across Tanzania, with an overall vision of rural income growth.

Women are typically disadvantaged in a rural setting. However, raising chickens is generally deemed womens work, and they typically keep the profit from sales of eggs and birds. By focusing on poultry rearing by women, it is anticipated that this project will benefit the productivity, income and nutrition of the whole household, and significantly empower women.

To ensure day-old-chicks survive their first 28 days, when most fragile, they will be reared in brooder units. These will be run mostly by women, after attending training at the Silverlands Poultry Training Centre, funded by the APMI. Ongoing technical support for the brooder units will be provided by STL extension officers. Young healthy chickens will then be sold by the brooders to poultry farmers in the area, for use as either layers or broilers.

One of the attractive aspects of STL was the use of the Sasso bird given its dual-purpose nature, good for both poultry meat and egg production. Crucially, people in rural Tanzania like the look and taste of these birds which are comparable to local indigenous breeds.

**The Gates Foundation and Mr Gates in particular, believe that improved poultry backed up with healthcare can make a huge impact on lives and livelihoods of the poorest of the poor in the developing world in Africa and Asia.**

*Shashi Kapur - Gates Foundation*

Silverlands have started hiring staff for this project, including a project manager, technical advisors, gender specialists and training extension officers, currently 20 in total. The fund is excited about the vast impact the project will have, and also the bottom-line benefits to Silverlands Tanzania from accelerated sales across the whole country over the next few years.

### **Poultry Training Centre**

The Poultry Training Centre has provided live-in training this year on a weekly basis with each course typically lasting 5 days. 81% of trainees are small-scale farmers and 44% have been women. However, we expect the percentage of women to increase to reflect the situation on the ground where it is estimated that 80-90% of small-scale poultry breeders are women.

### **Poultry Training Centre, Iringa**



*The Poultry Training Centre in the foreground and commercial poultry houses in the distance.*

The 5-day courses combine theory and hands-on practical work. Theory is taught in the classroom using presentations and manuals. Comprehensive practical sessions include time in and around the poultry houses putting the theory into practice.

Different courses focus on specific types of poultry breeding:

<b>Course</b>	<b>Focus</b>
Brooder	Rearing day-old-chicks up to 3-4 weeks for sale to other farmers. The most difficult phase of chicken rearing is up to 3 weeks.
Broiler	Rearing day-old-chicks or brooders up to 4-6 weeks and then selling for meat.
Layer	Rearing egg laying hens. This includes egg handling and hygiene.

All courses include the following basic principles, for successful poultry rearing:

Poultry Management	Hygiene	Business Management
<ul style="list-style-type: none"><li>• House design</li><li>• Brooding</li><li>• Feed</li><li>• Water</li><li>• Vaccination</li><li>• Environmental management</li><li>• Cleaning and fumigation.</li></ul>	<ul style="list-style-type: none"><li>• Cleaning and fumigation</li><li>• Biosecurity</li><li>• Bird health.</li></ul>	<ul style="list-style-type: none"><li>• Planning</li><li>• Record Keeping</li><li>• Marketing</li><li>• Finance Management.</li></ul>

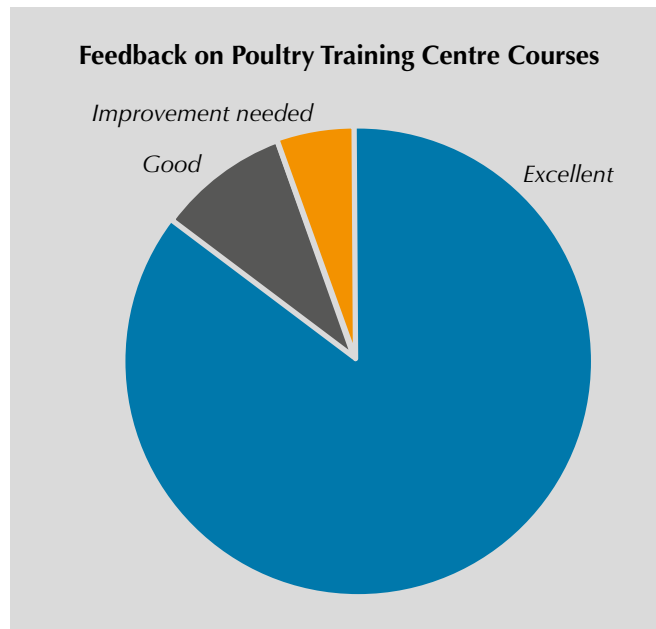


*Poultry house at the Poultry Training.*



*Inside the training poultry house: Layer hens.*

Feedback has been overwhelmingly positive with 85% of attendees reporting that the course material and facilities are excellent. Suggestions are incorporated to consistently improve the courses. One suggestion was to display the daily training schedule. Another, is that, as well as the manuals and training, the PowerPoint presentations should also be in Swahili. The centre is establishing itself in the community and has 16,000 followers on its Facebook page. The team is proud to be establishing good relationships with small-scale farmers across the country.



*Enesi Luvanda teaching theory in the classroom at the Poultry Training.*



*A group of trainees at the Poultry Training Centre.*

### **Poultry Farmer Testimonials**

**Mwanamvua Ngecho** runs a poultry business in the Dar es Salaam area. She breeds batches of 5,000 day-old-chicks to 10 weeks then sells them for ~Tsh10,000 each to her 40 customers. Mwanamvua attended the 5-day live-in poultry training course in early 2017. "All the things they taught were relevant to our day-to-day activities. The practical was very helpful because we could see the difference between what we did at home and what they taught us. I don't think there's another training centre like that in Tanzania. It's the only one."

Prior to attending the course Mwanamvua's operation had lost up to 9.2% of a flock (462 of 5,000 birds). After putting into practice the skills learnt at STL, mortality has dropped to 0.4% (~18 birds). Taking this reduction in mortality into account, if all the birds are sold for Tsh10,000, her profit increase per brood is 10% (Tsh4.4m or \$1,982). i.e. every six weeks on average.

With the extra finances from improved profits, Mwanamvua has increased the size of her operation and employed 14 additional people (up to 20, from 7 last year). Three of her employees have also attended the STL poultry training course. She feels like she is making a positive impact on her community by providing jobs and, “the ones I have paid for their training, they have education and knowledge. Wherever they go they will use that knowledge to help others.”

Mwanamvua breeds both Sasso, sold as both broilers and layers, and Cobb (another Silverlandsbreed), sold as broilers. “Definitely, the broiler [Cobb] grows faster than the Sasso, but the meat of the Sasso definitely tastes better. There are [customers] that prefer broilers (like hotels), but people who cook stews or want to roast them at home prefer Sasso.” She compared the growth of her traditional (kuku kienyeji) chickens’ day-old-chicks to that of the Sasso, and said the Sasso grew 4 times faster and “were soon the same size as the kuku kienyeji mother.” She also loves working with Sasso as they are friendly. “I think they know me, some of them.”



*Mwanamvua Ngecho with her friendly Sasso's.*



*Mwanamvua Ngecho with some of her team of employees (and Granddaughter).*

- Press Exposure

**This project will focus on training and extension support to build a sustainable value chain.**

*Randall Ennis, CEO of the World Poultry Foundation*

## **World Poultry Foundation Announces Rural Poultry Initiative In Tanzania And Nigeria**

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**For Immediate Release  
January 23, 2017**

### **World Poultry Foundation Announces Rural Poultry Initiative in Tanzania and Nigeria**

**STONE MOUNTAIN, Ga.** –The World Poultry Foundation (WPF) has received a four year \$21.4 million dollar grant from the Bill & Melinda Gates Foundation to enhance poultry production in Tanzania and Nigeria.

Working closely with government and in-country private sector partners, the WPF will lead a project that will catalyze a transformation of rural poultry production in these two countries. This initiative will increase poultry production and productivity through the access of low-input dual purpose birds, increase rural household income, improve household nutrition and empower women.

“This grant provides us with an opportunity to implement a strategy that creates access of improved genetics to the rural famers, provides technical assistance and training, and offers access to markets that may not have been possible before,”said Randall Ennis, CEO of the World Poultry Foundation. “Our goal is to impact 2.5 million households across Tanzania and Nigeria by the end of this four-year initiative.

“Unlike past approaches of delivering free chicks and feed to the rural farmers, this project will focus on training and extension support to build a sustainable value chain,” Ennis said. “Another key component of the project is the establishment of over 1,500 entrepreneurial enterprises – primarily owned and managed by women – that will supply healthy brooded and vaccinated chicks to the rural smallholder farmers.”

#### **About World Poultry Foundation (WPF)**

The World Poultry Foundation is a non-profit organization committed promoting economic development in emerging markets outside of the U.S. by providing education and technical training on poultry production. For more information, visit [worldpoultryfoundation.org](http://worldpoultryfoundation.org).

## 4.5 Baseline Study: Zambian Community Surveys

A baseline survey was conducted in June and July 2017 in areas surrounding the three Silverlands farms in Zambia: SRL in the Southern Province, and SZL and SASL in the Central Province. In all 380 households were included in the survey. The average household size was 7 people, on average including two school-going boys and two school-going girls.

There was a noticeable difference in family structure between these two areas. Families in the Southern Province surrounding the ranch at SRL are mostly (96%) male-headed, whereas only two-thirds of those around the other (grains) farms are male-headed. In the South, most household livelihoods depend on cattle, and in the North, mostly on crops. Areas farmed were also different with larger areas cropped in the south by each family, probably reflecting the drier conditions and lower yields per hectare.

	Location of Community			
	SASL	SZL	SRL	Overall
Number of households surveyed	120	115	140	380
Male-headed households (%)	61%	75%	96%	77%
Average household size (people)	7	6	8	7
Average Distance to Market (Km)	8	20	22	17
Total Value of Assets (\$)	336	321	1,086	575%
households who see Silverlands as positive	93%	96%	93%	94%

\* Assume USD1: Kwacha10.

### Livestock and Cropping

SRL is in a dry area where families are primarily involved in cattle rearing. As such, the surveys reported that livestock ownership (including cattle, poultry and goats) is greater around SRL (~50%) than the other farms (~4%). In the Central Province, cropping is the primary practice. Overall, 60% of incomes are from employment, and 40% from livestock and cropping.

Livestock Ownership: % of households owning ...	Location of Community			
	SASL	SZL	SRL	Overall
Cattle (Average of male and female, old and young)	3%	1%	50%	20%
Goats	7%	1%	33%	15%
Poultry	11%	1%	45%	21%

### Assets

The communities surrounding the farms are extremely poor. The total value of assets owned was ~K11k (~\$1,100) around SRL and ~K3k (\$300) around the grain farms in Central Zambia. About half of households own cellphones, bicycles and radios. Only 4% own motorbikes, and 2% own cars/trucks.



### Access to Markets is a Key Challenge

The greatest challenge relating to marketing crops and livestock was the availability of transport and/or bad roads (54%); a lack of a market or a great distance to markets (23%). As such, on average 30% of small-scale farmers sell to middlemen (who are notorious for not paying fair prices). Markets are on average 8Km from homesteads around SASL and as much as 20Km from homesteads around SZL and SRL.

### Cropping Production

Families in the Central Province, primarily a cropping area cultivate 1.7 ha of land on average. Families around SRL cultivate ~5 ha of land reflecting the lower productivity and less reliable rainfall.

	Location of Community			
	SASL	SZL	SRL	Overall
Land Cultivated this season (ha)	1.8	1.6	5.3	3.1
Farmers growing legumes (%)	29%	41%	24%	30%
<b>Yields (t/ha)</b>				
Maize (t/ha)	2.2	1.4	1.3	1.6
Groundnuts (t/ha)	0.5	0.8	0.3	0.4
Soya beans (t/ha)	1.2	0.8	0.7	0.9
Mixed Beans (t/ha)	0.5	0.4	0.3	0.4

The main crop (33% of income) is maize. However, yields are low: ~1.6 t/ha for maize and very low at 0.9 t/ha for soya.

Demonstration plots near SASL have shown that 9 t/ha maize yields are possible using conservation farming techniques. Low small-scale farmer yields are likely due to poor farming practices. Only 30% of farmers grow legumes, which have significant benefits for soil health and maize yields when included in rotations. Training in agricultural practices is limited and only a third of farmers have received extension services, mostly provided by government. Farmers reported that their primary challenge related to the affordability and access to inputs, fertiliser and seed.

With the focus on maize, farmers purchase seed and fertilizer for maize. For other crops, seed is retained or recycled, and no fertilizer is applied. Overall, 44% of expenses, ~US\$500 per year, are spent on cropping inputs such as fertiliser, labour, tools and seed. The second greatest cost is education, which accounts for 19% of the family's expenses, ~\$200 per year.

	Location of Community			
	SASL	SZL	SRL	Overall
Income from Crop Sales (\$)	395	626	838	546
Spend on cropping inputs (\$)	431	391	505	490
% expenses spent on cropping inputs	42%	44%	41%	44%
Farmers purchasing maize seed (%)	77%	80%	88%	82%
Farmers purchasing fertiliser for maize (%)	79%	80%	85%	82%
<b>Markets: % of farmers selling to ...</b>				
Middlemen	45%	24%	20%	30%
Food Reserve Agency	19%	15%	19%	18%
<b>Extension Services</b>				
Farmers Receiving Extension Services (%)	42%	26%	20%	30%

\*Assume USD1: Kwacha10.

## Perception of Silverlands

94% of households view Silverlands positively. The consultant performing the surveys was impressed with the overwhelming positive response from the communities regarding Silverlands. Key drivers for this response were the provision of employment and, around SRL, for supporting the community dipping programme (SLIC).

### Observations on the survey: how can we help?

The baseline survey in Zambia has been very useful and has highlighted a number of ways that we can help small-scale farmers in our neighbouring communities:

#### 1) Improving yields

There is substantial scope to improve yields on maize and soya with the realistic potential to double these yields through using better farming techniques. This potential to double a farmer's income would be unheard of in any other industry, such as manufacturing, but this highlights the development potential.

*Potential Profits for Small-Scale Farmers Due to Increased Yields: Increasing yields from 1.5 t/ha (similar to that in the SZL/SASL area) to 4 t/ha increases net return five-fold from \$87 to \$402. An impressive increase in profits from a very achievable change in yields.*

Management level	Yield target (t/ha)	Production costs (USD)	Net Return (USD)
Zero	0.5	45	33
Low	1.5	146	87
Medium	4.0	221	402
High (manual)	6.0	405	528
High (mechanised)	8.0	737	507

The survey results confirm that there is an excellent opportunity for Silverlands to assist in the provision of training to improve cropping yields and small-grower farmer livelihoods. Silverlands have already engaged Foundations for Farming, an NGO who provides training in improved agricultural techniques, in particular the no-till/conservation farming techniques.

The box below shows the extraordinary results that have been achieved on Foundations for Farming demonstration plots near SASL using the same implements as small-scale farmers. Yields of 4 t/ha on soya on the demonstration plots compare to the average of 0.9 t/ha achieved by small-holder farmers. Maize yields of 9 t/ha compare to 1.6 t/ha on small-holder farms in the same area.

The scope for raised yields and incomes are clearly substantial. The photos below demonstrate to farmers the importance of planting on time, usually a mid-November planting date. For every week that the maize is planted late, the farmer loses around 1 tonne per hectare of yield. One tonne of maize is enough to feed a family for a year. These photos were all taken on the second of February and show how significantly different the crops look simply because of the time of planting.

### Demonstrating how yields are impacted by planting time: All photos taken on 2nd February



<b>Maize Planting Date</b>	<b>16 Nov</b>	<b>25 Nov</b>	<b>4 Dec</b>	<b>15 Dec</b>	<b>24 Dec</b>
Yields (t/ha)	9	8.3	7.3	6.5	3.4
<b>Soya Planting Date</b>	<b>25 Nov</b>	<b>5 Dec</b>	<b>18 Dec</b>	<b>29 Dec</b>	<b>4 Jan</b>
Yields (t/ha)	4.2	4	3.7	3.5	3.1

*Photographs taken of different plots on 2 Feb after planting on the dates detailed above.*

## 2) Providing a market

The introduction of a legume into rotation with maize (which is from the grass family) is, as discussed above, very beneficial, because it improves the soil nutritional content and reduces soil diseases. It also adds to profitability because the legume is typically at a premium price to maize.

In Zambia, there are already markets for soya beans (three processing plants) although the prices are relatively low currently at ~\$300/t vs historic prices of \$400-500/t. This compares favourably to the price of maize which, at the time of writing in September 2017, was only ~\$130/t. Other legumes such as sugar beans (~\$700-800/t) or ground-nuts (~\$500/t) are being investigated as alternative crops for neighbouring communities.

At SRL, farmers have been able to grow sunflowers successfully, a crop suited to the drier climate in the South of Zambia. The business has created a market for small-holder sunflower farmers by buying the sunflower cake to use in feed for the cattle. We are also investigating ground-nuts as this is a crop well-suited to the Southern region and to small-holder production.

## 4.6 Zambia: Small-scale grains farmers in the Central Province

Small-scale farmer cropping yields in the regions surrounding the Silverlands operations in Central Zambia (SZL and SASL) are generally poor. On average, yields are 1.75 t/ha for maize, and 1 t/ha for soya. Maize prices are relatively low in Zambia with US\$150/t being a reasonable expectation for a farmer over time. In the latest season prices have fallen further and have generally been in the \$110-130/t range. These low yields per hectare are devastatingly poor, when there is the potential to achieve yields over 5 t/ha for maize and 3 t/ha for soya in this area.

Another issue in the central and northern part of Zambia is the lack of dry storage and ~30% of the small-holder crop is typically lost because of this.

Following the Silverlands hub – out-grower model, Silverlands plans to construct grain storage facilities at their hubs (SZL and SASL), and purchase grains and legumes from small-scale farmers in the area. A key component of the success of this model is training for small-scale farmers to improve their yields. Silverlands have begun working with Foundations for Farming, an NGO based at Chengelo in the Mkushi area, very close to SASL.

Foundations for Farming provide a variety of training plans:

- Intensive training to interns who live at the training centre for half the week;
- Training to groups of small-scale farmers, termed Foundation groups, focused around demonstration plots within their communities; and
- Training to farm workers. Silverlands have sent employees on this training to improve skills in the labour force.

Silverlands have assisted with the construction of the Foundations for Farming training centre to facilitate the good work they do and is planning to set up demonstration plots at both Serenje and Kakushi so that we can encourage small-holder farmers to move towards conservation farming techniques.

Key farming methods which Foundations for Farming focus on are minimum tillage, mulching and crop rotation. One of the successes of Foundations for Farming is that the teachings are practical and relevant for rural settings where access to equipment and resources is limited. Financial and family principles are also included in the training. Also, once farmers have learnt the basics, training in vegetables, agroforestry and poultry rearing can be added.



*Grace Kunda was an intern with Foundations for Farming in 2015. She proudly stands with her soya crop where she has achieved a yield of 3 t/ha this year. Silverlands hope to assist in expanding the reach of Foundations for Farming in the area, and then provide a market for the grains produced.*



*Rotating between maize and soya can improve maize yields from 5.6 t/ha to 9 t/ha.*

## 4.7 Zambia: Silverlands Ranching Ltd

Silverlands has an expanding positive impact on the communities surrounding the ranch in south-western Zambia. It is a prime region for rearing cattle. Silverlands Ranching manages over 5,000 cattle on its ranch, some 21,000 ha (shown in red on the map following). The key thesis when acquiring the ranch in early 2014 was:

- 1) To develop cropping and add irrigated pasture to intensify the farm use
- 2) To integrate up the value chain through the addition of feedlots and processing
- 3) To build an out-grower program with surrounding small-holder farmers

A large dam (~13m<sup>3</sup>) was completed in 2014 and ~500 ha of irrigation was added in 2015. This has allowed the planting of irrigated pastures and crops to help feed the cattle and intensify farm usage. To develop the value-chain, a feedlot was built in 2016. This has successfully proven the model and helped to provide a market for small-holder cattle. The cattle in the feedlots have been fed from crops grown on the farm. The feedlot is to be doubled in size in 2017 and there are plans to develop a processing plant in future.

## 4.8 Silverlands Livestock Improvement Community ('SLIC') Programme

The communities around the ranch grow some crops for food and sale, but the primary focus is on cattle to sustain their livelihoods. Cattle are bred and seen as their 'bank', being sold for cash when required. The climate is hot and relatively dry with annual rainfall averaging ~600mm.

In 2014, SRL consulted extensively with the communities surrounding the ranch. This consultation identified 3 main issues faced by these communities:

- 1) High cattle mortality rates because of disease issues, particularly tick-borne diseases.
- 2) Lack of operational dipping stations and no veterinary support.
- 3) Lack of market for their cattle and vulnerability to traders. Around 40% of cattle transactions were between community members because there was no reliable market.



*Consulting with communities surrounding the ranch.*

The thesis to develop the beef value chain was thus confirmed given small-holder farmers' need for a reliable market. This helped the business case because it meant that it could grow to a far greater scale than one simply relying on offtake from SRL's own ranch.

Cattle disease was rife in the region prior to Silverlands' arrival. Livestock mortality was high and high disease incidence resulted in low calving rates. Farmers had to travel long distances to sell their cattle. In 2014, SRL established an extension service, hiring the first three 'Livestock Technicians', all Zambian veterinary graduates. They assisted in refurbishing several non-functioning cattle dipping stations in the community areas. This was done with the communities' help. Shockingly, the communities had not been 'dipping' their cattle for 17 years. The project was called the Silverlands Livestock Improvement Community programme ('SLIC').



Newly repaired dip station.



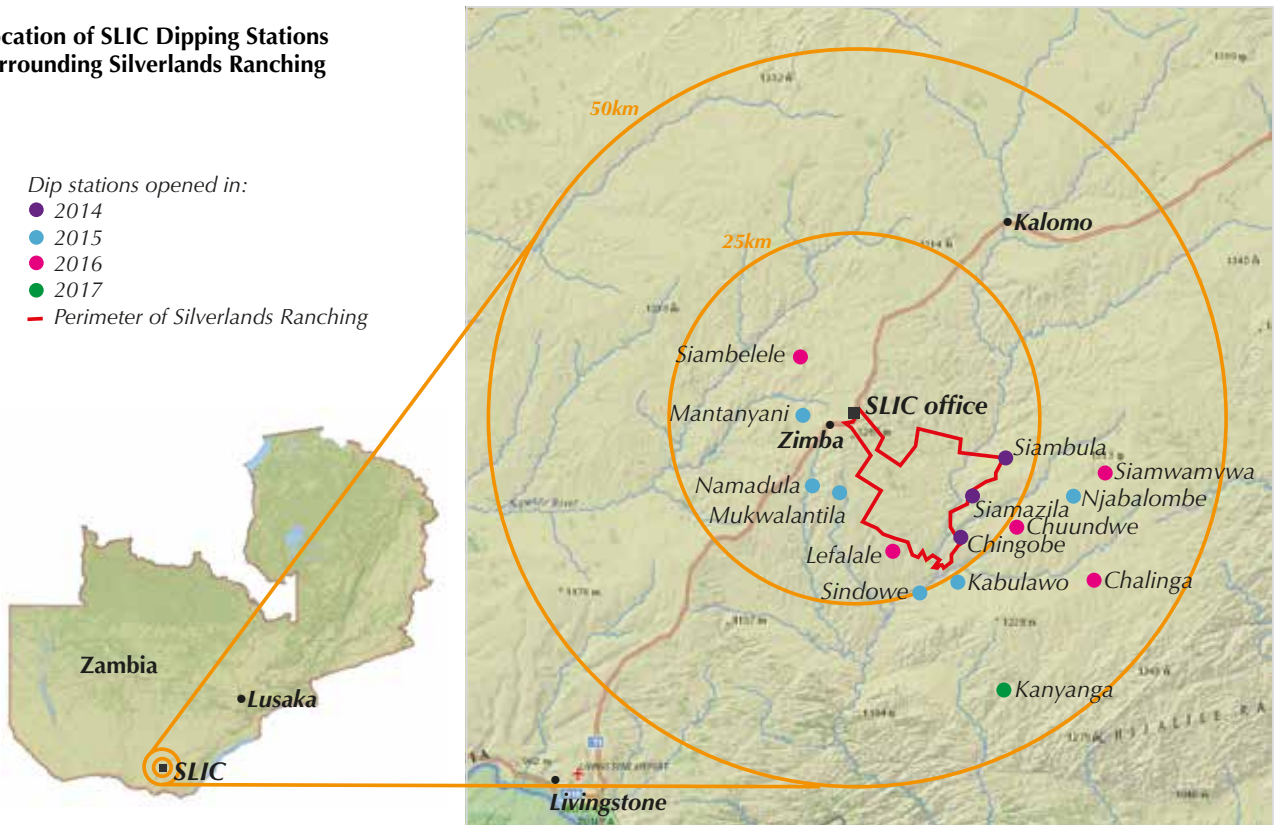
Repairing a dip station.

**Location of SLIC Dipping Stations surrounding Silverlands Ranching**

Dip stations opened in:

- 2014
- 2015
- 2016
- 2017

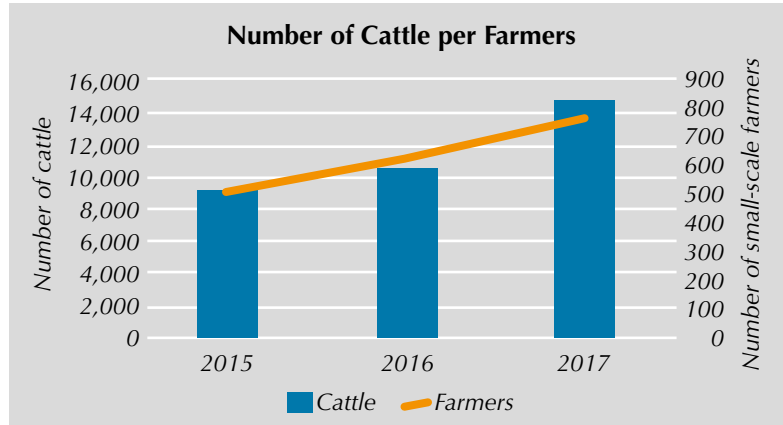
— Perimeter of Silverlands Ranching



The dip stations immediately attracted the attention of communities in the wider area. Silverlands, through SLIC, were invited by communities into their areas and asked to refurbish old dip stations, or to set up new spray races where no old dip station existed. The map shows the communities that are now part of the SLIC program and illustrates the continuous roll-out of the project in every year. Today, 14 dip stations are up and running and 770 farmers bring ~14,500 cattle bi-weekly to the dips to get rid of ticks and the diseases that accompany them. There are currently ~35,000 cattle ‘dippings’ a month, up from zero just 4 years’ ago.

I want to thank the Musika and Silverlands project, because it helps us a lot. So please, we beg you to still continue helping us.

Loveday Chakasala, Njabalombe dip station Chairman

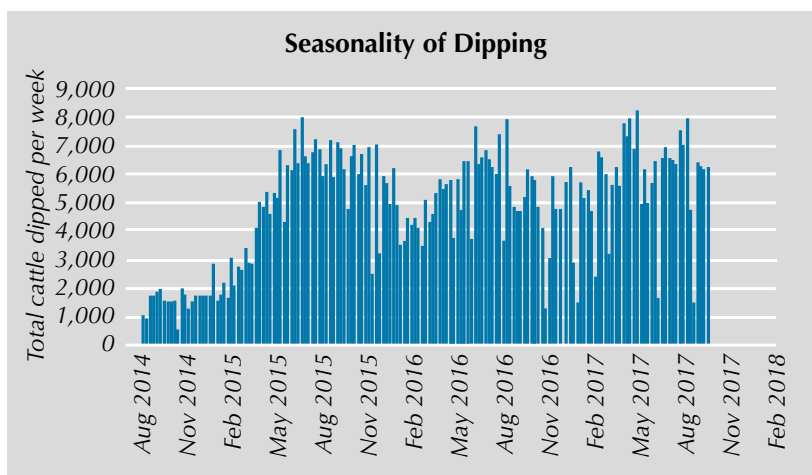


Nearly 14,500 cattle owned by 770 farmers are being dipped at SLIC dipping stations, an increase of ~40% over the last year.

SLIC’s Livestock Technicians are present at every dipping day, managing the acaricide (pesticide which targets ticks), water levels and pH in the dip tanks. They are trained in agrochemical handling, so community members do not need to be involved. The Livestock Technicians also come from a veterinary background and train community members in cattle management, as well as assisting with vaccinations, dehorning and other support when necessary. When required, expert veterinary advice is provided by Dr Moosa, the vet who also oversees the Silverlands herds.

Initially dip stations bustled with cattle brought from over 10Km away. The SLIC team decided to add more dip stations reducing the distances travelled by farmers and cattle (1-2Km instead of over 10Km in some cases). This has helped many of the farmers and each farmer and animal receives more careful attention from Livestock Technicians.

**Seasonality of Dipping**



Seasonality: Total Community Cattle Dipped in the SLIC Programme per week.

One of the challenges faced by Livestock Technicians has been to encourage farmers to diligently attend dipping. Although 14,426 cattle are in the programme, only 6-8,000 cattle are dipped each week. Farmers typically bring their cattle once every two weeks. Additionally, there has been some seasonality in the numbers dipped, in particular during

the Summer growing season (November – February) of each year. Farmers spend more time attending to their crops during the summer and therefore bring their cattle to be dipped on fewer occasions. Also, during heavy rains (such as in the 2016-17 wet season), some roads became impassable and access to the dip tanks was inhibited. We have helped to mitigate by adding dipping stations so that the distance to be travelled is shorter.



*Members of the Njabalombe dip station committee with SLIC Livestock Technicians  
Back Row: Loveday Chakasaala, Grevious Mulundano, Yonah Chimbonge, Harvey Kalomo,  
Patrick Siakacheta. Front Row: Emma Katango, Alines Phiri.*

Part of the success of SLIC is due to the buy-in from communities. Each dip station is run by a community committee which keep track of attendance, collect fees, provide water and maintain infrastructure. The dipping fees (ZMK 1 or \$0.10/animal) fund the daily expenses of the programme and the dip stations are self-financing with all financing managed by the community itself. Silverlands operate as invitees into the communities providing technical support and advice.



*The Njabalombe dip station is the largest with 3,000 cattle visiting it. To reduce the load, dipping is split into two days each week.*



*Cattle exiting the Mantanyani dip station.*





*Cattle counting requires focus.  
Njabalombe Chairman Loveday Chakasaala keeping track.*

Another success of SLIC is that the whole programme is integrated into the business model of the Silverlands commercial hub. Community cattle are required to help stock the feedlot. The feedlot is relatively new and still in its first phase, yet ~400 cattle have been purchased from community members in H1 of this year, with many more available. At capacity, the feedlot is expected to purchase over 4,000 community cattle per year. This market provides valuable income for small-scale farmers.



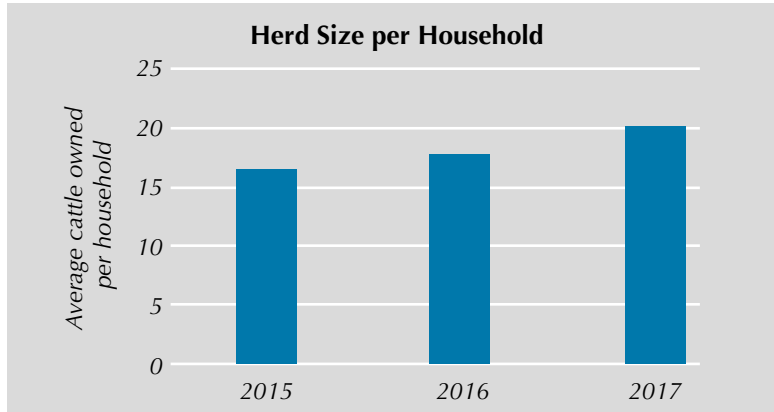
*Feeding time at the Silverlands feedlot. Cattle are sourced from Silverlands, other commercial farmers and small-scale farmers. Feed inputs are also increasingly being sourced from small-scale farmers.*

### **Quantifying the Benefits for Small-Holder Farmers**

The programme has resulted in remarkable improvements in the community herds. Average herd size per farmer has increased from 16 to 20 over the last two years. Assuming a value of \$250 for each head, the total herd value for each farmer has increased by \$1,000 over the last two years. Accounting for improved mortality and calving rates, each family has access to a potential additional income of ~\$486 per year (\$374k across the whole programme).

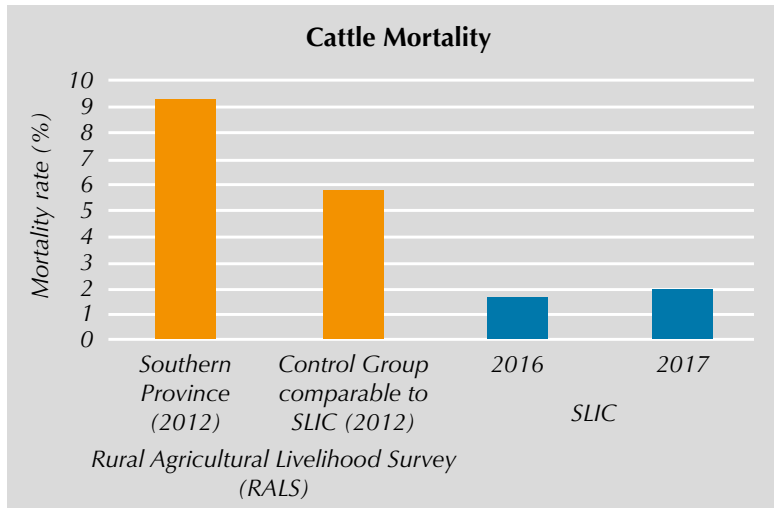
**I've got 92 cattle. I started dipping in May 2014. Some of the changes I've noticed since I started dipping are that the rate of tick attack has reduced, the mortality rate has reduced to zero, also the calving rate has increased. Even the skin of the animals has improved.**

*Simweemba Michelo, small-scale cattle farmer, Njabalombe dip station*



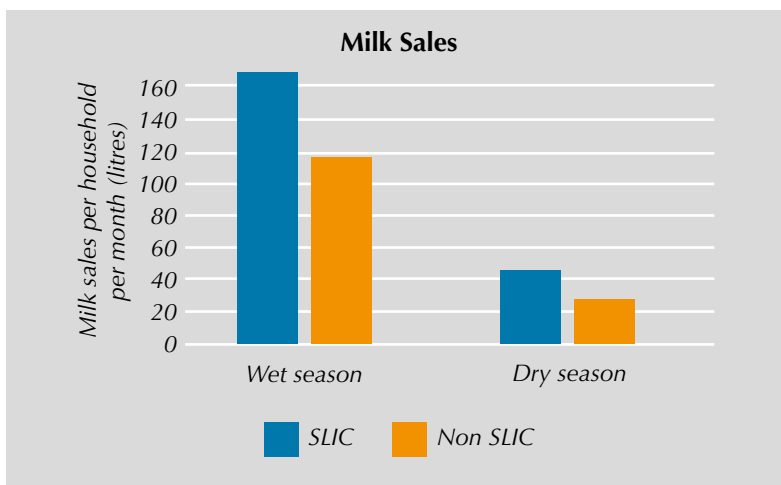
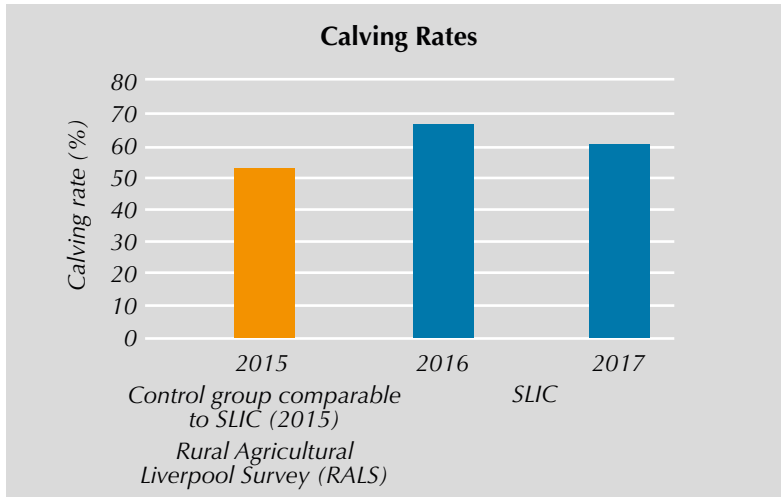
*Average herd size per family has increased consistently each year  
\*Gaps filled where data was missing for recent survey.*

In 2012 cattle mortality rates in the Southern Province of Zambia were 9.3% and 70% of households reported their herds had been affected by cattle diseases (Rural Agricultural Livelihood Survey, 2012). Mortality rates amongst cattle that are part of the SLIC program have reduced to 1.5%-2.1% implying a substantial benefit for these farmers.



*\* The Rural Agricultural Livelihood Surveys were conducted by the Food Security Research Project (FSRP) and Indaba Agricultural Policy Research Institute (IAPRI) in collaboration with Central Statistical Office (CSO) and the Ministry of Agriculture and Livestock (MAL). The 2012 data is for the whole Southern Province. The data reported for 2015 is for a subgroup of households from the Southern Province who were comparable to the SLIC households in terms of average herd sizes, proximity to towns and asset ownership.*

Calving rates have improved from 53% in 2015 to 61% now. There is a slight reduction in small-holder calving rates from 67% in 2016, largely because of the effect of the 2015/16 drought. The average calving rate across the two years of 64% is ~25% higher than the calving rate before the SLIC program.



Healthier cattle (in the SLIC programme) produce more milk, which can then be sold for profit. Milk production is 3 times more in the wet season. \* 2016 survey data.

### More than just a Dip Station

Dip stations are not just a functional facility for cattle management, they have become central meeting places for community members. Each dip station has one dipping day per week and community members often bring produce to sell or barter. Dipping days are social events often accompanied by much chatter, laughter and catching up on the latest news.



Dipping days are an opportunity to catch up with others in the community.

### Supporting Small-holder Cropping

SLIC is currently being developed further and integrated within each community. Farmers have typically grown small areas of crops as well as having cattle as their main income source. The main crop grown is white maize, a poor performer in dry climates. SLIC are planning to introduce farmers to a variety of different drought-tolerant crops via demonstration plots near the dipping stations. Families can then spread their risk across a diversity of crops and benefit from the assorted nutrition they provide. Excess crops can then be sold to Silverlands (and others), for example for processing into cattle feed for the feedlot. To facilitate the collection of crops within communities, Silverlands are currently building storage sheds at strategic points.

The SLIC team have started working with farmers on growing sunflowers, a crop well suited to a drier climate. Sunflowers are processed into sunflower 'cake', which is used in feed, and cooking oil.

We have helped to facilitate the purchase of sunflower cake for processing into cattle fodder for the feedlot and three sunflower seed presses were recently commissioned at the SLIC hub. Farmers bring their sunflower seed for pressing and take away the sunflower oil, paying for the service with the sunflower cake. A challenge of establishing the mills in the community areas has been access to electricity, housing, maintenance and management. In time it is hoped that these will be overcome to further reduce the distance farmers have to travel to process their sunflower seed. It is new in the area and farmers are testing it out, with some bringing only 8Kg while others have brought 700Kg in one go. The feedlot will require about 1,000 tonnes of sunflower cake a year, and it is hoped that in time most or all of this will be supplied from neighbouring small-scale farmers.



*The Njabalombe dip station. It is planned that demonstration plots will be established close to dip stations, where many people can benefit from them.*

### Next Steps

Looking forward, it is planned that the programme will continue to grow:

- Expand dipping stations and provision of technical advisory services from 14 currently to 28 by the end of 2020.
- Increase access to a formal market for small-scale cattle by expanding the Silverlands feedlot and developing a processing plant.
- Facilitate support from input suppliers for small-scale grains farmers.
- Expand production of small-holder sunflower cake.



### In Summary

Silverlands Ranching is demonstrating the hub – out-grower model in action. Both the communities and the businesses are benefiting, so it is a win-win for both. The Silverlands ‘Hub’ is providing a market for small-holder farmers in the area for cattle and for feed ingredients such as maize and sunflowers. It is also providing ongoing technical support thus raising calving rates, reducing cattle mortalities and increasing small-holder farmer incomes. Silverlands Ranching is benefiting from the increased scale possible in the feedlots and processing.

Despite the vast impact of the programme it costs relatively little to run, and its low-tech nature works well in rural Zambia. Integrating SLIC into the business model makes significant improvements in small-scale farmer incomes and ensures sustainability in the long-term.



*The Silverlands Ranching management hub with Luezi Dam in the distance.*

- Press Exposure

“ I take my cows to the dip station every week and I also sell some to Silverlands Ranching because the price is better than at the abattoir. ”

*Entry Jolezya, Zambia Daily Mail*

**Uniting Cattle Communities, Creating Fair Markets**  
**How Silverlands Ranching Limited is empowering small-scale farmers in Zimba**  
**Zambia Daily Mail, 7th August 2017**

**NKOLE NKOLE, Zimba**

BEING a small-scale cattle farmer in Zambia has its challenges; from disease risk, to worrying about the weather, the herd’s calving rate and even the market price.

When Silverlands Ranching Limited, an agricultural business based in Zimba, began operating, the company made the small-scale farmer its priority. A common refrain now heard in Zambia is that the best way to operate a farming business is to “do it the Silverlands way” after this comment was made by an MP in parliament. What does this mean exactly?

Prioritising the smallholder farmer was ensured through the inclusion of a hub-outgrower model surrounding its commercial enterprises as one of the cornerstones upon which Silverlands Ranching in Zambia is based.

This hub-outgrower model is aimed at impacting positively the lives of smallholder farmers surrounding the main hub by improving access to health care, opening new and fair markets and assisting with technical and skills transfer.

This model is specifically enshrined in the Silverlands Livestock Improvement Community programme (SLIC), a branch of the Silverlands Ranching Limited aimed at improving smallholder livestock in and around the southern part of Zimba district.



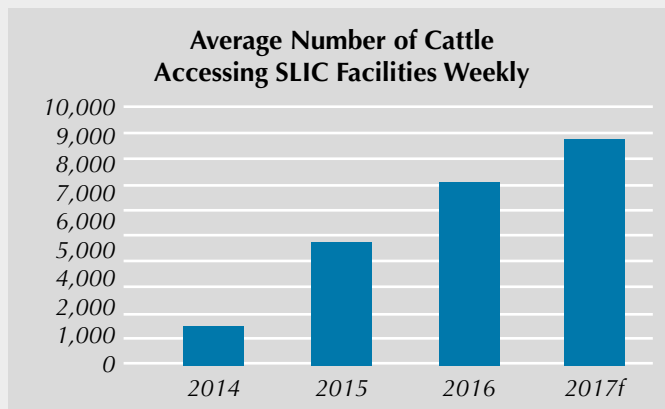
*Farmers get their cattle dipped at the various dip stations being run by Musika/ Silverlands Ranching partnership in Zimba district.*

**INITIAL CONSULTATION WITH COMMUNITIES**

Silverlands consulted extensively with its neighbouring communities shortly after its parent, SilverStreet Capital, a UK-based agricultural investment firm, invested into the business. This consultation highlighted a number of difficulties that the smallholder cattle farmers were facing. There had been little dipping of cattle for over 15 years, so tick-borne diseases were a problem. The farmers were not getting any veterinary support and there was no local market for the cattle, so they were being taken advantage of by ‘traders’.

**SLIC IN ACTION**

At the start of the SLIC programme in 2014, three ‘livestock technicians’ were hired and housed on the farm. These were veterinary graduates involved in the re-introduction of dips of animals and the provision of basic health care. For a fee of only K1, farmers get their cattle dipped at the various dip stations being run by Silverlands Ranching in the district. These fees are administered by the community and proceeds are used to pay for costs on managing the dips.



This was done in collaboration with Musika, a Zambian non-profit organisation that supports private sector investments in the smallholder market.

The SLIC/Musika partnership has been ongoing for over two years and results of this partnership have been fruitful. Musika provides technical advice and acts as a facilitator that puts Silverlands Ranching in touch with other organisations through established networks.

The livestock technicians find their way around Zimba communities using motorbikes that were originally donated by Musika. Musika has also supported Silverlands Ranching with a field vehicle.

**Zambia Daily Mail (cont.)****7th August 2017**

In the last two years, Silverlands Ranching has expanded its ongoing projects in Zimba. The SLIC programme has now opened up 14 dip stations for smallholder farmers, up from nine in 2015 and zero in 2013 before SilverStreet invested.

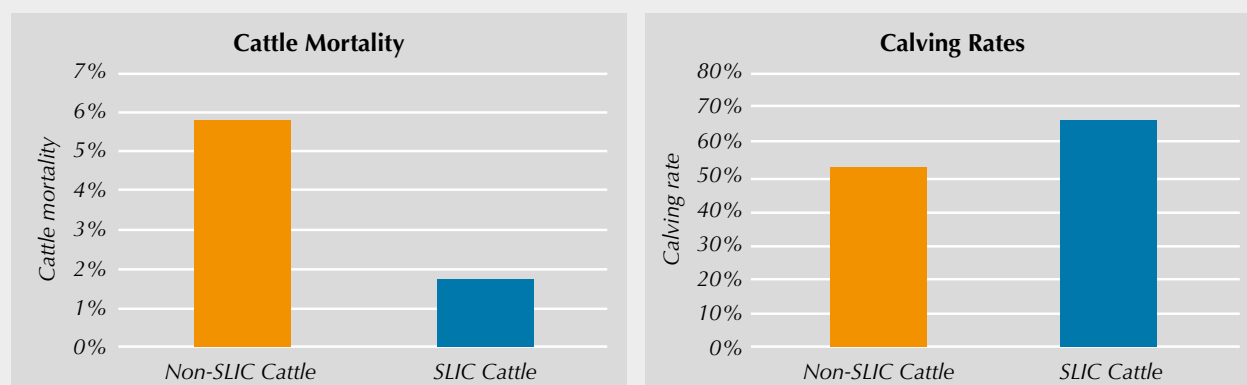
This means more farmers are now accessing their facilities in Zimba area, protecting their cattle from tick-borne diseases.

Central to the work of Silverlands Ranching in the Zimba area are a set of individuals called livestock technicians who act as agents between Silverlands Ranching Zambia and local farmers in Zimba.

Harvey Kalomo is a livestock technician with Silverlands Ranching and his job involves making farmers knowledgeable about good animal health.

“I make sure farmers come to the dip stations on designated days to dip their cattle and whenever a farmer has a cow affected by disease I assist that farmer. If a cow is sick I get the history of how long the animal has been sick and if at all it has been given any medication before I attend to it,” he shares.

Harvey says Silverlands Ranching has greatly helped reduce the disease burden among animals in Zimba area and farmers have readily embraced the positive changes that have resulted from getting their animals dipped.



The benefits have been immediate and powerful. Silverlands measures a number of variables annually to assess the progress in the surrounding community herds. The latest survey showed a collapse in smallholder cattle mortality rates from six percent to around 1.5 percent, largely because of the drop in tick-borne diseases. For a typical farmer with 20 head of cattle, this means on average one less death per annum, a huge saving.

Apart from being treated at the dip stations as a preventative measure against disease, animals are also dehorned, castrated and branded.

Lewis Mutinta has also noticed the change that the work of Silverlands Ranching has brought to the Zimba farmers.

Like Harvey, Lewis is a livestock technician working under Silverlands Ranching in Zimba.

Common cattle diseases in Zimba area include the deadly East Coast Fever (ECF), blackleg and anthrax.

According to Lewis, there used to be many animal deaths recorded from corridor disease but because of the animals getting treated through dipping, hardly any deaths are recorded and the quality of the cows has improved as well.

Healthy cattle means more calves, and calving rates have improved dramatically. Silverlands' latest survey shows that calving rates for communities not yet in the SLIC programme was around 50 percent, whereas it was over 65 percent for communities that are in the SLIC programme. For a smallholder farmer with 20 cows, this means three extra calves a year, an enormous boost for these farmers.

The programme also continues to be a success story of Silverlands Ranching through the creation of an increasingly disease-free corridor around the ranch reducing bio risk dramatically for the commercial enterprise.

**NEXT STEP – DEVELOPING A LOCAL MARKET FOR CATTLE**

One of the major projects started by Silverlands Ranching this year has been the development of a feedlot through which the company is now buying animals from small-holder farmers in Zimba, thus creating a local market.

Lewis, the livestock technician, says, “Silverlands Ranching is not just dipping animals every week but is also providing a market to the farmers by buying their cattle, so the livelihoods of the farmers have improved because of these projects,” Lewis emphasises.

**Zambia Daily Mail (cont.)****7th August 2017**

The creation of two main feedlots has significantly improved the quality of cattle coming out ofimba.

The feedlots were opened earlier this year and already the response fromimba's farmers has been overwhelming. Farmers have the chance to sell their locally bred cattle to Silverlands Ranching since the creation of the feedlots.

The SLIC programme guarantees that Silverlands Ranching gets good quality healthy animals delivered to its door from local farmers who are now regularly dipping their animals.

Silverlands Ranching feeds them and once they are fattened up and ready for processing, they are then sold to the abattoir.

Feedlot manager, Andrew McKechnie says the cows are fed and vaccinated for about 30 days before being taken to the feedlot.

"Usually they come in at around 250 kilogrammes on average and they leave at around 400 or 450 kilogrammes," he says.

The cattle are all from theimba community and local villagers walk them to the feedlot before Silverlands Ranching buys them over a scale on a live weight.

After they are vaccinated, dipped and dosed for worms, they are then fed in the feedlots and are usually ready for sale after three to four months.

The cows eat an average of 20kg of fresh food every day to gain around 1.4kg or 1.5kg a day. "The farmers usually bring them here after walking for many kilometres, so we allow the animals to overnight (rest overnight) and we give them food and some water then we put them over the scale," Mr McKechnie explains. Once the animal is relaxed and gets used to its new environment, the sale to Silverlands can take place.

Mr McKechnie says they were overwhelmed in the beginning especially during peak buying season.

Even though it is presently still outside the peak season, Silverlands Ranching is still receiving 30 to 50 animals a week from local farmers and hopes to carry it on and expand it later as well.

In the commercial feedlot, Silverlands Ranching has about 20 feeding pens where 80 cattle are fed in each pen. They plan to double it in the coming months.

Most of the cattle in the commercial feedlot are uniform or of the same size and age and do well as a result of this uniformity.

"We started with some animals in January from the ranch, that got us started with about 650 and now every month we try and buy 400 animals to keep us going," Mr McKechnie says.



*Cattle being fed in the feedlot.*

**...PLUS EXPANDING SMALL-HOLDER CROP PRODUCTION LOCALLY...**

Most of the food that the animals are fed has to date been grown on Silverlands ranch on centre pivots in the summer and is called maize silage. Silverlands is now actively encouraging neighbouring smallholder farmers to grow crops, which it can buy and convert into stock feed. This helps provide the farmers with a second income.

"The key to our success here is being able to feed the animals good quality food. The SLIC programme guarantees that we receive healthy cattle delivered to our door from villagers who are now dipping them every week and maintaining high standard animals throughout the year," Mr McKechnie says.



"We have now started promoting the growing of sunflower and other crops such as yellow maize, both of which can be used as inputs to create feed."

Yonah Chimbonge is the third livestock technician working under Silverlands Ranching who says, "Silverlands Ranching is encouraging small-holder farmers to diversify. With sunflower the growth rate is faster, meaning they can have income earlier than with maize," Yonah says.

imba farmers who are growing sunflower take it to a mill or an expeller where the oil is taken out. They keep the oil for themselves for cooking before selling Silverlands Ranching the sunflower cake, a good source of protein to put into feed.



**Zambia Daily Mail (cont.)****7th August 2017**

“We would rather buy sunflower cake than sunflower from the local small-holder farmers because they are adding value to their crop by processing it into sunflower cake and oil. We help with processing for those farmers who cannot do this. We want to increase these purchases.” Mr McKechnie says.

Silverlands Ranching is basically providing a market for the farmers by buying the sunflower cake and it is deliberate about promoting business in the community and not taking business away from people.

**... AND CREATING STORAGE FOR SMALL-HOLDER CROPS**

In partnership with Musika, Silverlands Ranching is presently putting up sheds in strategic places in the communities to facilitate crop harvesting in the district. “We have seven sheds being built and once the slabs are done the sheds will be constructed,” Mr Wessels explains.

Seed and fertiliser is distributed in the area late which means farmers begin to plant late but Silverlands Ranching has taken the step to try and have seed and fertiliser delivered to the farmers early in the farming season.

Different feed ingredients are packed inside the Silverlands Ranching food-shed and loaded into a mixing wagon, which then goes to the feedlot and is emptied off into the feed troughs there.

**THE SILVERLANDS WAY**

A united cattle community and commercial operation now exists around the ranch reducing burning, livestock theft and poaching. Silverlands Ranching also continues to ensure the production of ever improving cattle quality.

The benefits for the small-scale farmer can best be explained by the farmers themselves. Entry Jolezya was based in Mazabuka before moving to Zimba to start farming.

He says cattle theft in Mazabuka was higher than in Zimba, which is the reason he chose to relocate. “I take my cows to the dip station every week and I also sell some to Silverlands Ranching because the price is better than at the abattoir,” Entry says.

Not only is there a reduction in cattle mortalities through access to a regular dipping programme, but a market where the small-scale farmer will be able to realise improved returns for better quality animals has also been created.

Ultimately, Zimba’s farmers are now more commercially minded and their attitude towards cattle health has completely changed.

Silverlands has executed three main actions: supporting smallholder farmers, creating a market and encouraging farmers to diversify into crops. For these smallholder farmers, this has led to dramatically lower cattle mortality rates, a huge increase in cattle calving rates, better prices for cattle and supplemental income from cropping. This means substantially higher income for these smallholder farmers. That is the Silverlands way!



*The animals are also dehorned, castrated and branded as a preventative measure against diseases.*

## 5 Our Direct Impact

### 5.1 Impact Through Employment

Our portfolio companies are key employers in their operating areas which are typically rural and with little other high-paid work available. Since making the investments, the number of people employed by each portfolio company has increased.

Silverlands now employs about 6,200 people, up 40% from the number employed (~4,500) when the businesses were purchased. If we exclude Crookes Brothers from this calculation then the increase in employment has been 69%. The table below shows the employment increase by business. In all the businesses apart from SVL, CBL and Achill (which were already established companies and large employers), numbers employed have increased by a multiple of the original number, typically three- to four-fold up.

Another interesting aspect of the figures is that most of the increase in employment has occurred in those countries which have lower average incomes per capita. If we exclude South Africa and Namibia, both middle income economies with GDP per capita of ~\$4,000-5,000, then the balance of the portfolio is in Zambia, Tanzania and Mozambique, all countries with lower incomes per capita. In these countries, we have raised employment from ~500 to ~1,800, an increase of 270%.

#### Increase in Employment

Portfolio Company	Number of Employees			
	At purchase	Current	Change	Increase
Silverlands Tanzania	248	680	+ 432	2.7 x
Silverlands Ndolela	78	401	+ 323	5.1 x
Silverlands Zambia	53	175	+ 122	3.3 x
Silverlands Agriculture Services	16	208	+ 192	13.0 x
Silverlands Ranching	86	311	+ 225	3.6 x
Silverlands Vineyards	1,104	1,240	+ 136	1.1 x
Achill	555	578	+ 23	1.0 x
Crookes Brothers*	2,365	2,593	+ 228	1.1 x
QBV	4	23	+19	5.8 x
<b>Total</b>	<b>4,509</b>	<b>6,209</b>	<b>+ 1,700</b>	<b>1.4 x</b>

\*CBL numbers adjusted for farm sales and outsourcing seasonal workers.

By employing more people, we put more money into our surrounding communities. The employment typically involves skills training and technical development. The increases in salaries are more magnified than the increases in employment because the incremental jobs are higher paid. Using Silverlands Tanzania as an example, employment numbers have risen by 2.7x. However, the jobs that have been created are higher paid than those generally available in the area as they involve the management of the processing plant, the poultry, the farm's irrigation etc. The annual salary spend increased a staggering 22x from \$119,000 to \$2.7m in 4 years. This is a sizable increase in regular incomes injected into the surrounding community and has resulted in a noticeable increase in development in the surrounding areas.

## Salary Spend

Portfolio Company	Annual Salary Spend				\$ Value of Current Annual Salaries
	Currency	At purchase	Current	Increase	
Silverlands Tanzania	TSH	191m	6,027m	31.6 x	2.7m
Silverlands Ndolela	TSH	148m	2,020m	13.6 x	0.9m
Silverlands Zambia	ZMW	0.5m	11.7m	23.4 x	1.2m
Silverlands Agriculture Services	ZMW	0.1m	9.9m	99.0 x	1.0m
Silverlands Ranching	ZMW	0.7m	12.4m	17.7 x	1.3m
Silverlands Vineyards	NAD	23.2m	34.8m	1.5 x	2.5m
Achill	NAD	4.4m	9.2m	2.1 x	0.7m
Crookes Brothers	ZAR	95m	162.8m	1.7 x	12.1m
QBV	MZN	0.2m	3.7m	18.5 x	0.1m
<b>Total</b>				<b>(Avg) 23.2 x</b>	<b>22.5m</b>



*Silverlands Ndolela currently has ~1,400 ha of cropping, irrigated from a 7Km canal, soon to be powered by hydro-power.*

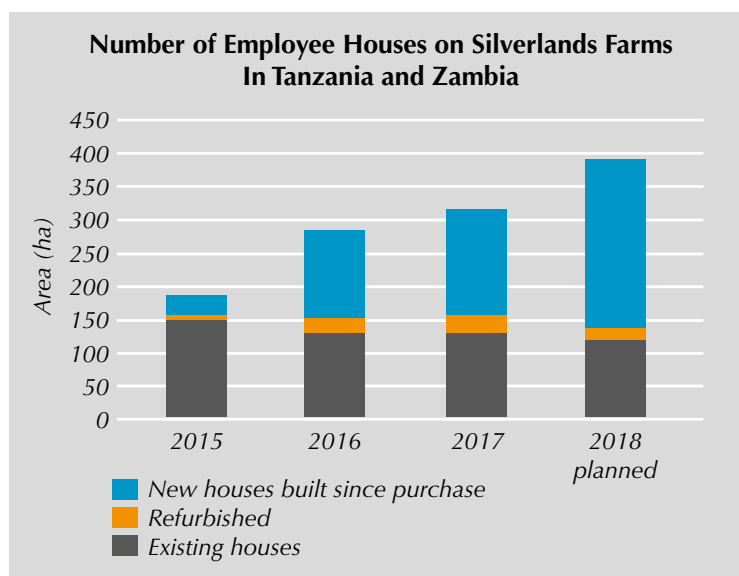
## Our impact through additional jobs created and household persons benefiting

Portfolio Company	Business/Product	Country	Employees			Job Creation Effect from Employment	Household Person Impacted	Total Impact
			Permanent & Seasonal	Permanent	Seasonal	Direct, Indirect, Induced Jobs (3x perm. jobs)	Employment (9x total employment)	
Silverlands Tanzania	Feed, poultry, grains and cattle	Tanzania	680	328	352	984	6,120	<b>7,104</b>
Silverlands Ndolela	Grains and cattle	Tanzania	401	170	231	510	3,609	<b>4,119</b>
Silverlands Zambia	Grains	Zambia	175	172	3	516	1,575	<b>2,091</b>
Silverlands Agriculture Services	Grains	Zambia	208	130	78	390	1,872	<b>2,262</b>
Silverlands Ranching	Cattle, cropping, feedlots	Zambia	311	218	93	654	2,799	<b>3,453</b>
Silverlands Vineyards	Table grapes and distribution	Namibia	1,240	127	1,113	381	11,160	<b>11,541</b>
Achill	Table grapes and distribution	Namibia	578	42	536	126	5,202	<b>5,328</b>
Crookes Brothers	Sugar Cane, Fruit, Macadamias	SA, Swaziland, Mozambique, Zambia	2,593	1,102	1,491	3,306	23,337	<b>26,643</b>
QBV	Fruit (bananas)	Mozambique	23	8	15	24	207	<b>231</b>
<b>Total</b>			<b>6,209</b>	<b>2,297</b>	<b>3,912</b>	<b>6,891</b>	<b>55,881</b>	<b>62,772</b>

## 5.2 Employee Housing

One key factor to a happy and productive workforce is ensuring they live in quality housing in pleasant environments. The Crookes Brothers operations are for the most part established, with ongoing programmes to refurbish and upgrade existing housing. One initiative is the construction of newly designed seasonal worker housing on the deciduous fruit farms. Previously in a dormitory set-up with communal facilities, now each team of workers has a dedicated building which includes kitchen and ablutions. Overall, the new designs have resulted in a sense of ownership and reduced maintenance requirements.

The Silverlands farms were mostly non-operational at acquisition. The limited housing that was present were often in need of upgrading. Housing has therefore been a focus of farm development over the last few years. At the three Silverlands operations in Zambia alone, 126 new houses have been constructed over the last 3 years. While also constructing dams, management hubs, developing cropping lands, and installing pivot irrigation, this has been an impressive achievement.



General worker housing at Silverlands Ranching built with hydraform bricks.



*A middle management house at Silverlands Agriculture Services (Kakushi) in Zambia, where all energy requirements are provided by solar power.*



*A general worker house at Silverlands Zambia (Serenje). These are arranged amongst the trees in a woodland, with 5 houses sharing ablutions. Housing uses pre-moulded hydraform bricks and designs. The designs are such that general worker houses can be doubled in size in future (hence the lack of windows on the one side).*

### 5.3 Skills Development

A trend across all our Portfolio Companies is a general lack of skills, particularly amongst general workers and junior-middle management. Our operations are world class and aim to raise the bar of skills within our workforces. Much of this is through on-the-ground training whereby our experienced senior managers feed knowledge into their teams. In addition to this, a wide variety of formal training is performed.

Theme	Specific Topics
Safety	Fire-fighting, health and safety, first-aid, safe handling of chemicals, emergency response.
Health and wellness and disease control	HIV/AIDS education; malaria spraying, testing and knowledge dissemination.
Operating machinery	Tractor, grader, excavator, motorbike, forklift, knapsack, chainsaw, combine harvesters, pump stations, pivots, etc.
General agricultural skills	Plant production, irrigators, pruning, pest and disease scouting, sprayers, conservation farming.
Livestock	Biosecurity, cattle handling, poultry production, poultry brooder management (see more under Tanzania poultry section).
Finance, IT	Payroll, Excel, tax, capital allowances, internal auditing. Also, basic financial understanding and planning for general and seasonal workers.
Governance	Anti-bribery and corruption, harassment, whistle-blowing, etc.
Other	GlobalGAP, Hazard Analysis and Critical Control Points (HACCP), teambuilding, etc.



*Crop management: here the Arable Manager at SZL (Andre van Wyk) is teaching team members, Francis Kunda and Pethias Ndabila, how soya bean nodules fix nitrogen.*



*Staff fire-fighting training at Silverlands Zambia.*

### Employee Wins Prestigious Worker of the Year Award: Anton Alexander



Anton left school without finishing his school leaver exams and started at Crookes Brothers Limited (CBL) as a general worker in 1996. He progressed to tractor driver and then production induna (supervisor). He was determined to progress his studies, taking part in the evening Adult Basic Education Training (ABET) training which CBL provided and he went back and completed his school leaver (Matric) exams. He was elected as a shop steward by his colleagues, and later as chairman of the wage negotiations committee for 4 years. He became an Assistant HR Officer in 2008. He has continued studying, receiving a certificate in business administration in 2015, funded by CBL, and he is currently studying HR management. His drive, passion, approachability and success are reflected in him receiving the prestigious Western Cape Agri Worker of the Year in 2016.

## 5.4 Increasing Food Production

Despite a significant drought, production has still increased since purchase. Across all our farms, production for the last cropping season totalled over 650,000 tonnes. Food production has risen substantially since Silverlands bought the farms: fruit production has risen 70%, row crops (mostly grains and soya) is up over six-fold and cattle numbers are up five-fold. Silverlands Tanzania produces over 4m chicks, up from zero and, 15,000 tonnes of feed, up from zero.

Excluding sugar cane which tends to distort the figures because of the large volumes needed, overall food production has increased by close to 8-fold since acquisition, an enormous change to date.

### Production Volume Summary

Product	Year Prior to Acquisition	Current Year	Change	Multiple of start value	Cropping Area (ha)
<b>Livestock</b>					
Cattle	778	3,924	3,146	5.0 x	
Day Old Chicks	-	4,434,871	4,434,871		
<b>Processing</b>					
Poultry Feed (t)	-	15,083	15,083		
<b>Row Crops</b>					
Barley (t)	460	4,048	3,588		639
Seed maize (t)	1,401	1,930	530		319
Commercial maize (t)	-	7,139	7,139		1,023
Soya beans (t)	125	10,909	10,784		3,275
Seed beans (t)	-	250	250		100
Potatoes (t)	-	2,876	2,876		144
Seed potatoes (t)	-	404	404		20
Wheat (t)	6,614	17,282	10,668		2,495
Silage (t)	-	7,184	7,184		152
Canola (t)	-	387	387		129
<b>Row Crops Total (t)</b>	<b>8,600</b>	<b>52,409</b>	<b>43,809</b>	<b>6.1 x</b>	<b>8,296</b>
<b>Plantation Crops</b>					
Sugar Cane (t)	552,728	571,066	18,338	1.0 x	6,544
<b>Fruit Crops</b>					
Grapes (t)	3,198	2,728	-470		350
Deciduous fruit (t)	14,900	32,076	17,176		661
Bananas (t)	12,618	17,171	4,553		413
<b>Fruit Total (t)</b>	<b>30,716</b>	<b>51,975</b>	<b>21,259</b>	<b>1.7 x</b>	<b>1,424</b>
<b>Tree Nuts</b>					
Macadamia nuts (t NIS)		140	140		361
<b>Total Crops (incl sugar cane)</b>	<b>592,044</b>	<b>675,590</b>	<b>83,546</b>	<b>1.1 x</b>	<b>16,625</b>
<b>Total Crops (excl sugar cane)</b>	<b>39,316</b>	<b>104,524</b>	<b>65,208</b>	<b>7.8 x</b>	<b>10,081</b>



## 5.5 Reducing Imports and Carbon Footprints

By increasing the quantity of food grown locally, our farms reduce the need for imports. Importing food is often costly for the country, and has the negative consequence of the carbon emissions released during transportation. Our produce therefore lowers the carbon footprints of our host economies. In Zambia, our grains already contribute notably to national production, with Silverlands producing a projected 3% and 8% of the national production of soya and wheat respectively in 2017. And this is set to increase.

Production Volume	Silverlands production in Zambia 2017 (t)	Zambia National production 2017 (t)*	Proportion grown by Silverlands
Soya Beans	9,621	351,416	3%
Wheat	16,184	193,713	8%

\* Minister of Agriculture forecast May 2017

[http://www.agriculture.gov.zm/index.php?option=com\\_content&view=article&id=357:cfs&catid=100&Itemid=1546](http://www.agriculture.gov.zm/index.php?option=com_content&view=article&id=357:cfs&catid=100&Itemid=1546).

In Tanzania, our seed maize grown reduces the need to import it from elsewhere. Also, before we began Silverlands Tanzania, and implemented the first poultry feed mill, Tanzania was importing its entire soya requirement. We are now both growing soya on our Silverlands Ndolela farm and purchasing from local small-scale farmers. We would expect Tanzania to become self-sufficient in soya over the next 8-10 years through our initiatives.

Apples and pears are sold through Two-a-Day (of which CBL own 19%). Sold into 65 different countries, the volume directed into the African market has increased. Closer than having to transport fruit to Europe or the Middle East, the African market therefore means the apples and pears ultimately have a lower carbon footprint.



Sorting apples, marketed through Two-a-Day (19% owned by CBL), South Africa.

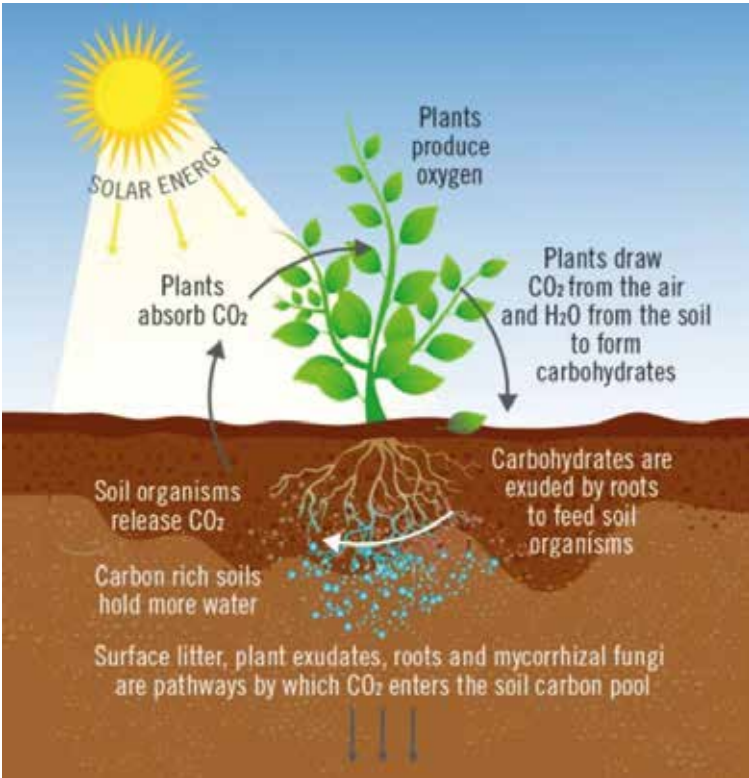


Selling more apples and pears into African (rather than European markets) reduces the carbon footprint of transportation.

**Minimum Tillage Reduces Carbon Released to the Atmosphere**

Our farmers practice minimum tillage. All the small-scale grains farmers we work with are also encouraged to practice conservation agriculture, which includes minimum tillage. Not tilling the land maximises the carbon retained in the soil as organic matter. Along with improving soil structure, moisture, nutrient levels and yields, this also reduces the carbon dioxide and other greenhouses gases which are released form the soil into the atmosphere.

**The carbon cycle illustrates the importance of minimum tillage farming to increase soil carbon**



**5.6 Increasing Access to High Yielding Seed**

We aim to improve other farmers’ yields through the production of high quality seed which is robust in the local conditions. In Tanzania, the nearly 2,000 tonnes of seed maize produced may be used to plant 77,000 ha of maize by small-scale farmers. Overall, we estimate our seed (maize, potatoes and soya) will be grown by 52,000 small-scale farmers in Tanzania. In addition, we produced 250 tonnes of seed beans which will be exported.

Seed Production	Current year production (t)	Seed planted per ha (t)	Area planted with our seed (ha)	Area per small-scale farmer (ha)	Number small-scale farmers
Seed maize	1,930	0.025	77,204	2.5	30,882
Seed beans	250	0.05	5,000	0.25	20,000
Seed potatoes	404	2.5	162	0.25	646
Seed soya	42	0.08	525	1	525
<b>Total</b>	<b>2,626</b>		<b>82,891</b>		<b>52,053</b>



*Growing seed maize is a specialised task. Male plants (with tassels) pollinate the female plants to result in a good genetic blend in the resulting seeds. Every female plant has to be “de-tasseled” to prevent self-pollination.*



*Mixing male and female breeds in seed-maize results in a distinct patterning to the fields.*

## 5.7 Supporting SMEs

A number of contractors have directly benefited from our developments. A few case studies follow:



Hilary Lupumbwe was previously working as a manager in a construction company. He now owns his own construction company contracted to Silverlands Ndolela in Tanzania and has given jobs to 21 local community members. With his increased personal income he was planning to build a new house and plant a hectare of timber trees.



Isaac Kabogo operates a transport business. Before Silverlands began in Tanzania, he owned 6 trucks. Now he runs 10 trucks, with Silverlands as his biggest customer. With his additional income he's paid school fees and generally improved his quality of life.

## 5.8 Corporate Social Responsibility

We realise the lasting impact donations and assistance can have to our surrounding communities and every farm contributes in some way. As a group, Crookes Brothers spent a little over ZAR 500,000 last year and are budgeting over ZAR 750,000 for 2018, including indirect costs.

Across our investments the general focus is on improving access to healthcare and education. This includes contributions to construction of school rooms, teacher houses, clinics, spraying around housing to prevent the spread of malaria. Also, donations of desks, beds, training materials, have all been well-received. On a lighter note, some sponsorship has also been directed at sports teams and celebrations.



*Silverlands Tanzania contributed to the completion of the clinic in the neighbouring Muwimbi community. They are now working with government to supply it.*



*Silverlands in Zambia has contributed towards the construction of the Foundations for Farming training centre which is a hub of conservation farming training for small-scale farmers. Some of our employees have also attended training to generally improve skills in the workforce.*

In early 2017 we were able to source desks opportunistically. A visit to the fund's legal advisor, Dechert, at their London office, revealed that they had decided to renovate their meeting room floor. The old desks seemed to have no planned home post-renovation so a deal was struck with Dechert donating the desks and SilverStreet paying for the container to ship them to 7 schools in need of desks.



*Seven schools in Mpumalanga, South Africa, received donations of desks from Dechert and SilverStreet Capital in the UK. Mgbho Combined School receiving new desks.*



*Ndlavela School receiving new desks from Dechert and SilverStreet Capital.*

## 5.9 Tax Contributions

Portfolio Company	Country	Tax Paid
STL	Tanzania	Nil
SNL	Tanzania	Nil
SZL	Zambia	\$7,891
SASL	Zambia	Nil
SRL	Zambia	Nil
QBV	Mozambique	Nil
SVL	Namibia	Nil
CBL	South Africa, Swaziland, Mozambique, Zambia	ZAR 34.7m

*Nil values are because companies had tax credits or were in a loss position for tax purposes. All data is for the financial year ending December 2016, except CBL which is March 2017. CBL: tax value excludes taxes paid on operational and capital expenditure.*

## 6 Managing ESG Aspects

### 6.1 Governance Structures

The Silverlands Fund has eight Portfolio Companies and our goal is to put in place high levels of governance through the structure of the boards and associated board committees.

**Responsible Investment Code:** The boards of all eight Portfolio Companies have signed up to the fund's investment code.

**Independent Directors:** We aim to have a minimum of 2 independent directors as this helps to bring an independent perspective, local networks and expertise in the sector. We aim for one of the independent directors to be of sufficient stature to chair the board meetings.

**Board mix:** The Silverlands Fund owns 100% of the equity in 6 Portfolio Companies. In these companies, the target board structure is usually:

- Two independent board members
- Two executive members (the MD and CFO)
- Two SilverStreet members In some countries, there are regulatory rules on board membership which also need to be followed.

In Zambia as an example, at least half of the board must be resident in Zambia.

**Board committees:** We have also put in place board committees to deal with key specific governance issues. The key two committees we target creating are the audit committee and the remuneration committee. The audit committee has the role of overseeing the annual audit process and interacting with the auditors to understand any issues arising and any debates on accounting practices. This allows detailed review and checks. The remuneration committee principally approves the remuneration of the senior team members in the Portfolio Company as well as approving the annual bonus scheme and any long-term incentive plans. This committee also reviews and recommends the nomination of any new member to the board, interviewing them and monitoring the balance of skills in the team. On some boards, this role has been separated into a Nominations Committee but it is generally not significant enough to justify a separate committee.

Other committees are added where useful. Examples include a Risk Committee whose members seek to identify the key risks facing the company and to recommend ways that the company can mitigate those risks. Additionally, Crookes Brothers has a Social and Ethics Committee and Julia Wakeling (our Head of ESG) attends these meetings.

**Reporting:** The Portfolio Companies have a minimum of 4 board meetings a year. Monthly reports are produced for the Investment Committee.

**Strategy:** The boards approve budgets and agree strategy. Key strategic questions are escalated to the Investment Committee. These might include new developments, bolt-on acquisitions, divestments etc. The Head of ESG is a member of the Investment Committee.

**Environment, Social and Governance:** The Portfolio Companies have an annual ESG review and the results are made available to LPs. They are also presented to the boards of the Portfolio Companies and action points discussed. Some of these action points may need budget to be applied to resolve. Action points are monitored and followed up on between annual reviews and the ESG team visit the Portfolio Companies to get updates and to provide ESG training. Each Portfolio Company has a person designated as the ESG contact person.

The following table summarises these governance features. Generally, most of the governance structures are in place. Silverlands Vineyards is searching for a second independent director and the establishment of the committees which then follows. QBV is a joint venture company with CBL and there is already a reasonable balance on the company's board given the company's size. As the business develops the board will be added to.

Portfolio Company	Silverlands Stake	Number of Independent Directors	Independent Chairperson	Board Committees		Written Commitment to ESG Investment Code	Independent Auditor
				Audit	Remuneration		
Crookes Brothers	44.80%	4	Yes	Yes	Yes	Yes	Yes
Silverlands Ranching	100%	3	Yes	Yes	Yes	Yes	Yes
Silverlands Zambia	100%	3	Yes	Yes	Yes	Yes	Yes
Silverlands Tanzania	100%	2	Yes	Yes	Yes	Yes	Yes
Silverlands Ndolela	100%	2	Yes	Yes	Yes	Yes	Yes
Silverlands Vineyards	100%	1	Yes	No	No	Yes	Yes
QBV	51%	0	No	No	No	Yes	Yes



*Grapes ready to be harvested at Silverlands Vineyards.*



## 6.2 ESG Responsibility

The board of each Portfolio Company has signed up to the Silverlands Responsible Investment Code which references the IFC Performance Standards and is based on CDC's Responsible Investment Code.

### Board Level Responsibility

A member of the board of each Portfolio Company has been assigned the responsibility for ESG. The following individuals are responsible for ESG at a board level: Elisha Chivero (STL), Simon Morgan (SNL, SZL, SASL and QBV), Harvey Leared (SRL) and Kevin Liddle (SVL). CBL's board has a separate Social and Ethics Committee, a board committee, which is accountable for ESG issues and is attended by SilverStreet Capital's Head of ESG, Julia Wakeling. ESG managers are present at each board meeting.

### Day-to-day ESG Implementation

Each Portfolio Company has allocated personnel on the ground who are responsible for ESG. These people implement Social and Environmental Management Systems (SEMS) to manage ESG aspects. This includes assessing and updating ESG risks, reviewing and implementing procedures, and collating and reporting ESG data to senior management and the General Partner. SilverStreet oversees all ESG implementation across all Portfolio Companies.

## 6.3 Social and Environmental Management Systems

The board of each Portfolio Company has committed each company to adopt and implement a Social and Environmental Management System (SEMS). In each SEMS, ESG risks are identified, procedures implemented to manage the risks, and key ESG aspects reported to management and the boards.





*Julia Wakeling (SSC)  
SilverStreet Head of ESG*



*Dr Ben Moshi (STL and SNL)  
Board, Community Liaison*



*Janet Sanders (STL)  
ESG Manager Tanzania*



*Jeremiah Mazengo (SNL)  
Operations Manager*



*Sheryl Bradnick (STL)  
Poultry Training Manager*



*Madeus Deule (STL)  
HR Assistant and CLO*



*Enesi Luvanda (STL)  
Poultry Trainer*



*Sharon Mwelwa (SZ Group)  
HR/ESG Manager Zambia*



*Chipuya Simooya (SZ Group)  
HR/ESG Executive Assistant*



*Arthur Mwale (SZL)  
HR/ESG Assistant*



*Chris Simpasa (SZL + SASL)  
Community Liaison Officer*



*George Chabaputa (SASL)  
HR/ESG Assistant*



*George Nicoll (SZL + SASL)  
Contracted - Community  
Liaison at SZL and SASL*



*Francine Matanda (SRL)  
HR/ESG Assistant*



*Lewona Heyn, Christine Truter, Michelle Holthausen,  
(SVL) ESG Manager (Christine) and Assistants*



*Ross Trotter (CBL)  
Group Services Manager*



*Bruno Lima, Farm Manager  
(currently holds ESG  
responsibility)*

**The time spent on site during the annual reviews is invaluable. It is informative and educational, and being on site makes the learning experience specifically on topic. I have always felt that the “audits” are treated as training and information sharing opportunities rather than a scoring exercise.**

*Ross Trotter, CBL Group Services Manager*

## 6.4 ESG Training

A number of our individuals responsible for ESG in Portfolio Companies come from a human resources background. Courses have been attended and a range of training has been provided and will be ongoing to ensure that these people have a detailed understanding of ESG topics and how to manage them.

On-the-ground training continues to take place on site with management, those responsible for ESG and any new key personnel. Topics include: an overview of ESG, the International Finance Corporation Performance Standards, the Fund’s Responsible Investment Code, Social and Environmental Management System (SEMS) adaptation and implementation, monthly reporting, stakeholder engagement, resettlement (where relevant), as well as discussions to ensure understanding of all actions in Environmental and Social Action Plans.



*The Land Acquisition, Resettlement and Social Sustainability course run by the University of Groningen and Intersocial, was attended by SilverStreet Head of ESG, Julia Wakeling in Maputo 2017.*

## 7 Long Term Strategic Improvements

The Portfolio Companies are focused day-to-day on implementing ESG action points and maintaining compliance with the Responsible Investment Code. They continue to improve the sustainability of the businesses by understanding and managing ESG-related risks and effects.

We encourage discussion and planning in relation to factors such as climate change, water supply risks, clean power sources, soil management, community relationships, small-holder farmer incomes, supplier ESG standards, carbon emissions and encouraging best agricultural practices in the country.

### 7.1 Climate Resilience

Models of climate change are notoriously difficult to produce but one common feature seems to be that they predict that the weather is likely to become more volatile than in the past. Rainfall, for example, is expected to become more variable within seasons with more sudden deluges likely. The key risk to monitor is that rainfall reduces overall and temperatures rise in the Sub-Saharan Africa region.

Cognisant of this, we mitigate these risks as follows:

#### i. Irrigation

We follow an irrigated cropping strategy for the large majority (~90%) of the hectares cropped. 'Dryland' cropping tending to be a 'bolt-on' to the irrigated core strategy and in the minority. Having irrigation means that a crop can receive supplemental irrigation during a dry period to help it get through a season. This is particularly important at certain times in the crop's life. As an example, during the crucial two-week period when soya beans flower, a lack of rain can reduce the crop yield by around 25%. The ability to add irrigation at this critical point is therefore very beneficial.

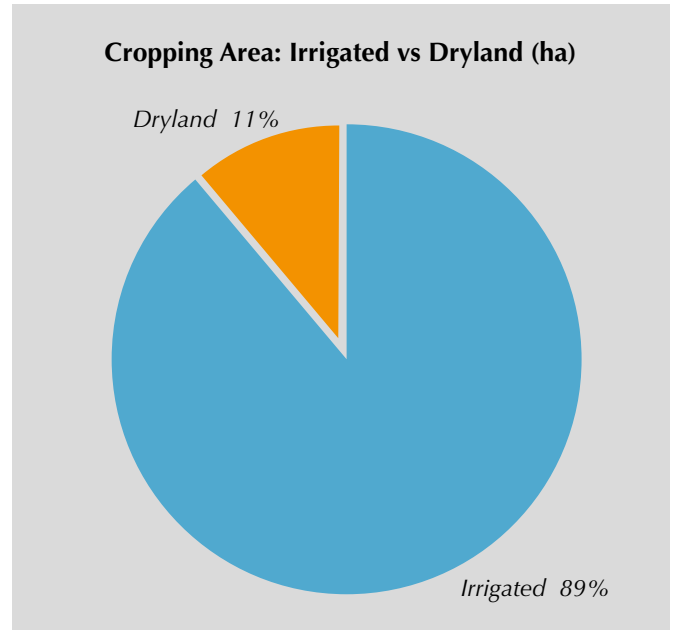
	Farm	Summer 2016/17 Irrigated ha	Summer 2017/18 Dryland ha	Winter 2017 Irrigated ha	Total ha
<b>Tanzania</b>	Selous & Makete	271	445	238	954
	Ndolela	762	159	385	1,306
<b>Zambia</b>	Serenje (SZL)	1,573		1,573	3,146
	Kakushi (SASL)	823	380	824	2,027
	Foresythe (SRL)	479	327	254	1,060
<b>Namibia</b>	Silverlands Vineyards	350			350
<b>Mozambique</b>	<i>QBV Farm</i>				
<b>Crookes Brothers</b>	Mpambanyoni		590		590
	Decidious Fruit	661			661
	Mthayiza	985			985
	Komati	2,362			2,362
	Malelane Farms	322			322
	Swaziland	2,253			2,253
	Hagiar Kim, Mazabuka	382			382
	Gurue	801			801
<b>Total</b>		<b>12,024</b>	<b>1,901</b>	<b>3,274</b>	<b>17,199</b>

**ii. Water Storage**

We seek where possible to have stored water rather than rely on run of river. In an environment in which the rainfall becomes volatile with sudden down-bursts, having the ability to catch sudden rain/floods is very helpful and can help manage the crop when a dry spell follows.

Most of the projects already use stored water so this helps considerably to mitigate risks. The exceptions are Ndolela, Silverlands Tanzania (Iringa) and Silverlands Zambia (Serenje).

- In Ndolela’s case, the water risk is very low given the size of the river and the fact that it is not used in any material way up or down stream.
- At the Iringa farm, a holding dam is currently being built.
- At Serenje, a number of dam sites have been investigate and the team are working with others in the catchment to find the best one to take forward.

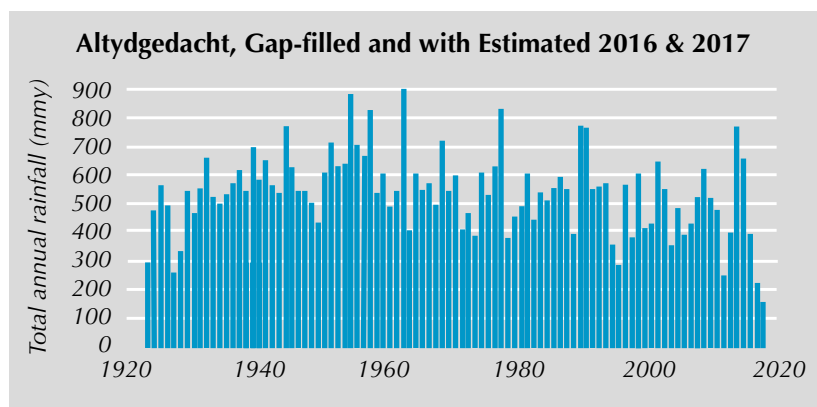


At Aussenkehr, the farms do not have their own dams but the Orange River is fed by a number of dams upstream over its large catchment. The key risk is one of mismanagement of these dams as they are largely under government control.

**iii. Climatically Optimal Locations**

We look for operations in climatically optimal locations for the specific crops we want to grow. We are careful in selecting areas where water security is highest. As an example, we believe that Central Zambia and Southern Tanzania have optimal climates for growing grains and soya. The rainfall is reliable which then implies that the dams are most likely to refill provided that the farm is not located in a catchment which has been over-developed.

This year we have seen the benefit of location in the Cape area where there has been an extreme drought. The University of Cape Town brought out a recent report looking at rainfall data and this showed graphically how unusual the current drought is:



Source: University of Cape Town  
<http://www.csag.uct.ac.za/2017/08/28/how-severe-is-this-drought-really/>

The rainy season is ongoing at the time of writing so there may be some late rain but the unusual aspect of the rainfall is interesting. Given this environment, the area which has had the most rainfall is the Elgin-Grabouw area where the Crookes Brothers farms are located. This valley has outperformed the main other deciduous fruit growing areas of Ceres and Langkloof. Additionally, the company invested historically in a holding dam on the Ouwerf farm, which normally is not essential, but this year has proven its worth, underwriting the water needs of the farm beyond other sources. The High Noon farm also looks to have sufficient water and the third farm, Vyeboom, is somewhat short but the company are hoping that supplemental water from boreholes will suffice.

A second example from 2017 is the completion of the dam on the Kakushi River in Zambia. The dam was completed in the Winter of 2016 and went through its first rainy season in November 2016 - April 2017. The dam performed well and filled by the beginning of March 2017 exceeding our expectations. It is the only dam on the Kakushi River and its catchment looks to be an excellent one having a higher altitude than nearby areas with more reliable rainfall.



*Kakushi Dam spilling, March 2017.*

#### **iv. Variety selection**

This is also crucial in ensuring crops are resilient to climate variations, in particular drought tolerance. Our farmers are informed by their own experience and industry trials. This is for both livestock (cattle and poultry) and crops (sugar cane, soya, maize, beans, wheat, barley, macadamias, apples, pears, avocados etc.). Our cattle are suited to the dry climate of southern Zambia, and the Sasso poultry breed seems to be much better adapted to the free-range environment of rural Tanzania than traditional 'Western' poultry breeds – they also have an appearance which is culturally valued.

## **7.2 Efficient Water Management**

Once the farm is operational, each farm manager is committed to ensuring optimal use of water, through both technology and on-the-ground management. Technologies to aid in water management and improve efficiency in water use include: flow meters, variable speed drive pumps (VSDs), drip and micro-sprinkler irrigation systems, carefully planned irrigation schedules, soil moisture probes, weather stations, evaporation pans, and automation methods.

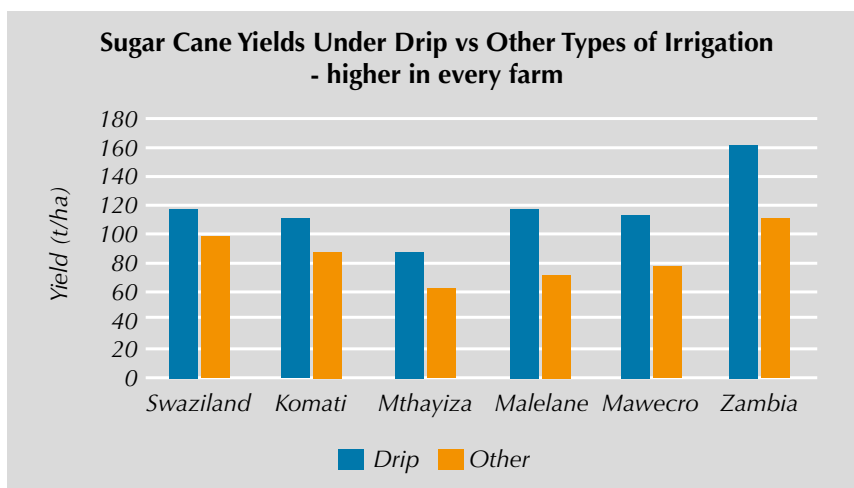
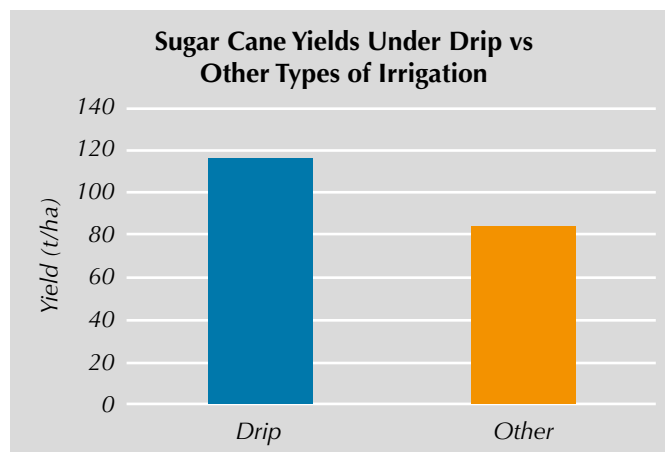
We are in the process of implementing systems to monitor water usage per area (and per tonne of product) for each crop. Some challenges are: localised rainfall in different areas on the same farm influencing the supplemental irrigation required; flow meter measurements available for broad areas of irrigation rather than individual fields, etc. Despite these challenges, we are seeking to monitor water use per crop, and we plan to benchmark efficiency against ourselves and others in the region, where data allows.

### Conversion to Drip Irrigation on Sugar Cane

The Silverlands investments often involve expansion or new developments, and these can start on the right foot by implementing the newest and most water-efficient technologies. Crookes Brothers, as an established company, is doing well to continuously upgrade to the most efficient irrigation types, as budget allows.

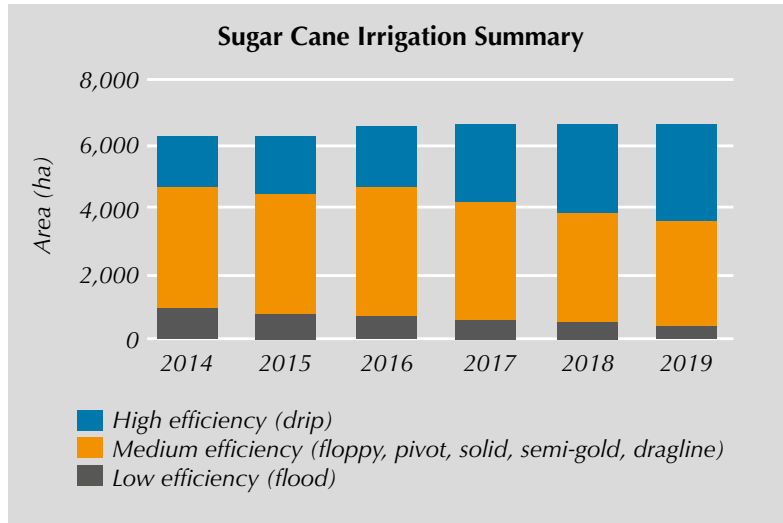
Drip irrigation is best for sugar cane and bananas from both a water usage and profit perspective. Under drip irrigation, cropping yields increase yet less water is required. This is important for maximising water efficiency, and comes with the added advantage of reduced electricity costs. It is estimated that 25% less water is needed to irrigate each hectare under drip irrigation, an enormous saving. When water supply was restricted during the 2015-16 drought, the better performance of areas under drip irrigation was noticeable.

The switch to drip irrigation has also resulted in huge increases in yields. Cane yields are 30% higher when grown under drip irrigation (113 t/ha under drip vs 87 t/ha using other irrigation). This enormous increase in yield brings with it substantial increases in profitability. The revenues on a farm can be thought of as ‘tonnes of produce times price per tonne’. Any increase in the tonnes per hectare goes straight to the bottom line.



Sugar cane and bananas operate under a 10 year cycle. A newly planted sugar field typically lasts ten years and is then replaced. Each year one would expect approximately 10% of the hectares to need replanting. The best opportunity to change irrigation is during this normal replanting cycle. This change to drip irrigation has been undertaken consistently as part of this cycle since we invested in Crookes Brothers.

Three years' ago, approximately 26% of Crookes Brothers' sugar cane and bananas (1,600 ha of 6,300 ha) was under drip irrigation. This has been increased to 36% (2,400 ha of 6,600 ha) now and this will increase to 45% of the area by 2019.



**Automation in Deciduous Fruit Farms**

On deciduous fruit farms where orchards are small (compared to row-cropping fields), and the different varieties and tree ages in each orchard have specific water requirements, every 4 ha of land is monitored by a soil moisture probe. These are linked to automated irrigation systems, which allow farm managers to carefully apply specific amounts of water to orchards, at any hour of the day. These systems will prove their worth in the coming 2017/18 dry summer season when water is going to be particularly limited.



- **Press Exposure: Crookes Brothers**

**Drip irrigation gives better yields, uses only 70% of the water usually for irrigation purposes and uses less electricity.**

### **With Drought Threatening Food Security, Farmers Turn to Drip Irrigation** Engineering News, Anne Kilian, 21st July 2017

With the recent drought in Southern Africa compounding the unpredictable impact of climate change on food production, local farmers are converting to drip irrigation in an attempt to conserve water, using less to produce more, according to Crookes Brother's Limited (CBL) MD Guy Clarke.

During a tour of CBL's Mawecro and Mthayiza farms, in Mpumalanga, on Friday, Clarke described drip irrigation as a form of irrigation that saves water and fertiliser by allowing water to drip slowly to the roots of many different plants, either onto the soil surface or directly onto the root zone, through a network of valves, pipes, tubing and emitters.



Clarke told Engineering News Online that drip irrigation gives better yields, uses only 70% of the water usually for irrigation purposes and uses less electricity. "We need to intensify agriculture to get better yields with less water," he said.

Clarke highlighted sub-Saharan Africa as one of the few areas in the world that still offers abundant, underutilised land and water resources for a substantial expansion of agricultural production to meet global food security needs.

"The drought that the sector has experienced in the last two years has had a huge impact on crop yields. Many dams ran dry, which worsened the impact," he said. To mitigate that, Clarke explained that most farmers have had to concentrate water on certain fields, resulting in the death of many crops.

"The big question mark right now is over the Western Cape, where 50% of South Africa's exports come from. If it doesn't rain sufficiently this winter, they will be in dire trouble," he said. Clarke further pointed out that climate change has had an impact on agriculture production globally, adding that extreme climatic events in the form of droughts, floods and hail storms have been felt through many parts of sub-Saharan Africa.

"In Zambia, for example, where [CBL has] farms, a lot of their electricity supply is hydropower based. They have had black-outs for extended periods, owing to droughts, which is crippling to an economy," he noted. Clarke highlighted that, with regions increasing in population, water resources would have to be used more carefully.

#### **LAND REFORM**

Another major challenge affecting South Africa's agriculture sector, according to Clarke, is land transformation. He told Engineering New Online that the demand for land and rising expectations is putting a cloud over the sector, as people are less willing to invest under the current circumstances. "It would help if there was a structured programme in place for transferring land. We are still under the old dispensation, it's not practical or affordable," he said.

To assist government with its transformation plans, CBL is involved in community partnership-based joint venture (JV) enterprises. The various JVs the company is involved with are economically effective and achieve government's goals of transferring land without losing the benefit of production. "Our JVs are hugely supportive of rural communities, which ties in with the National Development Plan's Vision 2030, which stipulates that rural communities must be supported by agriculture," he said.

Clarke pointed out that a common cause of failure in land reform projects has been a lack of support for the new land owners once they take possession of the land. "By providing strong support for the Mawecro and Mthayiza JVs, we expect to see continued, long-term sustainable economic benefits. It will be a long process but it gives the rural community an economic backbone that will eventually translate into a greater contribution to South Africa's economy.

## 7.3 Land and Soil Management

Good soil management is fundamental to sustainable farming. Key focus areas include:

**Nutrient application:** All farms across the group make use of soil and leaf analyses to inform fertiliser programmes. With detailed analyses and equipment which allows for variable application of fertilisers, impacts on the environment and costs can be minimised. The pivot diagram below is derived from detailed soil analysis done over a 2 ha grid (i.e. one 100 ha pivot has 50 sampling points.) It shows the areas where more potassium is needed, one of the key fertiliser inputs. When fertiliser is applied later, the amount of potassium applied can be varied to help 'top-up' those areas where its level is low.

**Minimum tillage:** Specific to row cropping, minimum tillage techniques increase soil organic matter, improve soil structure and reduce erosion and nutrient leaching.



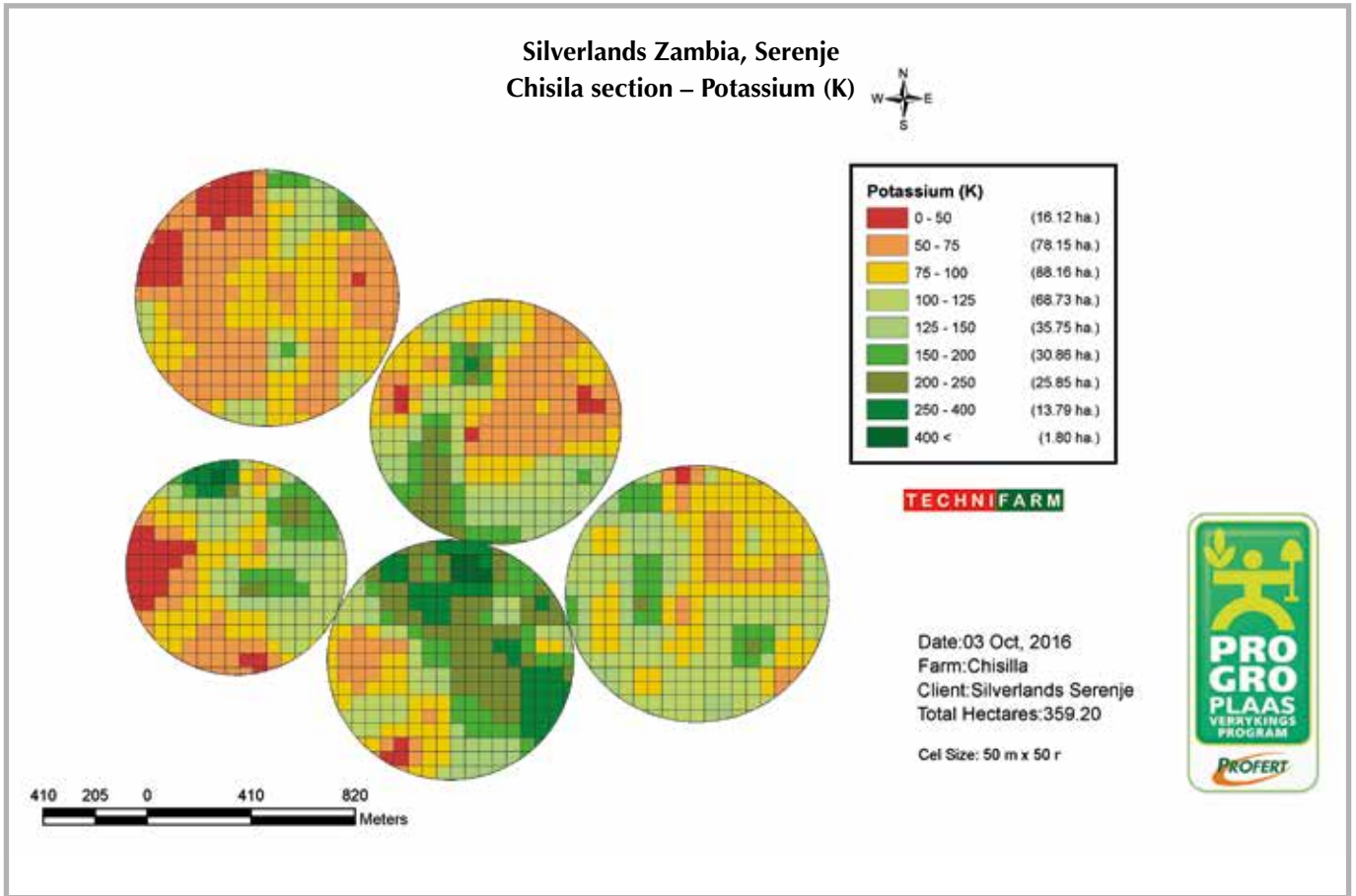
*When practicing minimum tillage, the residue of the previous crop is left on the land when planting the new seeds.*

**Intercropping:** Legumes (such as sunnhemp) are planted on new lands and between successive plantings (e.g. in sugar cane), and in alternate seasons (e.g. soya in summer and wheat/barley in winter). Legumes significantly increase the nitrogen content of the soil, as well as improving soil organic matter and soil structure. Using legumes as a rotation crop therefore results in marked improvements in yields.

**Poultry manure:** In Tanzania, the poultry manure is composted and spread on the cropping areas as a natural fertiliser.

**Erosion control:** Contouring, carefully designed by engineers and marked out on the land by surveyors, is implemented and maintained to reduce surface runoff. Additional erosion control methods are also implemented where required.

**Chipping old orchards:** When old orchards are removed (grubbed), the trees are chipped and reapplied to the orchard. This improves organic content (and thus moisture content), soil structure and fertility.



*Detailed soil analyses are used to design nutrient application programmes. In this way, fertiliser applications are limited to only what is necessary, minimising the effect on the environment and the balance sheet. This image shows results from soil samples taken on a 2 ha grid for one section of the Silverlands Zambia farm.*



*Poultry manure is composted and applied as natural fertiliser to grazing lands at Silverlands Tanzania.*

## 7.4 Waste Management

In accordance with the IFC Performance Standards, we dispose of our hazardous waste such as old chemical containers, used oil and oil filters, with registered hazardous waste disposal facilities. Identifying such companies outside of South Africa is a challenge in itself. Currently this service is extremely expensive. To keep the cost in check, the farms are exploring the use of pelletisers to condense the volume of containers and reduce transport and thus disposal costs.

We continue to try to implement recycling initiatives across all our operations, however finding service providers in remote areas is hard. SVL, QBV and CBL are currently leading the way. We welcome suggestions regarding waste disposal and recycling options if other investors have found innovative solutions.

## 7.5 Power Management

### Efficiencies and Infrastructure

In farming, pumping water is generally the greatest energy requirement. To minimise this, the amount of water needed is minimised (see Water Management above). In addition, energy efficient variable speed drive (VSD) pumps are installed whenever a new pump is required. They are relatively new in farming and reduce the amount of power required. They also require less maintenance. As an example, the introduction of VSDs resulted in a 33% reduction in the cost of pumping water at Silverlands Vineyards, and at least a 40% reduction in diesel usage by generators at Silverlands Ndolela. Also, the VSD efficiency led to capex payback within a single year of implementation at SVL.

### Solar Power

Solar power is implemented where feasible. Silverlands Vineyards in Namibia is perfect for solar, where cloudy days are extremely infrequent. SVL have implemented a 210 kW solar power unit to supplement grid power on the farm as well as reducing the dependence on fossil-fuel-generated electricity. This capex has an estimated annual return on investment of between 7 to 10% at current electricity prices, but this will rise as power prices rise in Namibia. The solar unit also helped to de-risk the farm in the event of power cuts from the main grid. Solar technology has improved considerably since this unit was first ordered and there may be a case to expand it over the next 2-3 years to further reduce reliance on the grid.



*The 210 kW solar power unit at Silverlands Vineyards in Namibia.*

In Zambia, Silverlands Ranching and Silverlands Agricultural Services use solar energy to power boreholes and housing. A frustration experienced has been theft of solar panels which are of great value to rural communities.

## Hydro-electric Power

Hydro-electric power is ‘old fashioned’ but is a proven and clean technology and can be the most efficient in certain locations. At Silverlands Ndolela, we are upgrading the mini hydro power facility from 80 kW at acquisition to 800 kW through an extension of the canal and the installation of a new hydro-electric plant.

The Ruhuhu River bordering the farm has a significant drop at the southern end of the farm and this is a near perfect location for a hydro-electric unit. There have been various plans put forward to develop 70-100 MW at this site. We decided to install a small hydro-electric plant to generate 800 kW to take advantage of a drop of 80m in the river. Keeping the plant under 1 MW removed the need to go through the very time-consuming process of gaining government’s, and the government utility’s permission, non-trivial in Tanzania.

The installation was delayed because of hold-ups in the equipment at the port but is now on site and expected to be commissioned by the end of 2017. The electricity will be used to power irrigation pumps and pivots, other farm management energy requirements and a soya extruder. It will supply all the farm’s power requirements apart from in 2 months of the year when it should supply around 70% of its needs. The following diagram summarises the design of a hydro-electric plant.



*River off-take point*



*Canal and weir*



Water to drop ~80m and turbine to be positioned at this point.



The Ruhuhu River where the water is returned to the river.

## 7.6 Community Engagement

Our aim is to positively impact the communities in which we operate. We do this directly by creating employment opportunities and through Corporate Social Responsibility investments to improve access to water, education, healthcare, and other services. In addition, we impact a vast number of people through our joint venture and hub - out-grower projects.

To understand and manage the communities immediately surrounding our farms, we appoint community liaison personnel to regularly interact with our neighbours. Also, we have begun conducting surveys, starting with the three Zambian operations, to more fully understand our neighbouring communities, how they perceive us, and opportunities where we could provide positive interventions.



The community neighbouring the Kakushi South Dam is routinely met with by the Community Liaison Officer, Chris Simpasa.

## 8 Annual ESG Review

### 8.1 Overview

In 2013, 2014 and 2015 the Fund commissioned independent reviews of Crookes Brothers Limited (CBL). In 2015, independent reviews of all Portfolio Companies were also performed. These were performed by South African ESG consultant, EBS Advisory. The goal is to have independent reviews at least every other year.

In 2016, the review was performed internally by SilverStreet Capital (SSC). This year, the annual review was performed independently, by BluePebble Sustainability Solutions. OPIC obligations required that the independent reviewer had not had in depth previous working experience with SilverStreet. As BluePebble have conducted work for some of the Silverlands operations in Zambia, these were subcontracted to another independent, Talmar Sustainable Developments. Both BluePebble and Talmar are South African based ESG consultants with experience from across the region.

Detailed ESG reviews were completed for each Portfolio Company. Below is a brief summary of each of these reviews. Readers that require more detail with regards the ESG performance of Portfolio Companies are invited to refer to the individual reports.

### 8.2 ESG Monitoring and Due Diligence Visits in 2016-17

Regular visits have been made to all Portfolio Companies, by both SilverStreet Capital and independent consultants. In the 12 month periods, four of the businesses have been visited by the ESG specialists from IFU, CDC, OPIC and MIGA. Their recommendations and action points have been absorbed into the main action lists.

Time on-the-ground is spent assisting with a wide range of ESG related topics, such as training staff, assisting with the implementation of Social and Environmental Management Systems (SEMS), monitoring progress, conducting surveys, and designing monitoring plans.



*Site visits by ESG professionals naturally include invaluable on-the-ground staff training. The 2017 Annual ESG Review in Zambia was attended by OPIC, MIGA and CDC. From left to right: Debra Zanewich (MIGA); Alines Phiri (SLIC Livestock Technician), Nomsa Fulbrook-Kagwe (CDC), Chipuya Simooya (Silverlands Zambia Executive ESG Assistant) and Sara Shoff (OPIC). We look forward to more visits like this in future.*

## ESG Visits During the Reporting Period

Date	Properties	Type of Visit	Participants
November 2016	CBL head office	Social and Ethics Committee meeting	CBL, SSC
January 2017	CBL Murrimo Macadamias	Monitoring, training	OPIC, SSC
	SVL	Monitoring, training, SEMS implementation	SSC
February 2017	STL, SNL SRL, SZL, SASL	Monitoring, training, SEMS implementation	SSC
April 2017	SVL, CBL Deciduous	Annual ESG Review	SSC, BluePebble
May 2017	SRL, SZL, SASL	Annual ESG Review	SSC, Telmar (subcontracted by BluePebble), OPIC, MIGA, CDC
	CBL head office	Social and Ethics Committee meeting, SEMS workshop	CBL, SSC
	CBL head office and Renishaw property	Annual ESG Review	CBL, SSC, BluePebble
June 2017	CBL Mpumalanga and Swaziland	Annual ESG Review	CBL, SSC, BluePebble
	QBV	Annual ESG Review	SSC, BluePebble
	SZL, SASL, SRL	Aquatic Monitoring: establishing baselines for ongoing river monitoring, using fauna and flora as indicators	Researchers from University of Cape Town and Stellenbosch University
	SZL, SASL	Baseline household livelihood surveys	Pepperway (Michael Jenrich)
July 2017	SRL	Baseline household livelihood surveys	Pepperway (Michael Jenrich)
	STL, SNL	Annual ESG Review	BluePebble
	Clinton Farms Tanzania	ESG Due Diligence	BluePebble
August 2017	Zamseed	ESG Due Diligence	IBIS
	SRL and SLIC	Social Impact Study	IFU consultant



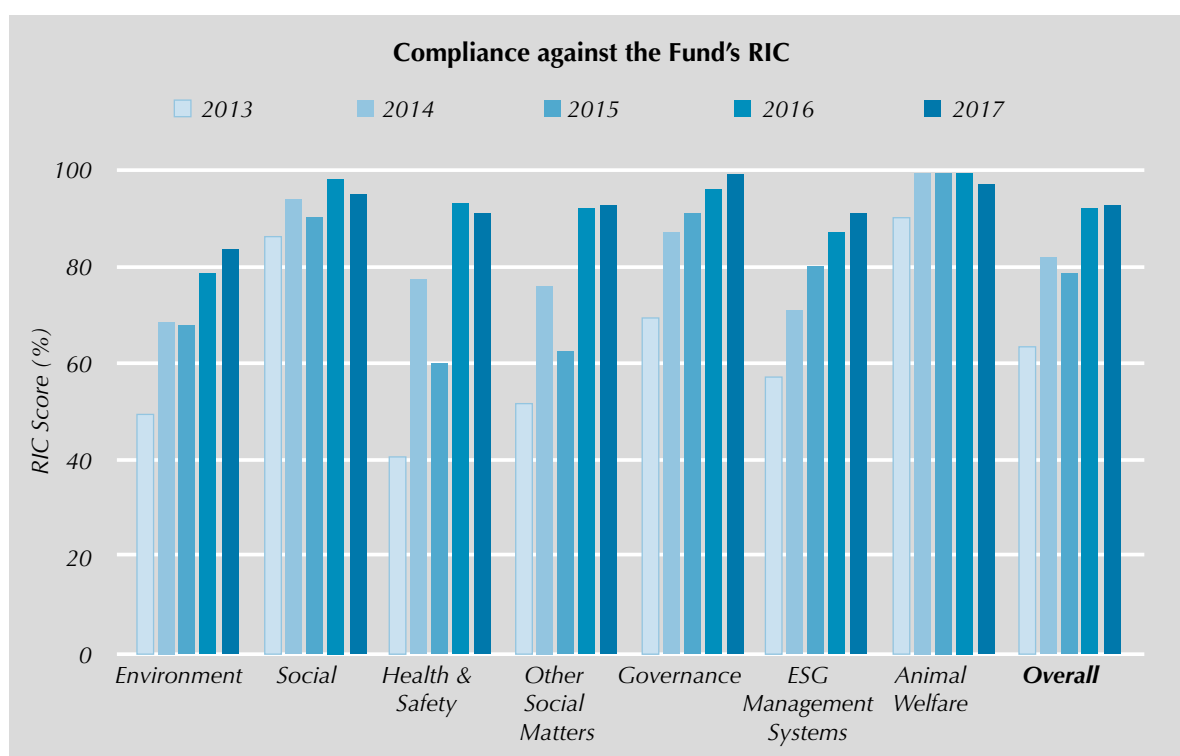
### 8.3 Compliance with the Fund's Responsible Investment Code

The Fund's Responsible Investment Code (RIC) is divided into 7 sections. Each year Portfolio Companies are scored against the various topics. These reflect snapshots of the performance of each Portfolio Company at the time of the Annual Review, but are a good indicator of overall performance.

We are proud to report that overall there has been a positive trend in compliance by all Portfolio Companies. Scores for each Portfolio Company are detailed in the sections which follow and in the individual reports for each Company. As companies become more established, the focus shifts from major items to finessing the integration of ESG into the business. As such, we anticipate scores to remain in early- to mid-nineties overall.

#### Compliance Against the Fund's RIC

Section Summary	2013 %	2014 %	2015 %	2016 %	2017 %	% Change
Environment	49	69	68	79	84	5 ↑
Social	86	94	90	98	95	3 ↓
Health & Safety	40	78	60	93	91	2 ↓
Other Social Matters	52	76	62	92	93	1 ↑
Governance	69	87	91	96	99	3 ↑
ESG Management Systems	57	71	80	87	91	4 ↑
Animal Welfare	90	100	100	100	97	3 ↓
<b>Overall</b>	<b>63</b>	<b>82</b>	<b>79</b>	<b>92</b>	<b>93</b>	<b>1 ↑</b>



### a) Progress Against Previous Action Plans

In addition to compliance with the Fund's RIC, each Portfolio Company has made significant progress on action points raised in previous ESG reviews.

#### Portfolio Company Progress Against Previous Action Plans

Portfolio Company	Number of Actions	Completed	In Progress	Outstanding
Silverlands Tanzania	54	20	23	11
Silverlands Ndolela	37	11	18	8
Silverlands Zambia	31	17	10	4
Silverlands Agriculture Services	30	19	9	2
Silverlands Ranching	38	12	20	6
Silverlands Vineyards	20	9	10	1
Quinta da Bella Vista	20	7	13	0*
Crookes Brothers	135	60	56	19
<b>Total</b>	<b>365</b>	<b>155</b> <b>42%</b>	<b>159</b> <b>44%</b>	<b>51</b> <b>14%</b>

*This table includes actions raised by OPIC/MIGA and from 2014 and 2015 annual reviews, and excludes QBV and SVL which are new operations and were not reviewed in 2015 or before.*

### b) Summary of key actions in progress and outstanding across the group:

- Systems
  - SEMS implementation: ensuring access to and knowledge of procedures; updates to procedures as necessary.
  - Emergency Response Management: ensure easy access to fire-fighting and first aid equipment.
  - Review risk assessments to incorporate new developments.
  - ESG performance targets and KPIs.
  - Implement EMPs from EIAs.
- Environmental
  - Improve hydrocarbon and agrochemical storage: bunding, signage, stacking, emergency showers and material safety data sheets (MSDSs).
  - Resource use efficiency: monitoring, reporting and benchmarking, with an initial focus on water use.
  - Test runoff water for presence of pesticides, and analyse against standards for release to the environment.
  - Waste management: although recycling and waste disposal solutions are limited in remote locations, general waste management could be improved.
- Social
  - Training:
    - Further training in EHS aspects managed via training plans: increase number of people trained and detail of training.
    - Ongoing training for all personnel with ESG management responsibilities.

- Housing: continue to build/refurbish housing, and include housing policies in employee contracts.
- Implement livelihood improvements where relevant.
- Continue to include trespassing and theft in community meetings and implement security measures where necessary.
- Stakeholder engagement: plan engagements every 6-months so all stakeholders are routinely met.
- Grievance mechanisms: improve accessibility, response times and reporting.
- Incident reporting: include minor incidents and corrective actions.
- Managing employees: e.g. improve understanding of and reduce absenteeism in task-based employees.
- PPE usage: always ensure the right PPE is available, at the right time.
- Continue to improve monitoring of contractors' adherence to ESG principles.

## Appendix 1: Reporting Obligations of the Fund

The Offering Document for SilverStreet Private Equity Strategies SICAR, Silverlands Fund provides that the General Partner will produce an annual ESG Report which will cover:

- (a) The development and implementation of environmental and social management systems including completed training;
- (b) ESG performance, including compliance with the Investment Code;
- (c) The corrective measures taken and/or still required with regard to the issues listed in the ESG Action Plan; and
- (d) Information on development impact, including any out-grower schemes.

Additionally a number of Limited Partners have signed Side Letters with the General Partner in which the General Partner has committed to the following reporting obligation:

We shall provide an annual report to any Investor who requests such a report on our implementation of the Investment Code and the performance of our investee companies against the Investment Code. The report shall include any issues, targets and a timetable for improvements, and performance over time against such targets and timetable.



*One of the types of programmes that Foundations for Farming offers is for interns who spend 4 days a week at the centre and 3 days at home implementing their learnings. Relationships with these interns are maintained beyond the year of training.*



*3-year old macadamia trees at Crookes Brothers Limited's Murrimo Macadamias, Gurue, Mozambique. The 50 tonnes achieved in the first harvest surpassed expectations, which is promising for the future.*



*Seed maize drying at Silverlands Tanzania.*

