

## Environmental and Social Review Summary

### ADA KLF Steel, Angola

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*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:	Angola
Sector:	Manufacturing
Project Enterprise:	ADA Steel
Environmental Category:	B
Date ESRS Disclosed:	April 16, 2015
Status:	Due Diligence

#### A. Project Description

KLF Capital of Luxembourg (KLF) (the Guarantee Holder) has requested MIGA coverage for up to \$70.2 million equity investment in Aceria de Angola (ADA or the Project) and coverage of up to \$60 million for debt financing from Rand Merchant Bank.

ADA is a private company, recently established in Angola, which is building a steel rebar plant roughly 50 kilometers northeast of Luanda. ADA will have two phases of development. The initial phase of the Project involves the construction of a rolling mill, which will produce rebar and wire rod from steel billets, and a melting shop, which will be able to convert scrap metal into billets. In total, the Project will have an installed capacity of 250,000 tons per year of product upon completion of Phase 1, with an estimated start date of mid-2015. Phase 2, which is planned in 3-4 years and is not part of the current request for MIGA coverage, will double or triple ADA's installed capacity and allow for the conversion of iron ore into billets. The request for MIGA coverage applies exclusively to Phase 1.

Aside from scrap steel inputs, ADA will have significant water and energy needs. Water is readily accessible due to ADA's location near the river Rio Dande, and the company has obtained usage permits and built a water treatment plant and the infrastructure to supply the plant with process water. Water consumption is expected to be 18m<sup>3</sup>/hr for normal operation with a peak demand of 40m<sup>3</sup>/hr. The Project will require 45 megawatts ("MW") of power (roughly 13 MW for the rolling mill, and 31 MW for the melt shop), which will be provided by the Nacional de Electricidade de Angola ("ENE") once the plant is operational. The dedicated transmission line and sub-station have already been constructed. A backup diesel fueled power plant with a capacity of 20 MW has also been constructed that is expected to be needed for 10% of the rolling mill production time.

The Project will use locally sourced scrap steel initially. In future, ADA plans to source scrap steel from other countries as local scrap will not be sufficient to provide enough raw inputs to reach full production capacity. The source will depend on the market price at the time. The Sponsors base their projections on a conservative assumption of 30-40% local scrap, but believe that actual scrap metal sourcing may be closer to 70%. There is a preponderance of scrap throughout Angola, which remains as a physical legacy of the Angolan Civil War which lasted from 1975 to 2002. ADA and Vilux, an Angolan company, signed a scrap supply agreement, which will provide ADA with most of the scrap required for the production of steel rebars. Vilux, which is 50% owned by ADA, will handle the management and collection of scrap together with ASC, also part of the project sponsor's group of companies, the largest importer and seller of rebar and other steel products in Angola. ASC has negotiated the rights to collect and recycle some of the scrap with local Angolan governments, generating environmental benefits for the country while providing ADA with competitively priced raw materials to transform into steel billets. ASC's current fleet of 120 trucks, which is tasked with distributing steel throughout the country, will also be responsible for collecting the scrap and delivering it to warehouses before sending it on to ADA's melt shop. The company will eventually employ 425 Angolan nationals when the plant is in operation and is currently employing nearly 500 people during the construction phase. An additional 1500 indirect jobs are expected to be generated through the scrap-collection companies.

## **B. Environmental and Social Categorization**

The Project is categorized as B under MIGA's Policy on Environmental and Social Sustainability, because the potential social and environmental impacts are limited, few in number, site-specific, largely reversible and readily addressed through mitigation measures.

The key potential environmental and social issues associated with the Project during both construction and operation relate to air emissions from operations (and dust during construction), solid and hazardous waste management, water supply and waste water treatment, noise, occupational health and safety risks, community health and safety issues (e.g. risks associated with the preparation, supply and transport of scrap steel materials) and access to power and water supplies.

## **C. Applicable Standards**

While all Performance Standards are applicable to this investment, based on our current information indicates 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 and Security
- PS5: Land Acquisition and Involuntary Resettlement.

The following standards have not been triggered:

- PS6: Biodiversity Conservation and Sustainable Management of Living Natural Resource. The EIA indicates a degraded environment with no unique communities of flora or fauna present in the project site or surrounding areas. In general, vegetation is characterized by the presence of savannah with scattered palm trees and herbaceous vegetation less than 1m tall.
- PS7: Indigenous Peoples. No Indigenous Peoples are present in the areas surrounding the project site.
- PS8: Cultural Heritage. No cultural heritage was identified in the EIA and no artifacts have been discovered during the current construction period. MIGA will require the implementation of a chance finds procedure for any future development of the land.

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

- General EHS Guidelines.
- WBG Industry Sector EHS Guidelines for “Integrated Steel Mills” and “Electric Power Transmission and Distribution”.

#### **D. Key Documents and Scope of MIGA Review**

As part of MIGA’s environmental and social due diligence review of the Project, the following documents were reviewed:

- Environmental Impact Assessment report (July-December 2013), ADA Steelmaking Complex, Município do Dande and Non-Technical Summary (dated May 1, 2014), prepared by Bureau Veritas Angola.
- ADA, Environmental Management System
- ADA, Health and Safety Management System
- ADA, Quality Assurance Management System

#### **E. Key Issues and Mitigation**

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

###### *Environmental and Social Assessment:*

An environmental and social impact assessment (ESIA) was developed in 2012 and 2013 to Angolan Standards and was submitted to the Ministry of Environment in order to gain the initial environmental license for construction. The ESIA identified baseline data and assessed the potential environmental and social risks and impacts associated with the Project, and provided management and mitigation and measures. These are discussed in the sections below under the appropriate Performance Standard. The Project is currently under construction and a number of contractors are on site installing the equipment. They each follow their own management systems which are compliant with Angolan law and MIGA requirements. Senior managers have been hired who have responsibility for ensuring that environment, health and safety issues are being managed effectively. Ministry of Environment officials have regularly visited the site during construction site to ensure that construction is achieving compliance with the regulations and license conditions. Regular community meetings have been held to appraise the community of project development

activities with no complaints have been logged. On completion of the construction phase the company will seek an operating permit. Periodic internal and external environmental and social audits will be submitted to MIGA.

*Management Program and Monitoring:*

The ESIA identified the main E&S impacts and presented an environmental monitoring plan to cover the key parameters of air, waste, water and noise. Monitoring procedures will be incorporated into the operating management system. ADA has developed management systems for quality, environmental and health and safety, to eventually achieve certification to the internationally recognized standards; ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007, respectively. The company plans to combine these management systems into an overall integrated management system. The environmental and social management system (ESMS) incorporates a set of procedures covering; training and environmental awareness; communication; document control; and technical procedures covering; waste and hazardous materials management; air emissions and CO2 monitoring; noise control; waste water, and radiation monitoring. These procedures are currently under development and are expected to be finalized prior to completion of construction works. ASC, Vilux and other companies in the supply chain will be required to follow ADA's supply chain EHS procedures.

*Organizational Capacity and Competency:*

The Board of ADA has prepared an Environmental Policy that covers the scale and environmental impacts of its activities and includes a commitment to continuous improvement and pollution prevention, compliance with legislative and other requirements, and will be available to the public on the company's website. A full time on-site Environmental Health and Safety Manager is currently being recruited. The Manager will be responsible for the day-to-day implementation of the ESMS and monitoring plans.

*Emergency Preparedness and Response:*

ADA has established a procedure to identify and respond to potential emergency situations and potential accidents. During construction, no incidents have been reported.

*Monitoring and Review:*

The ESMS has established a set of monitoring procedures as recommended in the EIA. Monitoring of key parameters will be performed to ensure compliance with local regulatory and MIGA requirements. During operations, in addition to ongoing reporting and submission of audit reports to the Ministry, annual environmental and social monitoring reports will be prepared and submitted to MIGA.

PS2: Labor and Working Conditions

*Human Resource Policy and Management:*

ADA has recently hired a full time HR manager and an HR policy is under preparation. Angolan labor market legislation that requires that less than 30% of employees be expatriates. The company will eventually employ 425 Angolan nationals when the plant is in operation and is currently employing nearly 500 people during the construction phase. An additional 1500 indirect jobs are expected to be generated through the scrap-collection companies. A training school is being constructed to provide training on metallurgy. Worker accommodation has already been constructed to a very high standard and there are plans for recreational facilities. The workforce are provided with three meals per day from the onsite kitchens.

*Non-discrimination:*

ADA operates a non-discrimination policy. During construction women have already been employed for work in the accommodation blocks and kitchen, and two women are currently working as a crane operator at the site. Women are encouraged to work in such positions.

*Protecting the Work Force:*

ADA has adopted a policy of not employing children or permitting the use of children in the collection and supply chain of scrap metal. All employees will be required to be over the minimum age of 18 in accordance with PS2 requirements. ADA policy is to abide by and ensure compliance with the following ILO and UN conventions:

- ILO C138 - Minimum Age Convention, 1973 (No. 138)
- ILO C182 - Worst Forms of Child Labour Convention, 1999 (No. 182)
- UNICEF CRC - Convention on the Rights of the Child (1990)

ADA will require adherence to these conventions and the PSs by all companies involved in the supply chain to ADA, including ASC, Vilux and any other scrap steel suppliers. This will be achieved by supplier pre-screening, supply contract conditions and through the use of periodic supplier and supply chain audits.

*Occupational Health and Safety:*

During construction all contractors have been operating their own occupational health and safety management systems and are working to international standards. In the past two years during construction there have been no lost time incidents, accidents or fatalities. All contract staff are required to use the appropriate personal protective equipment (PPE) provided and were observed to be using the PPE during the MIGA site appraisal visit. ADA places a high priority on occupational health and safety and has developed a management system and sets of procedures to meet the international OHSAS 18001:2007 standard. The facility will be operated to high standards to ensure worker safety. Given the past conflict in Angola, unexploded ordnance may be present in scrap material during its collection and handling, and a protocol to manage these risks will be prepared. ADA is well aware of these risks and will include this important aspect in procedures relating on the scrap. ADA is currently evaluating best practice methods and instrumentation to perform scrap management safely. A protocol for the systematic screening of scrap steel for any radiation contamination has been developed. This will screen scrap material on entry to the site and immediately prior to charging to the melt shop. All personnel involved in scrap metal handling will be required to undergo training and regular medical check-ups. Personnel will also be provided with individual radiation detectors. Procedures will be developed to ensure that scrap is screened at source and at the plant, as well as emergency response and handling procedures in the event that any radiation alarm is triggered. Should any radiation be detected (typically this might come from hospitals) the Angola regulatory authority (AREA) will be contacted. Noise levels for these types of operation are high and so workers will be required to avoid extended periods in high noise areas, wear ear defenders and be subject to periodic hearing checks.

PS3: Resource Efficiency and Pollution Prevention

*Process Description:*

Initially the Project will use the stock of locally sourced scrap steel to produce billets which will then be rolled into rebar and wire rod. The process that has been designed using Best Available Techniques (BAT) securing minimum environmental impact. The plant is supplied by Danieli, one

of the world's largest suppliers of this equipment. The key production processes are: (i) scrap park storage where the scrap is screened, sorted, loaded into baskets, and then conveyed to the induction furnace; (ii) The induction furnace in which the steel is melted in a clean, energy-efficient and controllable process; (iii) liquid steel is refined in the ladle furnace before casting; (iv) molten steel is poured into molds to produce billets; (v) billets are then rolled to produce the final desired diameter rebar and, (vi) the rods are subjected to a cooling and treatment through which the mechanical characteristics of the rods are adjusted to the requirements of the various standards of the finished product.

A key part of the process is scrap processing and preparation. It is important to ensure as clean a supply as possible free from oil, paint or other coatings that could potentially release toxic atmospheric pollutants. Before entering the induction furnace, the scrap is screened for any radiation contamination and then cleaned to remove coatings. In the event of an alarm being triggered, the Angolan authorities will be notified. Scrap is then subject to fragmentation in a shearing/shredder fitted with a magnetic separator drum to ensure that only ferrous material enters the furnace. The scrap will be stored on concrete area that is drained to the waste water treatment plant.

*Pollution Prevention and Resource Conservation:*

ADA has invested on the constructed power transmission lines that will connect the Project to the national electrical grid. This investment will be credited towards ADA's future energy bill from ENE. With the Cambambe and proposed Lauca Hydroelectric Projects, ADA expects that ENE will be able to meet power needs. A new substation will transmit power from the main grid to the site. The transmission line and sub-station have already been constructed and a backup diesel fueled power plant with a capacity of 20 MW have also been constructed by ADA. It is estimated that the diesel generating backup plant will be required for 10% of the rolling mill production time. Diesel will be consumed in the process for the rolling mill, heating furnace, ladles and tundish, with an estimated annual consumption of around 11700m<sup>3</sup>/year. The tanks are above ground and fitted with bunds to prevent leakage. The tanks for the back-up diesel fired power plant are double-skinned purpose designed underground tanks fitted with an alarm system.

*Air Emissions and Noise:*

The main air pollutants associated with plant operations are particulate matter (and associated heavy metals) and combustion gases. Significant particulate matter (PM) emissions are generated by the induction and ladle furnaces during melting; (primary off gas emissions); and charging / tapping (secondary off-gas emissions). Nitrogen oxides (NO<sub>x</sub>) emissions are caused by high temperatures associated with the operations of the reheat furnaces of the rolling mills. Other potential pollutants of concern include organic compounds, dioxins and furans arising from off gases, depending on the quality of the scrap charged. Even with cleaning and processing, the scrap steel is likely to be coated with paint residues that can give rise to dioxin emissions. To minimize this, the plant is equipped with gas collection where exhaust fumes are cooled prior to treatment. Cooled fume and fugitive gases are treated by bag filters designed for full compliance with local requirements and the WBG EHS Guidelines for dust emission control. Air dispersion modelling of emissions from the plant indicated higher CO and NO<sub>x</sub> but limits were not exceeded. PM<sub>10</sub> level was exceeded at one receptor location in a remote area. The plant will be fitted with continuous air quality monitoring. Opacimeters and CO and NO<sub>x</sub> analyzers will be placed on the two emission points; fume extraction and rolling mill heating furnace stacks. Ambient noise pollution is not an

issue due to the remote location of the plant and the nearest village is 1.5km away. Noise levels will be monitored.

*Greenhouse Gas (GHG) Emissions:*

GHG emissions will arise from two principal sources; the diesel generation plant for the rolling mill estimated to be used only for only 10% of production time and diesel used for the reheating furnace, ladles and tundish heaters. The induction furnace is an energy efficient method for smelting and total estimated power requirement for the overall facility is projected at 230,824,525 kWh/year, supplied from the grid. Total annual CO<sub>2</sub> emissions are estimated at around 45,000 tCO<sub>2</sub>e/year.

*Water and Waste Water:*

Water is used at industrial scale but only for cooling operations. Since the system works in a closed loop it allows for water recirculation. Usage is estimated at 18m<sup>3</sup> during normal conditions and 40m<sup>3</sup>/hr at peak. Water is readily accessible due to ADA's location near the river Rio Dande, and ADA has obtained the necessary usage permit. The process has been designed to recover and re-use as much water as possible to maintain water use efficiency. As part of its community development plan ADA has also installed water treatment facilities for three local communities.

Waste water is expected from a number of sources: (i) runoff and cleaning operations of the internal roads and from the surface runoff of rainwater on the piles of scrap and will be drained to the storm water drainage system, (ii) water contaminated with oils, ashes and sludge originated in workshops, maintenance areas and ash, slug and sludge storage areas, in result of rain runoff waters, (iii) cooling water residue in the melt shop and rolling mill after recirculation. A waste water treatment plant has been constructed on site to treat wastes prior to discharge.

*Solid Waste and Hazardous Materials Management:*

A solid waste management plan is being developed to address handling, treatment, transport and disposal of waste materials. Slag from the melting process generated at around 70kg/t of steel (i.e. 18,000t/year), a non-hazardous material, is crushed and can be processed for further use in cement production and the construction industry. The ladle slag, known as white slag is non-hazardous and generated at 18 kg/t of steel (4,500t/year). Filter dust generated at around 6-8kg/t of steel (around 15-20t/year) is classed as hazardous. It will contain zinc (that can be recovered) and heavy metals. Other hazardous wastes to be managed include sludge from the waste water treatment plant. The EIA states that hazardous wastes will won't be processed in the plant and will be stored on-site in sealed containers for transport to licensed disposal sites or companies for final treatment. Any scrap steel found to be contaminated with radiation should be handled by the Angolan regulatory agency, AREA.

PS4: Community Health, Safety and Security

The site is 1.5km km from the nearest village and so operations are unlikely to have any significant effect on the community. The major potential health issues for the communities are air pollution, hazardous waste and transport of scrap steel. ADA is developing detailed emergency response plans for covering these aspects of their operations.

### *Security Arrangements:*

The site is securely protected by a security fence and professional, trained security guards. The local police force also has a presence on site. When operational, the site will be subject to 24/7 security control and entrance to the production facilities will be controlled through a visitor registration system. CCTV cameras will be located around the site and monitored from the central control room.

### PS5: Land Acquisition and Involuntary Resettlement

The land was leased from the government and is located in an area designated as a special economic zone, but at present there are no other nearby industries. There were some farmers using the land, but they have since been relocated elsewhere and compensation payments were paid to 15 individuals. A report on this will be submitted to MIGA together with confirmation from ADA that there are no outstanding claims. There are some companies on the land that are involved in sand extraction, but they will be left to continue their business as it is far from the area which will be used by the Project. For construction of the dedicated transmission lines, there was no resettlement involved.

## **F. Environmental Permitting Process and Community Engagement**

ADA submitted an EIA to the Ministry of Environment for approval. This was duly approved and a construction permit was issued. During EIA preparation there were stakeholder consultations.

ADA has a strong community development approach and has already completed a number of activities, including bringing clean water to the three closest communities. A community meeting was held and all members expressed their agreement that the project was bringing development to their communities. A Stakeholder Engagement Plan (SEP) will be developed to include the consultation and disclosure activities that will occur throughout Project preparation and implementation, as required in the ESAP. The SEP will include including formal grievance redress mechanism. The existing stakeholder consultation/disclosure process will be articulated within the SEP and will include stakeholders identified by the project company as directly affected and vulnerable people. A community development plan is under preparation.

## **G. Availability of Documentation**

- Environmental Impact Assessment report (July-December 2013), ADA Steelmaking Complex, Município do Dande and Non-Technical Summary (dated May 1, 2014), prepared by Bureau Veritas Angola
- [Environmental and Social Action Plan](#) (ESAP), April, 2015

The above listed documentation is available electronically as PDF attachments to this ESRS at [www.miga.org](http://www.miga.org). The final EIA Report is also available for viewing at the following locations:

- Head Office of ADA, Edifício Elysee Trade Center, Rua Rainha Ginga n°29 – CP 6855 – LUANDA – ANGOLA  
Email: [Admin@adasteel.com](mailto:Admin@adasteel.com)  
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