Environmental and Social Review Summary

Silverlands Ranching Limited

This Environmental and Social Review Summary (ESRS) is prepared by MIGA staff and disclosed prior to the date on which MIGA’s Board of Directors considers the proposed issuance of a Contract of Guarantee. Its purpose is to enhance the transparency of MIGA’s activities. This document should not be construed as presuming the outcome of the decision by MIGA’s Board of Directors. Board dates are estimates only.

Any documentation that is attached to this ESRS has been prepared by the project sponsor, and authorization has been given for public release. MIGA has reviewed the attached documentation as provided by the applicant, and considers it of adequate quality to be released to the public, but does not endorse the content.

Country: Zambia
Sector: AMS - Agriculture
Project Enterprise: Silverlands Ranching Limited (SRL)
Environmental Category: B
Date ESRS Disclosed: November 20, 2014
Status: Due Diligence

A. Project Description

MIGA has been asked to provide reinsurance to the Overseas Private Investment Corporation (“OPIC”) through a Master Reinsurance Contract (“MRC”) in support of agricultural investments made by SilverStreet Private Equity Strategies SICAR – Silverlands Fund (the “Fund”) in up to thirteen countries in Sub-Saharan Africa. One of the investments under this MRC is to expand operations in an existing enterprise owned by the Fund in Zambia. The Project entails further investment in Silverlands Ranching Limited (“SRL”, or the “Project”) for expanding the fixed and mobile assets of Foresythe Estates Limited (“Foresythe”), a 19,632 ha cattle ranch located approximately 8 km from Zimba, in the Southern Province of Zambia, about 450 km southwest of Zambia’s capital city, Lusaka.

SRL is indirectly owned by the Fund, through its subsidiary Silverlands Ireland Holdings (Z2) Limited (“Z2”). The primary Project activity is breeding, raising and fattening cattle. The Project currently has a herd of approximately 5,500 cattle, up from 4,400 when acquired. MIGA supported the initial acquisition of Foresythe in May 2013 by issuing a Guarantee to Z2. SRL is making further investments into Foresythe to construct an earth dam for irrigation (“Luezi Irrigation Dam”), and to integrate the recently purchased 1,692 ha neighboring property, Happy Rest Farm, located off the highway between Livingstone and Lusaka.

The Luezi Irrigation Dam is located on the Luezi River (a tributary of the Kalomo River in Zambia), about 14 km via run of river downstream to the Kalomo-Luezi River junction. The Kalomo River then feeds into the Zambezi 93 km downstream. The Zambezi River is classified as an International Waterway, together with its tributaries (including the Luezi River).
The Luezi Irrigation Dam is largely located within Foresythe and will have a crest of 23 m, and a reservoir capacity of approximately 13 million m³ at full supply level, thus classified as a large dam under the International Commission on Large Dams criteria. The dam wall length will be approximately 1,045 m and the catchment area is around 127 km². This earth irrigation dam will enable the Project to establish an irrigated cropping division to intensify the cattle program. Construction of the irrigation dam started in April 2014 and is expected to be complete in December 2014 and the reservoir is expected to fill between December 2014 and May 2015. Approximately 350 ha of land will be cleared in 2014 for irrigation and first crops are expected to be planted in November 2014, with plans to expand to 500 ha in May 2015 and 1,000 ha planted in May 2016. Pivot irrigation will be installed. The national electricity grid is being extended to Foresythe from Happy Rest Farm by the Zambian Electricity Supply Corporation (the national electricity utility) approximately 10-15 km from the existing grid.

The 1,692 ha Happy Rest Farm located 10 km from Zimba and adjacent to Foresythe was acquired in January 2014 and is being integrated as part of the Project. Happy Rest Farm has direct access to the power grid and already has a small irrigation dam which could allow for 25-40 ha of irrigated farming in 2014, subject to obtaining irrigation rights. Tobacco was grown on the farm under previous ownership and will not be continued by SRL. Additional capital expenditure projects for both Foresythe and Happy Rest Farm include construction of workshops, offices and staff housing.

The original investment included the acquisition of Foresythe, which consisted of 13 adjoining farms operated as a single ranch. Foresythe is relatively dry (<500mm rain / year) but has a number of large seasonal rivers that flow through it, which can be dammed to increase the carrying capacity of the ranch and/or be utilized to grow crops according to an initial hydrology assessment. Foresythe’s revenue is currently generated exclusively through the sale of live cattle, with volumes averaging 1,200 head per year. Foresythe sells its output to Zambeef and other companies who weigh the live cattle at the ranch before transporting them to their facilities for finishing and slaughter.—SRL plans to double the current cattle herd over 8 years to more than 12,000 head. This will require increased access to water for watering the cattle and for the irrigation of at least 1,000 ha of pasture to develop cropping for fodder, and for annual cash crops (maize, rye grass, soya beans, and wheat).

MIGA’s initial due diligence for the initial acquisition of Foresythe focused on the existing assets as the proposed expansion had not been clearly defined at the time of MIGA providing the Guarantee. This ESRs summarizes E&S progress made since the initial due diligence and focuses on the expansion activities which are now defined such as construction of the irrigation dam and irrigation reservoir, and acquisition of Happy Rest Farm.

B. Environmental and Social Categorization

The Project is a category B under MIGA’s Policy on Environmental and Social Sustainability (2013). The Fund has prepared an environmental and social due diligence report for existing operations (including the newly acquired property) and screening for the expansion activities. Key environmental and social risks of existing operations are related to waste management, waste water, water use, ground water, air emissions, land use, farm chemicals management and livestock diseases. Key risks related to the expansion include water availability and quality (including water rights); flow patterns and impacts on fish and other aquatic species;
sedimentation; liquid and solid wastes; noise pollution; soil compaction and erosion due to heavy machinery; and worker and community health and safety. These potential impacts are largely reversible and readily addressed through mitigation measures outlined in the ESIA and its addendum, ESMP, ESAP, PS and EHS Guidelines.

C. Applicable Standards

While this Project must comply with all Performance Standards, based on our current information it is expected that the investment will have impacts which must be managed in a manner consistent with the following Performance Standards:

- PS1: Assessment and Management of Environmental and Social Risks and Impacts
- PS2: Labor and Working Conditions
- PS3: Resource Efficiency and Pollution Prevention
- PS4: Community Health, Safety & Security
- PS6: Biodiversity Conservation and Sustainable Management of Living Natural Resource

Both the Foresythe Estate and the Happy Rest Farm were acquired through willing lessee-willing lessor arrangement (both with over sixty years remaining), including the 1.5 ha of the neighboring property (currently leased by Gerjon Investments). The Project does not involve any additional land acquisition; as such, PS 5 is not applied. As no Indigenous Peoples were identified to reside in the Project area, PS 7 does not apply. PS8: Cultural Heritage is not triggered except for the need to implement a “chance finds” procedure.

In addition, the following World Bank Group (WBG) Environmental, Health and Safety (EHS) Guidelines are applicable to this Project:

- WBG General EHS Guidelines,
- WBG EHS Guidelines for Construction Materials Extraction
- WBG EHS Guidelines for Mammalian Livestock Production
- WBG EHS Guidelines for Annual Crop Production.

IFC’s Good Practice Note on Animal Welfare in Livestock Operations and its applications to SRL’s operations has also been assessed during MIGA’s E&S review.

D. Key Documents and Scope of MIGA Review

A due diligence desk review was carried out by MIGA (including communications with Z2) for the initial acquisition which came in under MIGA’s Small Investment Program:

- Responsible Investment Code Annex (RIC), SilverStreet Capital, 2010;
- Forsythe Estates E.S.G. (Environment, Social, Governance) due diligence Report, SilverStreet Capital, November 2012;
- SilverStreet Capital Final Approval for Forsythe Estates, December 2012;
- Forsythe Estates Supplemental Paper for the Investment Committee, December 12, 2012;
• Forsythe Ranch Due diligence Report, SilverStreet Private Equity Strategies SICAR, November 26, 2012; and
• Animal Welfare Requirements from IFU’s CSR Policy Incorporated into SilverStreet Capital Responsible Investment Code, SilverStreet Capital, 2008.

The following documents were reviewed by MIGA for the expansion:

• Luiesi [Luezi] Irrigation Dam - Dam Break Analysis and Selected Downstream Inundation Mapping (August 2014), prepared by Royal Haskoning DHV;
• Addendum Report for the Environmental and Social Impact Assessment for the Proposed Dam Construction Project on Luezi River: Zimba District, Southern Province, Zambia (July 2014), prepared by Kasumwa Environconsult & General Supplies Limited;
• Environmental and Social Management Plan (ESMP) (August 2014), prepared by Environmental Business Strategies;
• Combined ESG Action Plan for Silverlands Ranching Limited for Foresythe Estates and Happy Rest Farm (c. 2014), prepared by SilverStreet Capital;
• Silverlands Livestock Improvement Community Program – Discussion Paper (c. 2014);
• Foresythe Ranch – Luezi Dam Design Report (June 2014), prepared by Stewart Scott, Zimbabwe;
• Environmental and Social Impact Assessment for the Proposed Irrigation Dam Construction Project on Luezi River: Zimba District, Southern Province, Zambia (July 2013), prepared by Kasumwa Environconsult & General Supplies Limited;
• ESG Due Diligence on Happy Rest Farm, Zimba, Zambia (November 2013);
• Wessels Ranch [Happy Rest Farm] Final Approval (December 2013);
• SRL Stakeholder Engagement Plan & Grievance Mechanism (December 2013, revised August 2014);
• SRL Action List Update (no date);
• SRL Human Resources Policy and Handbook (August 2014) and contract templates;
• SRL HIV/AIDS Policy & Management Plan (December 2013, revised August 2014);
• SRL Investment Program (undated);
• OPIC application and questionnaires (2014).

A MIGA environmental specialist undertook a site visit in April 2014 to tour the project and to meet with representatives from nearby communities. Meetings were also held with the Zambia Environmental Management Agency (ZEMA) and the Zambian Ministry of Water Affairs. MIGA’s due diligence is also coordinated with that of OPIC’s. An Environmental and Social Action Plan (ESAP, to be attached to this ESRS) has been developed to address current gaps between the current project documentation and the requirements of the PSs.

E. Key Issues and Mitigation

PS1: Assessment and Management of Environmental and Social Risks and Impacts

*Environmental and Social Assessment:* The Fund maintains a Responsible Investment Code (RIC) and Corporate Social Responsibility (CSR) policy, which it applies to each of its investments. Prior to making investments, the Fund prepares an Environmental and Social
Governance (ESG) due diligence report as part of its investment commitment process based on its RIC and CSR policy. This report assigns scores based on the following criteria: human rights, labor rights, environment/climate, health and safety, animal welfare and community development. The scoring allows for the Fund to assess, monitor improvement, and track compliance over time. The Fund is focused on promoting continuous improvement in the E&S management of each of its portfolio investments. Each portfolio investment is responsible to the Fund to report quarterly on its ESG performance and the status of its ESG Action Plan. According to the Fund’s ESG due diligence report for Foresythe Estates, the property has been used for cattle ranching for over 100 years and comprises 19,632 hectares, and Happy Rest Farm is approximately 1,600 ha and was established in the 1950s. The stocking levels are not intense and all areas of the ranch are used for grazing, so the biological features have been modified over the years. No major land clearances have taken place for many years although the bush between the larger trees is cleared from time to time to allow light to penetrate to enable grass to grow. There is some game on the ranch (e.g., kudu, bush buck, dik-dik, bush-pig) but numbers are so small that poaching is not a problem. Water is readily available for livestock with a number of rivers flowing through the property and over the years many small dams have been built.

Since the initial acquisition of Foresythe Estate, an Environmental and Social Impact Assessment (“ESIA”) for the Luezi Irrigation Dam was carried out and submitted to the environmental authorities. This ESIA identified potential impacts related to construction and operation of the irrigation dam, and through the Preliminary Investigation - Surface Hydrology Assessment for Potential Dam Sites report (Imagen), alternative locations for the proposed irrigation dam were considered. The ESIA was supplemented by an addendum which provided further assessment and analysis of impacts related to aquatic resources, hydrology, watershed, and human health. The addendum also addressed dam failure, and climate change. The ESIA and addendum included an environmental and social management plan framework (ESMP Framework) which has been incorporated into the ESMP for the Project. A commissioning plan, and operations and maintenance plan for the irrigation dam are yet to be developed. Should any other physical works and/or activities take place in support of the expansion, MIGA will be notified and SRL will carry out environmental and social assessment (as per PS1) to ensure that activities are carried out in compliance with MIGA’s PSs.

Management Program and Monitoring: SRL is a relatively new company established in 2013 and a new management team has been appointed. The new management team is charged with implementing action plans in order to bring the Project into ESG compliance and have been allocated the necessary budgets to do so. As a condition of financing, SRL committed to operate according to good industry practices and comply with the national environmental laws and regulations, MIGA’s 2013 Performance Standards, the ILO Fundamental Conventions on Freedom of Association and Collective Bargaining; Forced Labour; Child Labour; and Non-Discrimination, 1994 United Nation Framework Convention on Climate Change and the associated 2005 Kyoto Protocol (“UN Framework Convention”), 2004 Organisation for Economic Cooperation and Development (“OECD”) Principles of Corporate Governance, the UN Convention on Biological Diversity, and international good practice to address animal welfare.

As a requirement under the original Guarantee, SRL formalized its policies and procedures to ensure that the Project assesses the environmental and social impact of its operations. SRL has been addressing the findings of the ESG due diligence reports (including the most immediate compliance issues related to worker contracts, toxic effluents, chemical storage, engine oil/fuel,
staff housing, health and safety issues) and will continue to assess its operations and improve ESG performance.

The environmental and social management plan (ESMP) was developed for the initial investment and has incorporated mitigation of impacts related to the expansion, including the ESMP Framework for the Luezi Irrigation Dam. It will be revised to meet PSI requirements (e.g., include descriptions of roles and responsibilities and reporting structures, include waste management procedures, etc.). The ESMP details the company’s plan to meet environmental and social commitments and includes measures to manage, for example, the following identified activities: storage and disposal of hazardous chemicals, water resources management, community consultation process, human resources management, health and safety, animal welfare and veterinary practices. The revised ESMP, along with procedures and systems for reporting against key environmental and social aspects, will be implemented at the Project and training on the procedures will be provided to employees. Monitoring on environmental and social performance of the Project will continue to be submitted to MIGA.

Organizational Capacity: Since the initial investment, SRL put in place a skilled and experienced management team to improve Foresythe’s existing operations, to integrate the newly acquired Happy Rest Farm, and to carry out an expansion plan which includes increasing cattle production. An ESMS management team has been established, comprised of a manager with diverse agricultural experience in Southern Africa and supported by external consultants in ESMP. Currently, roles and responsibilities related to E&S management are formalized at the SRL board level but are informal within the operations of the company. As per the current Action Plan, roles and responsibilities will be formalized and included as part of the project’s Environmental and Social Management System (“ESMS”). Adequate financial resources will be allocated on an ongoing basis to achieve effective and continuous environmental and social performance.

Community Development Program: SRL has initiated an outreach program with a local NGO (Musika) with the aim of supporting local smallholder cattle rearing by improving access to veterinary care, improved nutrition, and genetics. SRL have employed two livestock technicians to work with the local communities neighboring the Project to identify sites where service provision can be aggregated - working dip-tanks, dip-tanks in need of rehabilitation and, in two sites where there is no existing infrastructure but high potential in terms of willingness and ability of farmers to engage in the commercial veterinary market, SRL will provide livestock service centers with spray races. The staff will then work with farmers around these sites, providing training on cattle management, income optimization, health care, nutrition and genetic upgrading. SRL will consider buying cattle from local small-scale cattle owners to place on its irrigated pasture. This outreach program is currently being formalized.

SRL transports children living on the Project site to school and requires child minders to travel with the children on the bus. SRL will continue to maintain the registered landing strip for light aircraft on the Happy Rest Farm, which is used when specialist “flying doctors” travel from Lusaka to Zimba. Impacts and mitigation related to these activities will be incorporated in the revised ESMP.
PS2: Labor and Working Conditions

*Human Resources:* Currently the Project employs approximately 190 employees, all local except two expatriates. During construction of the Luezi Irrigation Dam, about 70 temporary jobs have been created. Under the Fund’s RIC, all employees are required to have a contract. SRL reports that all employees at the Project have written contracts which are compliant with the Collective Agreement.

All workers are automatically represented by the National Farm Workers Union, but there is no local membership. Under SRL management, all employees have the right to join any union, as well as the ability to bargain collectively. As per the requirements of the original Guarantee, a human resources (HR) policy and handbook were developed and implemented, and will be reviewed to ensure consistency with PS2. This document is inclusive of a Code of Conduct and a Staff Handbook, which is available to every employee of SRL and summarizes Zambian laws and workers’ rights. Additionally, a workers’ committee has been set up to ensure employees have access to management to express their concerns and ideas for improving the welfare of workers and the business. The mechanics of a worker’s grievance mechanism has been initiated and will be refined as part of the current action plan.

The Project does not employ minors on the properties, and this commitment will be incorporated into the HR Policy. Under SRL management, all due care will be taken to ensure that the employees and management know and comply with Zambian labor laws, which includes adherence to the Zambian national minimum wage, and with MIGA’s PS2 requirements. SRL will ensure that all employees are paid at least level if not better than the minimum wage. SRL will also oversee their supply chains as per PS2.

*Housing:* The full-time staff and their families are provided with onsite housing or an allowance for off-site housing. Water is provided to onsite housing from boreholes through a communal standpipe which is not always close to the houses. The Project continues to undertake improvements to the housing as part of the expansion plans, to standards which are consistent with the IFC and EBRD Guidance Note *Workers’ accommodation: processes and standards* (2009).

*Worker Health and Safety:* As part of the ESMP required under the original Guarantee, an emergency preparedness and response plan was developed and workers will be trained on it. There is currently no formal provision on the ranch for health matters generally. Mobile government clinics provide testing for HIV and malaria, and the health department distributes mosquito nets annually. The Project has basic healthcare resources, but for serious matters, workers are transported to the town of Zimba, around 8 km from the ranch. SRL is implementing a health program that includes first aid training and provision of first aid kits. SRL established a formal policy on HIV/AIDS which covers awareness training, prevention, testing, anti-discrimination, provision for collection of medication; and carrying out a health survey amongst the work force to understand better what needs to be addressed. SRL will comply with local and national health laws in Zambia and will produce a clear formal policy with regard to healthcare and will allocate some funds for basic healthcare resources.
At the Project; a system is being developed to record all accidents/incidents and to include root cause analysis. The Project is also improving its practices for the storing, transporting, and disposing of hazardous materials. The Project will undertake the following measures to ensure EHS standards are met; carry out job hazard assessment, provide adequate personal protective equipment ("PPE") and monitor its use, ensure that staff receive regular re-training with the chemical supplying companies, carry out monitoring for compliance, and keep records of all chemicals used on the ranch.

Training: As part of the ESMP, the Project has committed to provide EHS training to workers and records will be kept. Training will cover occupational health and safety aspects as well as environmental and social topics such as spill clean-up, prevention of water contamination, first aid, waste management, emergency response, etc.

SRL’s senior management have formalized a whole suite of governance policies and procedures, the ESMS, to ensure that the Project adheres to the RIC. As part of their terms of employment the management have committed to the SilverStreet Capital RIC.

PS3: Resource Efficiency and Pollution Prevention

Key risks and impacts for both the existing operations and expansion have been identified in the Fund’s ESG Due Diligence Reports and in the framework environmental management plan presented in the ESIA and supplemental addendum for the Luezi Irrigation Dam. The ESMP (revised) for the project will address the following:

Air pollution: During construction of the irrigation dam, air pollution will be minimized through regular watering of the construction site. Noise and vibration impacts will be limited to daytime only and residents (farm workers who live onsite) will be notified in advance of unusual noise and vibration levels during construction. During dam irrigation construction and while carrying out livestock and agricultural activities, all equipment and vehicles will be kept in good working order, including that of contractors.

Soil erosion: Construction of the irrigation dam is occurring during the dry season, and soil erosion will be minimized by limiting use of heavy machinery to designated areas and to rehabilitate heavily disturbed areas. Crushed stones used during construction of the dam were sourced from an existing Road Development Agency quarry and excavated soils from the area to be flooded were used to build dam walls. Soil erosion related to agriculture and livestock activities will be minimized by using zero tillage cultivation and avoiding overgrazing. As the ground will be continually covered, the loss of soil during rainfall and irrigation will be minimized. A veld management plan will be implemented.

Surface and groundwater water quality: Fuel storage and vehicle fueling, vehicle washing and maintenance, and storage of hazardous materials (e.g., diesel, used oil, chemicals) will be located away from water courses and will be located in a management hub which is under construction. Hazardous materials will be stored on concrete pads with secondary containment. Bunding will be constructed under diesel tanks and access to diesel will be controlled. Vehicle maintenance and washing will be carried out in designated areas.


**Liquid and solid waste management:** Proper waste management plans are being developed and implemented for the Project. These plans have included installing biodegradable toilets at worker housing. Cattle dips on the ranch contain toxic effluents from the chemicals used to dip the cattle. As part of the ESMP, the Project is developing clear procedures with regards to disposing of this waste. SRL plans to construct sumps located in strategic areas on the ranch which are not in close proximity to underground water supplies, rivers or boreholes which could be used for human and animal consumption. Waste management plans will also address run-off, waste feed, animal waste, and carcasses.

**Loss of vegetation:** Minimum access roads for the construction of the irrigation dam and farming activities will be constructed and will be confined to already disturbed sites where possible. Disturbed areas will be re-vegetated with appropriate species.

**Sedimentation:** According to the design report, the Luezi Irrigation Dam has moderate sediment yield potential. Over 20 years, 3% of the reservoir storage could be lost to sedimentation. Erosion and sedimentation will be minimized by maintaining vegetation cover near the reservoir and by preventing cattle grazing near/in the reservoir.

**Hazardous Materials Storage:** SRL is improving its practices to store and dispose of hazardous chemicals and diesel; it has ordered chemical storage facilities to be erected in the near future at a new management hub, and will incorporate adequate ventilation, lockable doors, appropriate chemical separation, bunded entrance, and signage. Fire extinguishers and spill kits will be housed nearby.

With major chemical suppliers within 500 km of the ranch, SRL will have a policy of maintaining only necessary supplies of stocks for the intended use period. This will prevent the excessive build-up of potentially harmful supplies of stocks. Empty chemical containers will be flattened and punctured as part of SRL’s provisions for safe disposal. All engine oil that is used by SRL will be sent back to the supplier for recycling. Both fuel storage tanks have bund walls to contain spillage in excess of 110% of total capacity.

**Integrated pest management:** The Project will develop an integrated pest management procedure committing to only using World Health Organization (WHO) approved chemicals. The use of zero tillage cultivation techniques, integrated pest management, crop rotation systems and the use of pest-resistant crop varieties should reduce the need to use excessive amounts of agrochemicals and hence reduce the risk of potential pollution. Storage facilities for animal feed and supplements will be protected by pest traps as needed.

**Resource efficiency:** Water usage will be monitored to assess potential leakages, stock dams will be maintained, and irrigation requirements will be calculated to minimize overwatering. Energy efficiency will be assessed and areas of improvement will be identified once the Project is connected to the national grid.
PS4: Community Health, Safety and Security

There are no communities living within the Project boundaries; however onsite workers’ accommodations are present. Potential community health and safety impacts have been identified in ESG Due Diligence Reports and in the ESIA and supporting Addendum for the Luezi Irrigation Dam:

Uncontrolled bush fires: In order to minimize uncontrolled fires on the property, especially during the dry season, firebreaks have been cut on the properties and are being maintained. The Project has purchased two mobile bowers to manage fires. Invasive thorn scrub management is also carried out to promote a healthy mix of trees and grasses.

Health impacts: To complement national programs, SRL is developing plans to enhance accessibility to health services for its workers and nearby communities. Awareness and education on sexually transmitted diseases will be provided to workers and to local communities. SRL is committed to working with the Ministry of Health to develop measures to manage malaria and control vectors.

Dam and reservoir safety: The Project site has a low seismic risk. The dam site is located mostly within the Foresythe Estate and there are no communities nearby or immediately downstream of the proposed irrigation dam. Signage will be placed around the irrigation dam to advise of deep water and danger of crocodiles. SRL will also engage in a community education campaign to explain hazards related to the reservoir.

Dam breach / flooding: A qualified engineer has designed and supervised construction of the irrigation dam to ensure international good practice has been followed. Fencing will be erected around the irrigation dam to minimize damage caused by livestock. According to the Dam Break Analysis and Supplemental ESIA Addendum, the possibility of the irrigation dam failing is very low. In case of failure of the Luezi Irrigation Dam, there is low risk to human health and safety of workers and communities living downstream. The flood water will be dispersed over a wide plain and by the time it reaches communities or the bridge, it will have little impact. As per the current Action Plan, the Project will implement an Emergency Preparedness and Response Plan to communicate the unlikely event of a dam breach to communities and downstream property owners. SRL will develop an operations and maintenance plan for the irrigation dam and other existing dams on the property.

Security Arrangements: The Project is largely enclosed by ordinary stock fence designed to contain the cattle i.e. posts with two or three strands of barbed wire. According to the ESG report, poaching/rustling has not been a problem partly due to the size of the property and the fact that the cattle which are spread all over it are also watched by dedicated herdsmen. Watchmen (unarmed) are employed to patrol the property perimeter on a regular basis.

PS6: Biodiversity Conservation and Sustainable Management of Living Natural Resource

Habitat conversion: Forsythe has been established for over one-hundred years and the Happy Rest Farm has been established for over 50 years. The uncultivated vegetation on both properties
is grassland under a cover of trees and thickets which provide natural shelter for the animals as well as food such that the cattle do not need to be confined to sheds. Vegetation has been modified over time as the land has been managed as ranchland. There have been no boundary issues as properties are mostly fenced with no issues of cattle straying or being poached. Cattle use existing water sources (streams and dams) to drink from. Water is readily available with a number of seasonal rivers flowing through the property and over the years many small stock dams have been built.

The Project is surrounded by three other established commercial ranching and cropping farms. There are several small dams in the area; however, their capacities are too low to support the scale of investment being proposed in the area. Some of these dams dry up in the dry season. Information the Project obtained from the Water Affairs and Water Board indicated that there are not many existing water right holders upstream of the proposed irrigation dam site on the Luezi River. Downstream of the dam site on the Luezi River there are no existing holders of water rights. The ESIA and supporting Addendum for the Luezi Irrigation Dam indicates that there are no endangered or threatened species identified which would be impacted by the Project. The ESIA indicates a low likelihood of big animals such as lions, elephants and buffaloes from Kafue National Park (2.5 hours away) passing through the property.

The Luezi River is completely dry from August to October until the start of the rainy season, thus there is very little aquatic vegetation. The river is not gauged and reliable consistent hydrological data is unavailable. Thus, the irrigation dam was sized based on a preliminary investigation report (Imagen Consulting) carried out by consultants. Baseline data collection was limited and downstream monitoring will be required, as well as closely working with relevant government agencies to determine appropriate environmental flow levels during the various times of the year. No communities use the river downstream as the river is located within the Project footprint. Stocking of the irrigation dam reservoir for fish will be done using indigenous species. Exotic species will not be introduced. Fishing will be limited to workers and their families. This is the first large dam in the area, and consequently cumulative impacts are limited.

The Luezi River is a tributary to the Kalomo River which it joins about 14 km via run of river downstream. The Kalomo has a very large catchment and environmental releases will only be required for this short section of river and thus, it is expected that it can be catered for by the irrigation outlets and outlet releases. The Kalomo River flows into the Zambezi River about 93 km downstream. Based on information provided by the Project, Luezi is about 3.6% of the catchment of the Kalomo River: the catchment area of the Luezi Irrigation Dam site is approximately 126 km², whereas the catchment area of the Kalomo Luezi junction is about 3,427 km². The catchment of the Zambezi is about 1.39 million km² (i.e., the Luezi is about 0.0009% of this catchment). Thus, Zambezi watershed impacts related to the Luezi Irrigation Dam are expected to be minimal.

Living Natural Resources (Animal Welfare): The activity of Foresythe Estate is cattle ranching to produce cattle for beef. As noted previously the stocking densities on the property are low and the available fodder and water could comfortably support higher numbers. Many small dams exist on the property providing accessible water for the stock throughout the year. Calves are weaned at six months which is considerably later than in more intensive forms of cattle farming. This provides for the immunities to illnesses to be passed from cow to calf as well as being a more” natural” way to live. The cattle are divided into herds of an average size of about 150 head. Each
herd is the responsibility of a herdsman who checks the cattle daily and depending on the season provides supplementary feeding and salt licks.

The cattle are moved between large fenced paddocks of between 150 hectares and 350 hectares in size. Bulls are put with the cows for between two to three months for breeding purposes, so no artificial insemination is used. The cattle are dipped weekly for ticks, flies and other biting insects and wormed regularly. Overall, the Fund indicated that the cattle seem well cared for. There are no poaching problems and no predatory animals in the area.

SRL will comply with Zambian legislation on animal welfare, and appropriate international standards will be applied. The Project contracts a qualified local veterinarian who has worked with Foresythe for 15 years and knows the history of the herd’s health. The veterinarian visits the ranch on a regular and frequent basis, for example once a month. At a minimum, each visit covers an inspection of all animal housing units, and the results of any autopsies, laboratory check-ups and relevant production data must be checked.

Fluoroquinolones will not be used on the ranch, unless an investigation from an approved laboratory has proven that another kind of treatment is not possible. If the authorities of Zambia require that special vaccinations are made, then such requirements will be complied with by SRL. Only sick animals will be treated with antibiotics, and no antibiotics will be administered as standard practice. Diseased animals are incinerated. Bio-safety of the herd will be maintained by ensuring separation of herd from other cattle, and controlling unauthorized access. Currently all animals are transported by Zambeef or other buyers in specific cattle vehicles. All cattle are stunned prior to slaughter.

F. Environmental Permitting Process and Community Engagement

The Fund has represented to MIGA that for the existing agricultural activities not undergoing any changes, an environmental impact assessment and environmental permit were not required under Zambian Law. SRL received approval to operate the Project from the Competition and Consumer Protection Commission of Zambia. A review of water rights for the small existing dams located within the Project boundary is being carried out by the Fund and verified with the Zambian Water Rights Board.

An ESIA for the construction of the Luezi Irrigation Dam was required under Zambian Law. The ESIA was submitted to the ZEMA and approval has been granted, with various conditions, such as releasing environmental flow, monitoring downstream impacts, etc. ZEMA also requires an independent environmental audit one year after start of construction.

As part of the ESIA process for the Luezi Irrigation Dam, consultations were carried out with stakeholders. Issues raised were related to employment opportunities, ongoing updates, community health and safety and safety of existing infrastructure (i.e., bridge over the Kalomo River), impacts to biodiversity, and access to water during the dry season. These concerns were addressed in the ESIA and supporting addendum. The irrigation dam has been designed to meet international standards by a competent consultant. A permit for water rights impoundment and abstraction has been granted by the Zambian Water Resources Management Authority.
As a requirement under the original Guarantee, SRL developed a stakeholder engagement plan and grievance mechanism which includes a commitment to ongoing, two-way, free and transparent communications as part of its core business. Following a survey of the community and with assistance from an NGO, SRL set up a community program to help small scale farmers improve the condition of their livestock, run by Livestock Committees. This program involves weekly dipping to prevent tick-borne disease, veterinary and technical assistance. The program is in the process of being expanded. (More information on the community development program is provided under PS1.)

A Stakeholder Committee will also be established to assist with Project information exchange among the key stakeholder groups. This Committee will include representations from SRL, villages, and NGOs, and will meet every three months. Minutes will be kept for all meetings. The grievance mechanism enables stakeholders to easily report grievances and for SRL to respond to such grievances.

G. Availability of Documentation

The documentation below is available electronically as PDF attachments to this ESRS at www.miga.org.

- Addendum Report for the Environmental and Social Impact Assessment for the Proposed Dam Construction Project on Luezi River; Zimba District, Southern Province, Zambia (July 2014), prepared by Kasumwa Enviroconsult & General Supplies Limited;
- Environmental and Social Impact Assessment (ESIA) for the Proposed Dam Construction Project on Luezi River; Zimba District, Southern Province, Zambia (July 2013), prepared by Kasumwa Enviroconsult & General Supplies Limited

The ESIA and addendum is also available for viewing at the following locations:

- Silverlands Ranching Limited offices, Foresythe Estate
- Offices of Kasumwa Enviroconsult & General Supplies Limited, Lusaka