

Environmental and Social Review Summary

Secil Lobito – Angola

This Environmental and Social Review Summary (ESRS) is prepared by MIGA staff and disclosed in advance of the MIGA Board consideration of 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 the MIGA Board of Directors. Board dates are estimates only.

Any documentation which 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:	Secil – Companhia de Cimentos do Lobito, S.A.
Environmental Category:	B
Date ESRS Disclosed:	April 22, 2010
Status:	Due Diligence

A. Project Description

The project belongs to Secil Companhia de Cimentos do Lobito, S.A (Secil Lobito or the company). Secil Lobito was created in November 2005 by Tecnosecil - Investimentos e Participações SARL (company fully owned and controlled by Secil Companhia Geral de Cal e Cimento, S.A (Secil or the sponsor) and the Government of Angola's (GoA) cement corporation, Empresa Nacional de Cimento (ENCIME). In 2006, Tecnosecil was renamed Secil Angola - Investimentos e Participações, S.A. (Secil Angola). Secil, through Secil Angola, and ENCIME own 51% and 49% of the company, respectively. The project is a part of Secil's strategy to reenter and expand in the Angolan market following the conclusion of the Angolan civil war.

The project is located in Lobito and is to construct and operate a modern energy efficient green field cement manufacturing plant with a total nominal capacity of 495,000 tons per annum (tpa) of clinker and an expected outcome of 650,000 tpa of cement using Dry Process technology. The project is on land close to company's existing cement manufacturing operations, which previously belonged to ENCIME.

B. Environmental and Social Categorization

Based on the project's use of internationally recognized equipment suppliers, and the project taking place on primarily barren land with the remaining acquired through negotiation, this project is a Category B project according to IFC's and MIGA's environmental and social review procedures.

IFC environment and sector specialists visited the project. Technical documentation and the Environmental Impact Assessment reports covering the new cement manufacturing facilities in Lobito and the associated quarry operations have been reviewed. Based on information provided

by this review and IFC's site visit the key environmental and social issues are: air and noise emissions, wastewater treatment and disposal, occupational health and safety, and worker relations.

C. Applicable Standards

Based on a review of project information, IFC/MIGA found the following Performance Standards to be relevant:

- PS1: Social and Environmental Assessment and Management Systems with respect to the company's management of its environmental, health and safety performance in the construction and operation of all facilities; compliance with national and local requirements; and its engagement with local communities regarding environmental, health and safety performance.
- PS2: Labor and Working Conditions with regard to fair, safe and healthy working conditions.
- PS3: Pollution Prevention and Abatement with regard to emissions to air and water arising from the cement manufacturing facilities and the quarry operations.
- PS4: Community Health, Safety and Security in respect of the manufacturing practices, the quarry operations including their quarry management operations, and infrastructure for raw material and product transportation.
- PS5: Land Acquisition and Involuntary Resettlement in respect of reviewing the process used for acquiring the land needed for the new production lines.
- PS6: Biodiversity Conservation and Sustainable Natural Resource Management in respect of reviewing the potential for biodiversity issues for the expanded quarry operations.

The following Performance Standards screened for but not found relevant for the actual project:

- PS7: Indigenous People as no indigenous peoples are found in the area.
- PS8: Cultural Heritage as the land for the project is primarily barren with no cultural heritage issues identified.

IFC and the company have identified some environmental, health and safety issues, related to the existing operations, which will need to be addressed as part of the project implementation. These issues are covered in a Corrective Action Plan (CAP). The new project will be implemented in full compliance with MIGA and IFC Performance Standards, and is therefore not covered in the CAP, but is described in this document and in the attached Environmental Impact Assessments.

D. Key Documents and Scope of MIGA Review

Besides the Definitive Application, IFC's review and due diligence will apply to MIGA's review.

IFC's environmental and sector specialists have visited:

- the company's existing cement manufacturing operations in Lobito;
- the proposed new project site and the associated limestone, marl and gypsum quarries;
- the local port where fuel and cement might be handled;

- local villages in the area;
- the main sponsor's (Secil) existing operation outside Lisbon in Portugal to inspect the plant operations and the quarry rehabilitation projects carried out there.

MIGA and IFC have also reviewed technical documentation and the Environmental Impact Assessment reports covering the new cement manufacturing facilities in Lobito and the associated quarry operations. Please see section G of this ESRS where documents reviewed and disclosed are listed.

E. Key Issues and Mitigation

The company has presented plans to address these impacts to ensure that the project will upon implementation of the specific agreed measures, comply with the environmental and social requirements - the host country laws and regulations and MIGA/IFC's Policy and Performance Standards for Social and Environmental Sustainability and applicable environmental, health and safety guidelines. The information about how these potential impacts will be addressed by the project is summarized in the paragraphs that follow.

PS1: Social and Environmental Assessment and Management Systems

Three EIA studies for the expansion project have been carried out and covers:

- the new cement manufacturing plant located in Comengo east of the Golf village,
- the old quarry operations (Quileva quarry) located east of the existing cement manufacturing plant in Lobito and west of the Golf village,
- the newer quarry operation (Comengo quarry) located to the east of the new plant site. A location map can be found in the attached EIA documents, e.g. on page I-6 of the English summary report.

The existing cement grinding plant used to be served by a wet-process clinker line which was closed down long ago and the current activities are therefore limited to import of clinker from the open market or Secil's Portuguese operations; quarrying of gypsum and limestone for additives in the Portland cement; grinding of the final cement mix; and bagging for sale. Since taking over the management control of the company, Secil has worked on organizational and production improvements, and will use the implementation of the new project to revitalize the company into a modern facility with integrated quality, environmental and health and safety management systems.

Secil in Portugal is a member of the Business Council for Sustainable Development of Portugal (BCSD) and a Participating member of the Cement Sustainability Initiative (CSI), a project integrated into the World Business Council for Sustainable Development (WBCSD), and has ISO 14001 and OSHAS 1800 certification. Expatriate staff from Portugal will take part in this transition process, both through training of Angolan staff the parent company's existing facilities and by onsite participation in Lobito when the new plant is commissioned and operated. Consistent with this plan, IFC has agreed with Secil Lobito that the resulting Environmental Management System (EMS) be consistent with an ISO 14001-based system. The EMS will allow the Secil Lobito management to continuously monitor the performance of its operations, and will

enable the company to ensure continuous compliance with relevant environmental, health and safety requirements. The company will decide at a later time if the system needs to be certified to achieve the commercial benefits of such proof of operational standard.

Consistent with the agreed EMS, Secil Lobito will introduce continuous oxygen, carbon monoxide, particulate, sulfur dioxide and nitrogen oxides control of the kiln emissions. Oxygen and carbon monoxide measurements will be linked to the process controls to optimize the energy utilization, while the particulate, sulfur dioxide and nitrogen oxides monitoring will be used to ensure compliance with the local regulations and World Bank Group guidelines on a continuous basis.

Also consistent with the EIAs and the agreed EMS, Secil Lobito will prepare quarry reclamation plans for the expanded/new quarry (limestone, clay and gypsum) operations before the operations expand/begin. These quarry management plans will ensure that the surrounding landscape and the quarries have a natural contouring after the quarry activities have ceased. There is no sustained vegetation and no, or, at some places, minimal overburden to be removed and later reapplied, and the main emphasis therefore has to be on appropriate contouring. Other raw materials used in the cement manufacturing process (e.g. iron ore) will be acquired on the open market.

Secil Lobito will use imported coal or pet coke for its fuel needs in the kilns, while the power generators will operate on diesel fuel or Heavy Fuel Oil (HFO). An oil refinery is planned just north of the new plant site, as part of Angola's development of its oil exploration industry. Once this refinery has been completed other fuel options might become available. Secil Lobito will at that time consider any feasible alternatives to the coal/pet coke import.

PS2: Labor and Working Conditions

Secil Lobito's current workforce of 320 persons, of whom all but seven are Angolan citizens, exceeds what similar efficient operations will employ. In the future, when the new production lines are fully operational the workforce will, however, need to be expanded to approximately 450 persons. This gives Secil Lobito the opportunity to prepare and train personnel from the existing operations, locally and in Portugal, ahead of the commissioning of the new plant. At the same time Secil Lobito can expand with operational specialists without a retrenchment program otherwise needed if the expansion was not proceeding. All workers are provided with written contracts detailing their conditions of employment and periodic staff meetings are held to discuss key human resource issues. There is a workers' union present on site which employees are free to join.

The three year construction phase will involve a workforce of approximately 500 persons, although this number will vary from around 100 to a peak of 750. Secil Lobito is negotiating with the Lobito municipality to site the construction camp adjacent to the greenfield cement site, just outside of the main concession area. The company intends to hand this camp over to the municipality once construction is over, for use as business / small industry occupation, or other uses according to the priorities to be defined by Lobito's Municipality. It is likely that a large

proportion of the construction workforce will be migrant Chinese workers, with the balance comprising Angolans.

The safety tracking record at Secil Lobito is limited and the company will, as part of implementing new management systems, establish a health & safety unit responsible for safety training and accident tracking and documentation in line with ILO requirements. This will allow Secil Lobito to compare its safety performance with other cement companies, identify weak performances and assure its ability to implement continuous improvement programs.

The tender documentation for the new plant includes a requirement for the turn key supplier to follow European Union safety standards and systems through the construction and commissioning, after which Secil Lobito will take over the responsibility.

PS3: Pollution Prevention and Abatement

The new cement manufacturing plant is designed with a state-of-the-art process including pre-heaters and pre-calciner, hereby reducing the energy consumption to between 760 Kcal and 805 with 10% bleed Kcal per kilo of clinker produced (and 870 kcal/kg clinker if a maximum bleed of 35% is used). Air emission controls will be provided by a combination of bag filter and Electro Static Precipitators (ESP) and will achieve particulate emission controls at 30 mg/Ncm, which is well within the current World Bank guidelines of 50 mg/Ncm. SO_x will be kept below 400 mg/Ncm and NO_x will be kept below 600 mg/Ncm, both limits set according to the World Bank guidelines. The EIA originally accepted higher SO₂ emission and NO_x emission up to 900 mg/Ncm, but Secil Lobito has agreed to improve this limit to meet the World Bank group limit of 400 mg/Ncm. and 600 mg/Ncm respectively. According to Contract if NO_x emission limits are exceeded, Contractor shall work with Employer to reduce the NO_x emission. If the NO_x emission cannot be reduced to guaranteed level with operational changes, then the Contractor shall, at its expense, furnish the Low- NO_x duct and change burning chamber internals. If that change will not give the positive result, then the Contractor shall, at its expense, furnish the ammonia injection into the system. Ammonia injection system will be the ultimate remedy, if the NO_x guaranteed limits are exceeded As for the NO_x, Secil Lobito has committed to implement all technologies available for reducing this emission level, namely by imposing a European supplied kiln burner and a low NO_x Precalciner system to the main Contractor.

The kiln will be fired with coal or pet coke as these are the only fuels available at this time. A new refinery project is however under planning for the site located adjacent to the plants northern limit. Once this refinery has been commissioned alternative fuels might become available and Secil Lobito will at that time consider the alternatives, and if economically feasible change to a less carbon dioxide emitting fuel. The onsite power generation will be based on either turbine or engine driven generators of a combined capacity of 16 to 18 MW. IFC will also introduce Secil Lobito to the technology of kiln gas heat recovery for power generation and will encourage the company to consider implementing such a system once the operations will allow for this. A table stating the sources of the CO₂ emissions from the cement plant is attached. This table indicate the CO₂ emission caused by the conversion of the limestone to cement clinker (the calcinations process), which is an inevitable part of cement production that process optimizations

cannot change, and the CO₂ emission caused by the fuel burning and electricity consumption. Only the coal/pet coke scenario is included as no other fuel alternatives are currently available.

It is anticipated that the plant will supply ordinary Portland cement and blended cement to the market. While Portland cement is mainly cement clinker (roughly 90%) milled together with limestone (5%) and gypsum (5%), Secil Lobito's blended cement will contain significantly less clinker by substituting it with additional limestone. The anticipated product composition for Secil Lobito's market is 10% ordinary Portland cement and 90% blended cement based on 75% clinker, 20% limestone, and 5% gypsum. The CO₂ emissions per tons of final blended cement will be reduced by the same proportions as the amount of cement clinker replaced by other materials. A complete CO₂ emission overview for the Secil Lobito plant is given in the attached table.

The cement plant will only have limited water needs, which will be supplied from local deep wells. These wells will not affect any other local users. Wastewater from the plant will be treated and reused to the extent possible; non-recyclable water will be used for irrigation of green belts to be established at the site perimeter or discharged after appropriate water treatment process. The plant operation does not produce any significant amounts of solid waste, and solid waste from the colony will be handled through local approved contractors.

PS4: Community Health, Safety and Security

The cement manufacturing plant is equipped with the most modern emission abatement technology and no measurable change in the ambient air quality is foreseen in the area. The plant will also not discharge untreated wastewater and will not generate significant amounts of solid waste. Noise will also be kept within World Bank Group guidelines. The plant has contracted a health clinic to serve its workers and their families. Increased road traffic associated with both the construction and operational phases of the Greenfield project poses a potential safety risk to nearby communities, particularly Golf Village. This risk will be managed through a traffic safety awareness campaign at local schools, speed controls on quarry and site roads and instructions to contractors. There is also a possible risk of the spread of HIV-AIDS and other sexually transmitted diseases associated with the influx of construction workers. The company will work with provincial HIV-AIDS programs, Angolan service providers and IFC-against-AIDS to increase local awareness, prevention and treatment of these diseases during and after this sensitive period.

Secil Lobito currently employs its own security personnel, mainly to guard against petty theft. Security personnel have radios but do not carry weapons; no incidents involving use of force have been reported since the new company began operating in January 2006.

PS5: Land Acquisition and Involuntary Resettlement

The land used for the plant and its three quarries (limestone, clay and gypsum) was awarded to the company in its past operation, with the exception of the land now anticipated for use for the new manufacturing plant. No households will require physical relocation as a result of the new greenfield project. However there is one smallholding currently used by seven persons for minor

cropping and livestock grazing purposes which will fall within the new concession area. The land in question belongs to the Lobito Municipality and an alternative site has been agreed upon for the farmers to utilize. Secil Lobito intends to move a section of the national road Westwards to the boundary of their concession, in order to create a natural buffer zone between the edge of their concession and Golf Village and to thereby discourage encroachment. No displacement would be involved in this process, as the only buildings present in the affected strip of land are disused ruins.

PS6: Biodiversity Conservation and Sustainable Natural Resource Management

No biodiversity issues were found during the evaluation of the plant site and the quarry sites, which were all visited and inspected. The quarries are all part of continuous dry landscapes, with no apparent risk of holding isolated species. Sustainable natural resource management practices will be incorporated into the preparation of quarry management plans as discussed in the PS1 section.

F. Environmental Permitting Process and Community Engagement

Lobito as a city is in a slow process of emerging from the destruction of the civil war. This means that many infrastructure conveniences considered obvious in other locations are non functional in Lobito. This includes all roads in dire need of reconstruction, waste collection being sparse and no recycling systems for scrap metal, aluminum, plastic etc. resulting in all types of waste materials being dumped along all roads. Health care is also at a minimum and both aids and malaria are a considerable threat to the local population.

With Secil Lobito being a relative new company built on the remains of the old ENSIME operation in Lobito it is in the process of establishing itself as a brand name and presenting its new project. To do this Secil Lobito has engaged in a number of different public relation activities and it trying to identify social or community activities, which it can support with a good cost benefit outcome. IFC has discussed with Secil Lobito how this process can be optimized to ensure that Secil Lobito's help to the local community gives the best outcome while supporting Secil Lobito's operations. With this in mind, IFC has suggested to establish contacts between Secil Lobito and IFC clients in Southern Africa who has successfully implemented community development programs to ensure maximized outcomes based on the available funds. IFC's programs to target malaria and aids problems will also be available for Secil Lobito based on local needs and their applicability.

G. Availability of Documentation

The "[Environment Impact Assessment for Secil Lobito's New Clinker and Cement Plant: Volume 1 – Non-Technical Summary](#)" (January 2007), "[Secil Lobito Estudo de Impacte Ambiental: Volume 1 – Resumo Não Técnico](#)" (January 2007), "[Secil Lobito Estudo de Impacte Ambiental: Volume 2 – Relatório Síntese e Anexos](#)" (January 2007), "[Secil Lobito Estudo de Impacto Ambiental e Social da Pedreira de Margas e Calcários da 'Quileva'](#)" (January 2007), "[Secil Lobito Estudo de Impacto Ambiental e Social da Pedreira de Calcário do 'Comengo'](#)"

(January 2007), and “[Carbon Dioxide Emissions from Secil Lobito](#)” are available electronically as PDF attachments to this ESRS at www.MIGA.org.

Secil Lobito will make this ESRS, and its attachments (CO2 emission calculations and EIA reports for the new plant and the two limestone quarries available to the general public and affected people at the Lobito Town Hall:

Administração Municipal do Lobito, Lobito, Angola.

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The project ESRS has been disclosed also by IFC since March 2008. The following documents can also be found at the MIGA website (www.MIGA.org):