

## 1. INTRODUCTION

### 1.1 OVERVIEW

1.1.1 Norsk Hydro ASA (Hydro) and Qatar Petroleum (QP), propose to construct and operate an Aluminium Plant, with a dedicated Power Plant and Port Area, along with associated supporting facilities and utilities (hereinafter referred to as the “Qatalum Project”). The location for the Qatalum Project is the northern area of Mesaieed Industrial City (MIC), on the south east coast of Qatar (Figure 1.1).

1.1.2 Under Qatari Law, proposed developments of this type require an Environmental Impact Assessment (EIA) to be carried out. Hydro has commissioned WS Atkins International Ltd (Atkins) to undertake the EIA for the Qatalum Project. This document presents the findings of the Qatalum EIA.

### 1.2 BACKGROUND TO THE QATALUM PROJECT

1.2.1 QP and Hydro plan to develop one of the world’s largest and most competitive Aluminium Plants in Qatar. The plant will utilise current industry proven technology to ensure the plant meets the highest environmental standards. Primary aluminium production will represent a new step in industrial diversification in Qatar, which is in accordance with the policy of the Government of Qatar to broaden the industrial base of the country, ensuring the best environmental standards and working conditions.

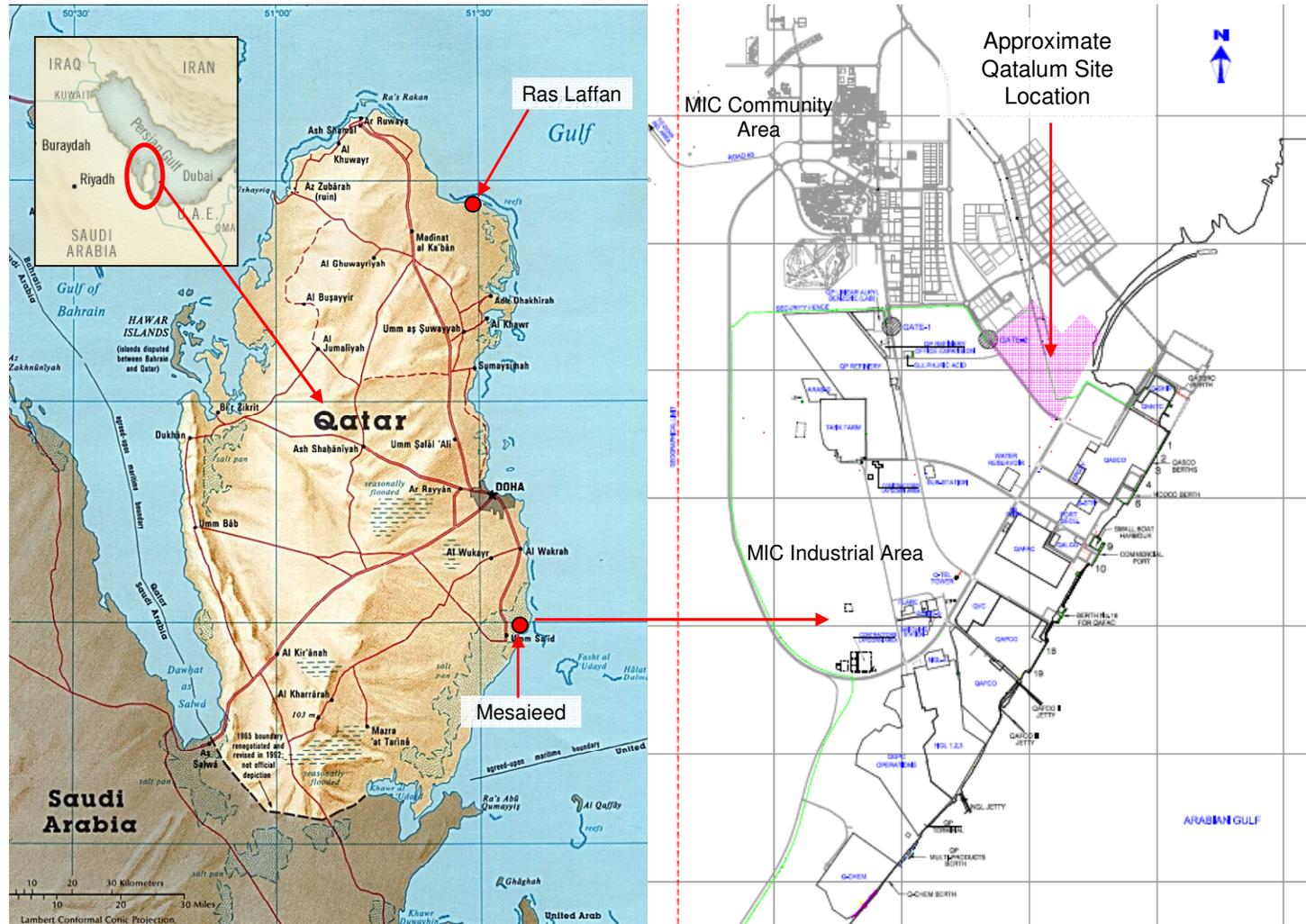
1.2.2 QP and Hydro view primary aluminium production as an attractive industry, with an expected annual growth in demand of 4.5 % for the next 15 years. Increasing energy prices in existing production areas (Europe and North America) and closure of old plant have resulted in global restructuring of the primary aluminium market. This creates an opportunity for new primary aluminium production. Hydro’s business strategy gives priority to upstream investments for repositioning and growth. Qatar offers the availability of energy and excellent market flexibility for serving the growing aluminium markets in Asia, Europe and North-America. In addition to this, Qatar has the added advantage of “familiarity”, as Hydro has enjoyed successful partnerships in a number of industrial developments in Qatar for over 35 years. Thus, Qatar is a natural choice for the location of the Qatalum Project.

1.2.3 QP is a major producer of natural gas and has contributed to developing several industrial projects in Qatar, based on its vast North Field gas reserves. For Hydro, one of the world’s three largest integrated aluminium companies, the Qatalum Project will be a major strategic investment in terms of contributing to improving Hydro’s relative cost position in primary aluminium production and for meeting future growth in demand.

1.2.4 A ‘Heads of Agreement’ was signed by HE Abdullah Bin Hamad Al-Attiyah (Second Deputy Premier, Minister of Energy and Industry, Chairman of the Board of Directors and Managing Director of QP) and Hydro’s President and CEO, Eivind Reiten, in Doha on the 5<sup>th</sup> December 2005.

- 1.2.5 QP and Hydro signed an agreement to form a joint venture (JV) for the construction and operation of the Qatalum Project in Doha, Qatar, on 23<sup>rd</sup> March 2006. The JV agreement was signed by HE Abdullah Bin Hamad Al-Attiyah and Eivind Reiten.
- 1.2.6 Under the JV Agreement a joint venture company, know as "Qatalum" will be formed to build and operate the installation, which comprises: an Aluminium Plant (consisting of an aluminium Reduction Plant, Carbon Plant, Anode Service Area and Casthouse), a dedicated Power Plant, Port facilities, utilities and supporting infrastructure. QP and Hydro will each own 50% of the new Qatalum Company. The Casthouse will have the capacity to produce value-added products from the primary metal. Hydro, a global leader in the production, sales and marketing of aluminium metal products, will be responsible for marketing all Casthouse products through its global system.
- 1.2.7 The Qatalum Project will be developed in phases; the design capacity for the first phase is an annual production rate of 585,000 tonnes of primary aluminium. The first phase Power Plant will have an installed capacity of 1,350 MW. With anticipated operational optimisation, production of primary aluminium may reach 600,000 tonnes per year, after some years of operation. The proposed site offers the potential to double the production capacity up to 1.2 million tonnes per year. First metal production is scheduled for the fourth quarter 2009, with full Phase 1 production expected by mid 2010.

Figure 1.1 – Site Location Map



## 1.3 BACKGROUND TO THE EIA

- 1.3.1 The Qatalum Project will be subject to the laws of the State of Qatar and the various international/regional protocols and agreements to which the State is a party. The State of Qatar requires that industries with the potential to pollute gain clearance prior to construction and operation of new projects. Clearance is obtained through the preparation, submission and approval of an EIA. One of the listed categories of potentially polluting industries is: "Projects for melting, manufacturing and storage of aluminium and other metals". The Qatalum Project falls within this category and an EIA is required.
- 1.3.2 The principal environmental institution in the State of Qatar is the Supreme Council for the Environment and Natural Reserves (hereafter referred to as SCENR). In addition to SCENR, a number of individual city authorities with environmental responsibilities have also been set up. The Mesaieed Industrial City Authority was established in 1996, by Qatar Petroleum, as a single point authority for all facilities in the Mesaieed area. As part of its role, the MIC Authority has the responsibility for the allocation of land, including, where feasible, the provision and utilisation of common facilities and environmental protection. The MIC Authority plays a key part in the EIA process by providing a facilitator/reviewer role, as well as coordinating with SCENR.
- 1.3.3 An initial step in the EIA process is the preparation and submission of an Application for Initial Environmental Authorisation (IEA). The IEA was submitted via the MIC Authority, to SCENR, on 7<sup>th</sup> March 2005. MIC Authority and SCENR were regularly consulted from this time onwards through a series of meetings/presentations, phone calls, fax and email communications. A list of the key meetings/presentations is presented in Appendix A.
- 1.3.4 The next stage in the EIA process was the preparation of a scoping study document (hereafter called the 'SSEIA'). The objective of the SSEIA report was to provide a basis for approval of the scope of the EIA; the specific aims of the study were to:
- present a more detailed description of the Qatalum Project;
  - define the contents, scope and methodology for the EIA report;
  - determine the requirement for collection of baseline data/technical studies/modelling and consultation;
  - identify issues within the design that required further development/definition; and
  - highlight areas where further preventative measures or mitigation may be required.
- 1.3.5 The SSEIA process identified a number of baseline environmental studies that needed to be initiated prior to completion of the SSEIA in order to meet the desired timescale for producing the EIA. The scope of these studies was discussed independently with the MIC Authority and SCENR, prior to submission of the SSEIA. As a result, the following studies were initiated:

- preliminary terrestrial ecology reconnaissance survey (April 2005);
- marine ecology and biology survey (August 2005);
- seawater and sediment quality survey (August 2005); and
- ambient air quality survey (September 2005).

1.3.6 The SSEIA was prepared throughout 2005 and presented to the MIC Authority in November 2005 for comment/review. The report was revised to incorporate comments and a final version was re-submitted to the MIC Authority in January 2006. The MIC Authority subsequently issued the final SSEIA report<sup>1</sup> to SCENR on 16<sup>th</sup> January 2006. SCENR issued memorandums approving SSEIA, subject to a number of conditions (see Appendix A), on 16<sup>th</sup> and 21<sup>st</sup> March 2006.

1.3.7 During the preparation of the SSEIA and the EIA reports, several other proposed projects, of potential relevance to the Qatalum EIA, were identified:

- Gabbro Berth Expansion at Mesaieed Port<sup>2</sup>;
- the “Mesaieed A” Project- development of an independent power plant, adjacent to the Qatalum Power Plant;
- PCC Project – the proposed development of petrochemical facilities between QASCO and QAFAC;
- the construction of a new MIC berth (Berth No. 7) in the existing commercial port area of MIC; to be located between Berth 6 and Berths 9 &10; and
- expansion of the existing QASCO steel works.

1.3.8 The approvals and / or EIAs for these projects are independent of the Qatalum Project; however, the potential interaction of these projects with the Qatalum Project, and any resulting cumulative impacts, are discussed in this report where relevant and where sufficient data are available to facilitate this.

## 1.4 EIA SCOPE AND APPROACH

1.4.1 The scope of the EIA is defined in the SSEIA report<sup>1</sup> and takes into account SCENR’s and the MIC Authority’s comments. The key aims of this report are to:

- present a technical description of the project and processes involved;
- provide a description of existing baseline (ambient) environmental conditions;
- identify all activities associated with construction, commissioning, operation and decommissioning of the Qatalum Project with the potential to impact on the environment;
- assess the potential impact of Project on the Environment;
- determine the requirement for, and recommend, mitigation measures to minimise any unacceptably significant environmental impacts; and
- make further recommendations, as required.

- 1.4.2 The focus of the EIA is Phase 1 of the Qatalum Project however, where feasible, the additional impacts that would result from the subsequent phases of the Project have also been considered. Prior to any future expansion a full EIA will be undertaken and submitted to SCENR in accordance with Qatari requirements.
- 1.4.3 Several alternative port solutions have been, and are still, under consideration at the stage of finalising the EIA. Due to schedule constraints, these alternatives are described herein in outline form and the resultant impacts have been assessed only at a screening level. Further details relating to the Qatalum Port Concept will be submitted, as required, when selection decisions have been finalised and the engineering works are more advanced.
- 1.4.4 In general, the EIA report has been based upon the following sources of information:
- a review of all available Project documentation, as supplied by Hydro;
  - discussions with Hydro, MIC Authority, QP and SCENR personnel;
  - the site visits;
  - in-field baseline surveys;
  - Qatari environmental legislation and SCENR standards<sup>3,4</sup>;
  - the Environmental Impact Assessment Policy and Procedure for the State of Qatar<sup>5</sup>;
  - The World Bank Pollution Prevention and Abatement Handbook (PPAH)<sup>6</sup>;
  - The European Commission's Best Available Techniques Reference Documents (BREF Notes) for the Non-Ferrous Metals Industry<sup>7</sup> and for the Power Sector<sup>8</sup>;
  - Various International Environmental Standards and Criteria;
  - Atkins previous experience of undertaking EIAs for projects at Mesaieed; and
  - Other EIAs for historical and proposed development projects at Mesaieed that have been made available to the Project team.
- 1.4.5 A full list of references is provided in Chapter 11.

## 1.5 PROJECT EXECUTION STRATEGY – RELATIONSHIP TO THE EIA

- 1.5.1 The following objectives have been the most important in establishing the project execution and contracting strategies:
- fast transition from planning / engineering to execution;
  - achieve competitive bidding;
  - aim for firm price EPC-contracts, when possible; and
  - find the best use of Owner's in-house knowledge in combination with the Contractors' expertise.

- 1.5.2 In order to achieve this, the Qatalum Project has been split into a number of major and minor contracts; these are planned to be issued in a staged way in order to meet the overall Project completion schedule (see Section 3.6). In some areas of the Project, the Owners have proprietary technology that will be used, or have fairly detailed specifications. In other areas, alternative concepts are feasible to fulfil the functional requirements of the Project and the selection of these will ultimately be determined and developed by Contractors / Suppliers.
- 1.5.3 For the EIA, this means that the level of design / detail available may vary significantly between different areas of the Project. In areas where Contractors are to propose the technical solutions, the EIA will only describe an outline of the main expected framework conditions. The Contractors will then have to prepare solutions and environmental management plans that will fulfil these conditions, and if necessary obtain the necessary supplementary approvals for these. For the main process areas, however, relatively detailed process information is available, including that relating to environmental performance.
- 1.5.4 At the time of the submission of the EIA, some major contracts are in the tendering phase, whereas others will be tendered shortly after. In terms of the overall Project schedule, it is important to confirm the expected framework conditions through a timely EIA submission process at this stage, in order to reduce potential project risks, and to enable early construction activities (e.g. site preparation) to commence before all details are in place.

## 1.6 REPORT CONTENTS AND DOCUMENT STRUCTURE

- 1.6.1 The remainder of the report has been structured as follows:

<b>Section 2</b>	Legal Framework and Environmental Protection Criteria
<b>Section 3</b>	Project Description
<b>Section 4</b>	Identification of Potential Environmental Impacts
<b>Section 5</b>	Environmental and Social Baseline Conditions
<b>Section 6</b>	Environmental Impact Assessment
<b>Section 7</b>	Social Impact Assessment
<b>Section 8</b>	Environmental Management
<b>Section 9</b>	Summary of Environmental Impacts
<b>Section 10</b>	Conclusions and Recommendations
<b>Section 11</b>	References