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## 1 INTRODUCTION

### 1.1 PURPOSE OF THE STUDY

Garadagh Cement O.J.S.C. ("*Garadagh Cement*" or "*GC*") intends to modernise its cement plant which is in operation since the 1950s. The plant is located near Sahil Settlement some 34 km south-west of Azerbaijan's capital Baku.

Since Holcim (Switzerland) acquired the formerly state-owned plant in 1999, production capacity has been increased more than six-fold accompanied by substantial investments in environmental technology. As part of this ongoing commitment, Holcim intends to introduce new technology at the plant to reduce raw material and energy costs and further increase production. Within the frame of plant modernisation, a new state-of-the-art dry process rotary Kiln 6 (the Project) will be constructed at the Garadagh Cement plant site.

For the Project, which constitutes a major plant upgrade, an environmental impact assessment (EIA) is mandatory according to Azeri environmental regulations. In February 2008, Garadagh Cement contracted the local consulting company SRM from Baku for carrying out this EIA to be submitted to the Ministry of Ecology and Natural Resources (MENR) as an application document for the environmental approval of the Project.

In addition, to fulfil the policy expectations of the Holcim Group<sup>1</sup> and other shareholders of GC as well as potential international Project lenders, Garadagh Cement in March 2008 has contracted a consultant team led by ERM (Frankfurt office/ Germany) locally supported by Azerbaijan Environmental Technology Centre, Baku (AETC) to prepare additional studies and compile supplementary information in a wider scoped Environmental and Social Impact Assessment (ESIA) report: the ESIA is designed conform to international standards and practice. ERM will assist GC in public consultation and disclosure activities for the Project.

The ESIA Report will serve as input for the environmental and social appraisal of the Project by potential lenders. An Environmental and Social Management Plan outlines the mitigation measures necessary to ensure that the design, construction and operation of the Project will be in an environmentally and socially acceptable manner and compliant with both national and international standards.

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<sup>1</sup> <http://www.holcim.com/sustainable>

## 1.2 *PROJECT PROPONENT*

In 1999, the cement plant at Sahil was privatised and the Swiss cement manufacturing company Holcim Ltd. acquired the majority of shares.

Holcim is one of the world's leading suppliers of cement, aggregates and other construction related services. Holcim has a proven successful experience track of establishing and operation of cement plants. The company was founded in 1912 and today operates about 150 cement and grinding plants in 70 countries worldwide<sup>2</sup> and is a member of the World Business Council for Sustainable Development (WBCSD) Cement Sustainability Initiative (CSI)<sup>3</sup>. Garadagh Cement O.J.S.C. was founded after privatisation as a registered Azeri company to operate the cement plant. Today, a 69.4 % share in Garadagh Cement is held by Holcim Ltd, 10 % by the state owned Azerbaijan Investment Company (AIC), another 10% by the European Bank for Reconstruction and Development (EBRD)<sup>4</sup>, and the remaining 10.6% is held by individual shareholders.

Garadagh Cement at present is the only cement clinker producer in Azerbaijan and also is the largest cement manufacturing plant operating in the country. In 2007, the Garadagh Cement plant manufactured about 1.3 million tonnes of cement. Garadagh Cement has more than 580 employees of which some 470 are directly involved in cement production.

## 1.3 *BACKGROUND TO PROJECT*

### 1.3.1 **Project Type and Size**

The new dry Kiln 6 will replace the present four wet process kilns which will be decommissioned after commencement of production with the new dry Kiln 6.

The replacement of the old wet kilns by one single dry kiln will significantly improve the environmental performance (especially with respect to reduction of particulate matter), and increase plant efficiency, including energy

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<sup>2</sup> <http://www.holcim.com/CORP/EN/page/home.html>

<sup>3</sup> <http://www.wbcscement.org/>  
(<http://www.wbcscement.org/templates/TemplateWBCSD1/layout.asp?type=p&MenuId=MTI2&doOpen=1&ClickMenu=LeftMenu>)

<sup>4</sup> <http://www.ebrd.com/enviro/index.htm>

efficiency, and product output. The dry process is internationally state-of-the-art for new cement kilns.

Kiln 6 will enable a significant increase in the plant's production capacity for cement clinker from currently approximately 2,600 tonnes per day (tpd) to 4,000 tpd. In the kilns, limestone is burned to "*clinker*" which is the main component of cement.

Note: As an option, Garadagh Cement is investigating to continuing the operation of two wet kilns for a limited period of time (between 5 and 10 years), parallel to the new dry Kiln 6. This option is considered due to the continued deficit of local cement production in Azerbaijan, which will continue to exist despite the significant increase of production with the new dry Kiln 6. A decision in this regard has not yet been made. Consequently, this option is not subject to this ESIA for the plant modernisation with the new dry Kiln 6 Project. Any continuation of operating the old wet kilns would include an environmental upgrade and related permits. If a decision is made to pursue this option, Garadagh Cement would inform the interested public and relevant stakeholders accordingly.

Limestone is the main raw-material for clinker production. Present Garadagh Cement operations use the waste limestone from the dimensional stonecutting activities in the backcountry of the cement plant. As part of the Project, Garadagh Cement will reopen in addition its currently unused Shakhgaya-West limestone quarry to secure the long-term availability of limestone raw material at higher quantities and to stabilise raw material quality input. Also, a new crusher facility will be installed at the former loading station of the quarry site and the presently abandoned railway line section which connects the Shakhgaya-West quarry with the Garadagh Cement railway line will be rehabilitated as.

The total capital investment of the Kiln 6 project amounts to roughly 300 million Euros.

### 1.3.2 Location of the Project

The proposed Project at GC is situated 1.5 km west of Sahil Settlement about 34 km south-west of Baku and 1 km inland from the Caspian Sea. Sahil town administratively belongs to the Garadagh District, which is part of the Baku Region.

The Kiln 6 and other installations required for modernisation of the plant will basically be erected within the existing site boundaries, which today total

about 52 hectares. A realignment of the site boundaries by adding a few patches of land (in sum ~ 7.5 ha) directly adjacent to the existing premises is under consideration and is subject to land allocation negotiations.

The Shakhgaya-West limestone quarry is located at about 15 km distance inland from the plant to the north-west and covers an area of 152 ha. GC will continue to use the existing clay quarry which is located about halfway to the Shakhgaya West quarry.

The Caravansarai limestone deposit (~120 ha) located south of the Shakhgaya-West quarry is a further long term option for limestone supply which may be developed by GC at a later stage.

An overview map showing the project area and location of the plant and quarry sites is provided in below in Figure 1-1.



Figure 1-1 Project Area and Location of the Project

#### 1.4 STAGE OF PROJECT PREPARATION

At the time of writing this ESIA report, the tendering process for the Project was under preparation based on a feasibility study (FS) for the Project undertaken by Holcim Support Group in 2007.

Garadagh Cement /Holcim are intending to select a qualified international Engineering, Procurement and Construction (EPC) contractor through a process of international competitive bidding. Respective Bid documents are under preparation. It is expected that the bidding process will be substantiated by the end of the 3<sup>rd</sup> quarter of 2008.

The Project will be planned, constructed and operated to international best practice and standards and according to the Holcim Environmental Guidelines, the EBRD environmental policies, and the guidelines for the cement industry issued by the World Business Council for Sustainable Development (WBSCD).

Environmental and social findings with relevance for the plant design specifications and project implementation will be fed into the contracting agreements with the successful bidder by Holcim to ensure that measures identified as necessary in this ESIA will be implemented.

Garadagh Cement, at the time of ESIA preparation, had already submitted parts of the application documentation for a permit to build the new dry Kiln 6 to the Ministry of Environment and Natural Resources (MENR) being the competent authority for providing the “no objection opinion” which is a prerequisite for a building permit.

The commencement of construction is planned for the end of 2008. Start of clinker production with the new dry Kiln 6 is targeted for the 2<sup>nd</sup> Quarter 2011.

## 1.5

### *ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT FOR THE PROJECT*

While the local EIA prepared by SRM aimed at reaching an environmental consent from the Azeri regulators, the present ESIA Report has been prepared in order to meet the environmental and social requirements of the EBRD and potential project lenders. The ESIA Report will serve as input for their environmental and social appraisal of the Project.

In the absence of a formalised Scoping in the Azeri EIA process, for setting up the ESIA Study, a *Project Leaflet* (June 2008, updated July 2008) and a *Brochure* (July 2008) were drafted to provide initial information for interested stakeholders. Stakeholders have been identified in a public consultation and disclosure plan (PCDP), and initial consultations took place in June 2008 (*c.f. Section 7*). Information was made available by GC on the company website<sup>5</sup> in August 2008.

The ESIA presents the findings of an assessment of the likely environmental and social impacts associated with the construction and operation of the cement plant, including quarry activities.

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<sup>5</sup> [www.garadagh.com](http://www.garadagh.com) subpage for the new dry Kiln 6 Project

English: <http://www.garadagh.com/contents/default.aspx?lg=2&idpt=3210>

Azeri: <http://www.garadagh.com/contents/default.aspx?lg=1&idpt=3210>

It further describes the measures to avoid or mitigate identified likely impacts and to manage their implementation, and monitor compliance with relevant standards. This is included in the Environmental and Social Management Plan (*ESMP*) section of the ESIA to ensure that the design, construction and operation of the Project will be in an environmentally and socially acceptable manner and compliant with both national and international standards.

Based on the Project details provided by Garadagh Cement and Holcim Group, the ESIA includes the assessment of potential environmental and social/socio-economic impacts for the Project components at plant site, transportation infrastructure and the quarry. Assessments are made for construction and operation and impacts related to the presence of the Project structures in relation to the existing baseline conditions. Also, cumulative impacts with other existing or planned developments are considered.

National and international standards are used as references for the evaluation of the impacts. Standards of reference are in particular the *EBRD Environmental and Social Policy 2008* and the IFC environmental and social guidance documents.

This ESIA report was prepared by ERM and locally supported by AETC. AETC compiled the baseline and acted as a liaison partner with local people, governmental and non-governmental organisations and institutions during site visits, field inspections, and consultation meetings.

## 1.6

### ***BRIEF OUTLINE OF THE CONTENTS OF THE REPORT***

The structure of an ESIA Report is guided by established international ESIA practice. The remainder of the report is structured in sections as follows:

- *Section 2* is a description of the Project including project rationale, location, Project type and layout, components of Project, magnitude of operation including any associated activities required by or for the Project and proposed schedule for approval and implementation;
- *Section 3* provides the description of the baseline conditions in the area around the Project, including physical and ecological resources and socio-economic conditions;
- *Section 4* is an analysis of alternatives considered by the proponent for the Project and includes a benchmarking of the Project against present cement industry standards;

- *Section 5* predicts and assesses the Project's likely positive and negative environmental and social impacts and identifies appropriate mitigation measures;
- *Section 6* sets out the Environmental and Social Management Plan (ESMP) which describes necessary actions and responsibilities for implementation of the mitigation measures; and
- *Section 7* describes the process undertaken to involve the public and stakeholders in the Project development process.

Supplementary information is provided in the Annexes, including:

- Annex A Project Layout Plans
- Annex B Ambient Air Quality Monitoring Results and Air Modelling Dispersion Graphs
- Annex C Noise Measurement Results and Noise modelling dispersion graphs
- Annex D Overview of the environmental site conditions
- Annex E Flora & Fauna
- Annex F Public Consultation
- Annex G Baseline Field Survey of the Quarry Sites
- Annex H On site soil contamination
- Annex I Social Baseline