Executive Summary

Introduction

On March 26, 2006 Norsk Hydro ASA (Hydro) and Qatar Petroleum (QP), signed a joint venture agreement for the construction and operation of a world class Aluminium Plant. The Aluminium Plant consists of Smelter, Casthouse and Carbon plant, electrical Power Generation Plant and Port Area (hereinafter referred to as the "Qatalum Project"). The main plant site will occupy an area of 1.7 km_2 and is located in Mesaieed Industrial City (MIC), Qatar (see Figure 1.1).

The Qatalum Project will be developed in 3 distinct Phases; the design capacity for Phase 1 is an annual production of 585,000 tonnes of primary aluminium and a 1,350 MW Power Plant. 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.

The focus of this 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 proceeding with Phase 2 & 3 expansions, a full EIA will be undertaken and submitted to SCENR in accordance with Qatari requirements.

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. In addition, a Social Impact Assessment (SIA) has been undertaken as part of the EIA. This executive summary presents an overview of the main findings of the Qatalum EIA and SIA.

Legislation Framework and Environmental Protection Criteria

A review of the legislation / regulatory regime applicable to the Qatalum Project has been undertaken. 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. It has been assumed that the financial institution(s) that are likely to be associated with the Project will have adopted the "Equator Principles", thus, the EIA process must also satisfy the Equator Principles. In addition, the Project will need to take into account both Hydro's and QP's corporate requirements.

Supreme Council for the Environment & Natural Reserves (SCENR) is the regulatory authority responsible for environmental protection and conservation of endangered species and protection of their habitats. In addition to SCENR, Mesaieed Industrial City (MIC) Authority has the responsibility for the allocation of land and the provision of common facilities wherever feasible.

Through SCENR the State of Qatar enforces a number of national environmental laws, regulations and standards; those of most relevance to the Qatalum Project include:

- Law by Decree No. 30 of the Year 2002 Promulgating the Environmental Protection Law (2003), which outlines the basis of the current environmental protection policy in Qatar; and
- April 17, 2005 Executive By-Law for the Environmental Protection Law No. 11 of 2000 and Law No. 30 of 2002, which presents the Qatari environmental standards and guidelines.

Project Description

The main components of the Project are:

- Carbon Plant (including a Paste Plant and Anode Bake Plant);
- Reduction Plant (also referred to as Potrooms/Potlines);
- Casthouse;
- Anode Service Area (Rodding Plant and Electrolyte Treatment Plant);
- Power Plant; and
- Port Area with associated storage and transport facilities.

Construction / Commissioning

The main issues associated with construction / commissioning activities are the construction of the Port Area and associated ship access channels and turning basins, and the plant and camp site preparation, where significant volumes of fill are required.

Several Port concepts have been considered and two parallel Port options have been carried through in the EIA report[i]. Originally it was intended to locate the Port facilities close to MIC's Gabbro Berth, herein referred to as the "Original" Port concept. More recently, an alternative location has been identified to the south of the QASCO steel works, herein referred to as the "Alternative" Port concept. The locations of both Port concepts are indicated in Figure 3.5.

For the Original Port concept, a significant amount of the Project's fill requirements came from the dredging requirements for ship access and turning basins. However, since this Alternative Port concept area has existing shipping channels, the dredging requirements are less and, as a result, less fill material will be available. To supplement the shortfall in fill volumes, several land-based sources have been identified (e.g. quarries and sand dune (Q-Chem site)).

Further details relating to the Qatalum Port Concept will be submitted once the options have been analysed further and a clear recommendation has been reached.

In addition to the Main Site and Port Area, a construction workers camp will be built and an area of land will be used for the de-watering / storage of dredged materials (see Figure 3.5).

Operation

The three main functional areas of plant associated with the aluminium production are the Reduction Plant (Potrooms), the Carbon Plant (for anode production) and the Casthouse.

In basic terms, liquid aluminium is produced in the Reduction Plant by electrolysing alumina (aluminium oxide) in a molten cryolite electrolyte. The liquid aluminium is transported from the potroom to the Casthouse where it is cast to form the aluminium products, such as extrusion ingots and primary foundry alloys ingots. The electrolysis process requires a continual supply of carbon anodes; these are produced in the Carbon Plant from petroleum coke and liquid pitch.

[i] After submission of revision 01 of the EIA report, the Alternative Port concept was chosen. A separate application for environmental clearance of the Port development will be submitted once the details have been established. However the text, relating to both Port concepts, within this updated (revision 02) EIA report has been retained, unchanged.

The electricity required for the Aluminium Plant will be supplied by a dedicated, combined-cycle, gas-fired Power Plant, which will comprise four gas turbines, four heat recovery steam generators, and two steam turbines. The normal operating output will be approximately 1000 MW.

The main sources of atmospheric emissions during operation will be generated from the Aluminium and Power Plants. The main process gases from the Aluminium Plant with the potential to impact on the human health, flora and fauna include: fluorides, Particulate Matter <10 microns (PM_{10}), sulphur dioxide (SO_2), and pitch (resinous tarry substance) fumes, including Polycyclic Aromatic Hydrocarbons (PAH). These have been minimised through the selection of process technologies and abatement equipment, which involve dry scrubbing with alumina (to absorb fluorides / PAH), baghouses (to remove PM_{10}), seawater scrubbing (to remove SO_2) and thermal oxidation to destroy (pitch fumes).

The Power Plant will use a seawater cooling tower system. The Aluminium Plant cooling requirements will be met via a once-through seawater cooling system. Due to the shallow water and limited natural circulation in the sea adjacent to the site, a once-through cooling water system was not considered feasible for the Power Plant for environmental and economic reasons. The blow-down from the Power Plant cooling towers and the used Aluminium Plant cooling water will be combined with fresh seawater to supply the seawater scrubbers. Thus, the only source of seawater discharge during typical operation is the return of seawater, via the cooling systems, from the seawater scrubbers. The main characteristics of the discharge, from an environmental perspective, will be heat load, acidity, and COD. Prior to discharge to sea the scrubber effluent will be mixed with the cooling water discharge from QASCO, in the QASCO channel, where neutralisation and COD reduction will occur.

The biocide content of the seawater discharge will not be an issue as chlorination will be applied at the intake and periodically in the cooling towers; any residual chlorine will be destroyed by the sulphite produced during the seawater scrubbing process.

There will be no direct releases of fresh process water; all water used will be re-cycled or treated for use as irrigation water. Sanitary water from toilets, showers, washrooms, canteens etc. will be collected and transported to the MIC sewage treatment plant for further treatment.

Hazardous and non-hazardous wastes will be produced during the process. The Qatalum philosophy on waste is to reduce, reuse and recycle all waste streams wherever possible. For hazardous wastes that cannot be reused / recycled, MIC has confirmed that the new Mesaieed Hazardous Waste Treatment Centre (MHWTC) will be capable of accepting these.

A BAT assessment of the main plant design and proposed emission treatment / control systems has been carried out. This study demonstrated that the Qatalum Project has been designed in accordance with the principles of BAT.

Environmental Impact Identification

A thorough review has been undertaken to identify all the activities with the potential to result in environmental impacts during construction, commissioning, typical operation and abnormal operating conditions (see Table 4.1).

The main activities / potential impacts during operation are:

- atmospheric discharges from the aluminium manufacturing process and Power Plant, resulting in air quality degradation with subsequent impacts on human health and terrestrial flora; and

- the seawater discharge, with the potential to result in degradation of seawater quality with subsequent impacts on marine ecology.

The main potential impacts as a result of construction / commissioning relate to dredging, the supply of fill materials and land-take and include:

- physical disturbance of the seabed during dredging, resulting in sediment re-suspension and loss/ damage to marine habitats, flora and fauna;
- re-suspension of contaminated sediments (if present) during dredging, resulting in contamination of the water column and sediments (through re-deposition) and subsequent impacts on marine ecology;
- road traffic disruption as a result of supplying fill material (depending on what options for the source(s) of fill are finally selected); and
- the physical presence of the Main Site area (land-take) resulting in loss of terrestrial habitat and subsequent loss of / damage to flora / fauna.

Baseline Environment

A full review of the environmental and social baseline conditions at and around the main site has been undertaken. The main information sources have included: consultation and data gathering exercises in Qatar, desk-top surveys and literature reviews, existing information sources and data purchase, field surveys, underwater video footage and data from the Project Proponents. An overview of the main findings are summarised below.

Land Use and Description

Within Qatar, Mesaieed occupies an area of around 117 km^2 comprised of a flat near-featureless plain with little or no vegetation. It is predominantly an industrial township with an Industrial Area (~43 km^2) including port facilities and a small community. The MIC Industrial Area accommodates a variety of industrial activities as well as oil and gas processing and export facilities. During recent years several new companies have been established and some of the existing major industries have been subject to large expansion projects. The commercial and residential areas (the Community Area) are located in the north of MIC.

The Qatalum Main Site is located to the north of the MIC Industrial Area and is approximately 3 km from the nearest residential property. The Main Site is slightly undulating, low lying, and sandy scrub land. An area of vegetation (reedbed and grassland) runs through the central northern and western part of the Site. The vegetation is associated with the outflow of treated effluent from the neighbouring sewage treatment plant, located to the north of the Site. The Qatalum Project areas are currently undeveloped and have not been subject to historical industrial activity.

Physical Environment

Mesaieed is characterised by an aeolin, quartz dune complex; these dunes are migrating into the sea, prograding the coast to produce a predominantly quartz sand sabkha. During the 1970s extensive land reclamation works were undertaken over much of the MIC Industrial Area by placing dredged fill material on the muddy/sand flat to raise the ground above tidal levels. Hence, for much of the north and eastern areas of MIC, the entire geological succession has been masked / covered by hydraulically placed fill material. The majority of the Qatalum Main Site is unaffected by these reclamation/filling operations. The onshore geology at the Qatalum Main Site comprises a sandy silty

overburden to a depth of approximately 6 to 20 m below ground level, overlying the limestone bedrock.

Owing to the arid nature of the overall area, no natural surface fresh water bodies of significance are present at Mesaieed, or within the immediate vicinity of the Site.

Due to the proximity of the sea, the groundwater is saline and tidally influenced across the site area.

The majority of parameters analysed in groundwater at the site were found to be present at concentrations below the limits of detection and/or below the standards used for comparative purposes; however zinc concentrations in groundwater were found to be elevated.

Physical Oceanography

There are few intertidal areas along the MIC Industrial Area coastline, which has been mostly replaced by artificial reinforced beaches, hard sea wall constructions and jetty cargo berths. The seabed in the MIC near-shore environment is generally described as consisting largely of a mixture of fine sand and silts, with a high percentage of clay. The near-shore area of northern Mesaieed is comprised of up to 3 m of very fine silty material. The MIC coastline is stable and shows no sign of erosion or littoral drift.

The marine environment at Mesaieed is characterised by relatively shallow waters. Water depths in immediate vicinity of the Original Port Area vary from 1 to 5 m. Water depths in the area surrounding the Alternative Port Jetty are -13 m CD, since this area has been dredged previously.

The most prominent bathymetrical feature of the Mesaieed Port area is the Fasht Al Arif, a projection of rock and soft sediment which effectively creates a natural harbour to the south. The main feature in the vicinity of the Alternative Port location is an existing dredged navigation channel that lies to the east of this area and extends northwards.

A seawater and sediment survey was undertaken in August 2005 as part of the Qatalum Marine Ecological Survey for the Original Port concept and dredge locations. The results of the survey indicated that seawater and sediments in this area were uncontaminated. An earlier survey of the entire MIC coastline (SARC) indicated patches of contaminated sediment near the Alternative port, mainly by petroleum hydrocarbons (TPH).

Meteorology and Climate

The south east coast of the Qatar peninsula is typical of typical dry coastal region with an arid climate. Qatar has a hot subtropical summer climate, with high temperatures, heavy humidity and high UV radiation levels occurring between April and October (summer). In the winter, the climate of the Arabian Gulf is characterised by extra-tropical weather systems (cold fronts) that generate north westerly winds (known as ‘shamal’) over the open waters of the Gulf. The prevailing wind direction is north westerly to north north-westerly. Severe sand storms combined with northerly winds may occur, especially during the period March to May, lasting for 4-5 days.

Average annual rainfall is typically around 80 mm/yr; however, year to year fluctuations are significant and can vary from 1 mm/yr to >300 mm/yr with a single rainstorm contributing as much as 180 mm/yr.

Air Quality

A three month baseline air quality monitoring survey was undertaken for the Qatalum Project at a station approximately 1 km to the east of the site. The survey included measurement of: sulphur dioxide, oxides of nitrogen, particulate matter fractions, non-methane hydrocarbons, ozone, total

fluorides, chlorides and polycyclic aromatic hydrocarbons. In addition, ambient air quality data were purchased from the MIC Authority and provided by QP.

All parameters consider were found at low concentrations, well within the SCENR ambient air quality criteria with the exception of ozone and, in particular PM_{10}.

Terrestrial Ecology

A preliminary terrestrial ecology survey was carried out in April 2005; this was followed by a winter water bird survey in February 2006 and supplemented by desktop reviews and consultations.

The proposed plant Site and both Port concepts are located in an existing heavily industrialised area with, for the most part, little reported vegetation or areas of ecological significance. Although some areas of the proposed Main Site and Original Port Area, (i.e. artificial reedbed and lagoon) have some biodiversity/nature conservation value, much of the area has been impacted by earlier development activities within the MIC Industrial Area. The coastal areas north of MIC and towards Al Wakra, were observed to have the greatest numbers and diversity of winter water birds.

None of the habitats / areas, within the proposed Qatalum Site or in the vicinity of the site, are legally protected, nor have they been nominated for inclusion as Biosphere Reserves according to studies by UNESCO for SCENR.

Marine Ecology

A marine survey and desktop study was carried out for the Qatalum Project Original Port concept in August 2005. Marine ecology at the Alternative Port Area has been identified from previous surveys (SARC) and from recent underwater video footage of transects located between the shoreline and existing ship channel.

For the Original Port Area no mammals or commercially important fish species were observed within the Qatalum Survey area. Seagrass was observed over much of the remaining study area, with the proposed dredge area providing the richest seagrass habitats. The lagoon, situated between the Gabbro Berth and MIC shoreline, was found to be sparsely populated; the majority of the seabed was exposed, with little or no plant cover and few faunal species present.

The results from the various surveys suggest that the habitats in the Alternative port site and associated potential dredging areas are of limited ecological value. Outside and eastwards of the 500 m dredged navigation channel, previous studies have shown that ecological species diversity and sensitivity were seen to increase and dense areas of seagrass beds have been observed.

Noise

A noise survey was carried out in January 2006. The results of the noise level survey indicate that typical levels within the Industrial and Community Areas are in accordance with the World Bank and Qatari standards during the day, but slightly exceed the SCENR residential standard at night. This is due to a limited number of areas within the residential area that are currently influenced by localised noise sources.

Waste Management and Disposal

Presently within the MIC area only the Mesaieed Municipal Waste Disposal Site (MMWDS) is operational. This is licensed to receive non-hazardous industrial wastes. This facility is located approximately 10 to 15 km south west of the proposed Qatalum plant. A new hazardous waste facility, the Mesaieed Hazardous Waste Treatment Centre (MHWTC), is being constructed by the MIC

Authority at a site approximately 15 km north-west of Mesaieed. The MHWTC will be operational by the time the Qatalum Project commences construction and operation.

Commercial recycling is being developed within the State and currently commercial recycling opportunities are available for plastic, wood and scrap metal. The practices are not regulated. Existing waste management practices at MIC Industrial Area will include the recycling of plastic drums and bottles, steel drums, batteries, waste oil and paper.

Socio Economic Context

The population of Qatar is estimated to be about 800,000, of whom approximately 600,000 are expatriate workers, mostly from the South Asian continent. Within MIC it is estimated that 3,500 expatriates and few, if any, Qatari nationals are living permanently in the community area. Furthermore, it is estimated that there are 8,000 bachelors living in the labour accommodations at MIC. As a result MIC's population demographics have a disproportionately high representation of expatriate workers compared to other communities in Qatar as a whole. Households in the Project area depend on the activities of the Industrial Area within MIC for sources of income.

The economy of Qatar is heavily dependent on oil and gas production both to generate foreign exchange earnings and to provide power and water to emerging economic and social activities in the country.

There is a full and free preventative and curative health service to Qataris, whilst the private sector provides health services at a price to the expatriate community.

During the preparation of the Community Area Master Plan for MIC it was established that no sites of archaeological importance existed in either the community area or the industrial area.

Environmental Impact Assessment

The potential environmental impacts for the construction / commissioning and operation of the Qatalum Project are identified in Table 4.1. Impacts have been assessed with particular reference to the baseline data of the key environmental components identified in the baseline description (Chapter 5). Assessment techniques have used internationally accepted methodologies and, for emission sources, have been based on the source-pathway-receptor model.

The assessment has ranked impacts in terms of their potential significance (e.g. "major, moderate, minor, negligible and beneficial").

A summary of the impacts identified, the key mitigation / control measures and the significance of the resulting (residual) impacts is presented in Table 9.1. The cumulative impacts of planned, approved developments have been considered in the assessment so far as this is possible.

Of the potential impacts assessed, the majority were determined to have only negligible or minor significance. This is largely due to Qatalum adopting the design, knowledge and experiences from existing Hydro's smelter operations and adopting these philosophies into design of the plant, adopting identical operational controls and the mitigation measures that will be implemented.

The following impacts were rated as having a moderate to minor significance for operation of the plant:

- PM_{10} emissions are only considered to have a moderate significance on the basis of the existing high background concentrations; the contribution from the Qatalum Project alone is assessed as negligible. The high concentrations of particulate fractions are not atypical of an arid environment, such as MIC and the Qatar peninsula in general.

The modelled PM_{10} process contributions, for annual and daily average concentrations in the residential area, are less 1% and 3% respectively of the SCENR criteria. PM_{10} emissions have been minimised as far as possible and are in accordance with the principles of BAT (as indicated by the modelling results), even if the Qatalum Project did not emit any PM_{10} there is every indication that PM_{10} criterion would still be exceeded. No further mitigation / control measures can be applied.

- The Qatalum Project will not directly emit ozone to the atmosphere; however it will generate ozone precursors. The main potential ozone precursors associated with the Qatalum Project, have been minimised at source through the application of BAT, as described in Section 3.12. Although the Qatalum project has minimised compounds with the potential to result in ground level ozone creation, ambient air quality data show that, at times, the SCENR standards are already exceeded within MIC; thus any impact arising from the potential increase in ozone concentrations has been rated as having a moderate significance. Qatalum is following the QP/Total regional ozone monitoring study; the results of this may give a better indication of how best to manage and adopt ozone control measures on a local, national and regional scale.
- Overall emissions of SO_2 will be reduced by 80% (minimum), through the use of seawater scrubbers. The highest modelled ground level concentrations of SO_2 occur close to the site boundary. In these localised areas, the ground level concentrations will be well below the SCENR 24-hour air quality standard and the shorter term MIC guidelines, but may approach the WHO and World Bank 24-hour criteria. In residential areas the ground level concentrations will be well below the WHO and World Bank 24-hour criteria. The significance of the impact of SO_2 emissions has been rated as minor in the industrial area, due to the higher short term concentration near the site boundary and the abundant buffering capacity due to the calcareous content of Qatari soils. At residential receptors-the impact of SO_2 emissions is considered to be of negligible significance.
- Emissions of hydrogen fluoride (HF), mainly from the potroom ventilation, may cause minor damage to sensitive vegetation in the immediate vicinity of the plant. However, much of the impacted area is within the MIC Industrial Area, in areas with generally sparse natural vegetation, which is considered to be of only minor ecological significance. The existing ornamental roadside plantings and trees are mainly hardy species, which are unlikely to be significantly affected. Should the emissions prove to cause visible damage to more sensitive species, these could be substituted with more tolerant / fluoride resistant species.
- Two impacts relating to dredging for the Original Port concept have been assigned a significance rating of moderate. These impacts correspond to direct loss of / damage to seagrass beds as a result of the physical disturbance of the seabed and indirect loss of / damage to seagrass beds as a consequence the re-suspension of sediment, leading to smothering and turbidity increases. The loss of habitat through physical disturbance cannot be directly mitigated against and compensatory measures for loss of the seagrass area may be considered if the Original Port concept is pursued.

Loss or damage to the seagrass beds as a result of re-suspension of sediment can be controlled. Dredging will be undertaken in accordance with the principles of BAT and good international practice. The dredge Contractor will develop and implement a specific EMP for dredging, which will be agreed with SCENR. Generic mitigation measures have been suggested in Section 6.5 and a monitoring plan has been proposed in Chapter 8. Without the opportunity to review the final EMP for dredging this impact has been assessed as moderate; however, if the EMP contains all the measures discussed the impact significance could be reduced to minor.

- One impact was rated as having a minor to major significance. This relates to the potential contamination of seawater and sediment and subsequent impacts on marine ecology as a result of the re-suspension of contaminated sediments for the Alternative Port Area. Previous surveys have indicated that at least some of the possible dredge areas could be contaminated with metals and TPH. Mitigation measures have been suggested in Section 6.5 and a monitoring plan has been proposed in Chapter 8. As above, without the opportunity to review the final EMP for dredging, and without the results of the proposed pre-dredge survey, this impact has been assessed conservatively. If the EMP contains all the measures and monitoring discussed, the impact significance could be reduced to minor.
- During operation, the combined Qatalum scrubber effluent and QASCO discharge will contain some residual sulphite, which will result in increased COD and depletion of dissolved oxygen. An aeration system will be installed along the bottom of the QASCO channel; this will enable the discharge to meet the required dissolved oxygen (DO) level of 2 mg/l.

All other impacts identified for construction, commissioning and operation were determined to have only negligible or minor significance.

The overall conclusion of this assessment is that impacts have been minimised, and will be managed, as far as is reasonably possible. None of the impacts identified are so severe that they should affect the overall implementation of the Project.

Social Impact Assessment

A social impact assessment (SIA) has been undertaken in line with the requirements of the International Finance Corporation (IFC) / World Bank, the Equator Principles and the corporate social responsibility (CSR) procedures of the Project partners. The findings of the assessment are summarised below.

Overall, the social impact of the Project was determined to be positive for the local population and the country as a whole. The need for employment of locals is relatively high; the development is segregated from residential areas and is located at sufficient distance from existing settlements to avoid serious impact on residents. Given the increased critical mass of workers associated with the Project, the Project will enable a higher level of community facility development within the existing Community Area of MIC to take place.

The wider economic benefits can be summarised as:

- more than 16,500 man-years of construction employment;
- approximately US$200 million expenditure on construction materials and services in the Qatar economy, which could be equivalent to 2,000 safeguarded jobs in addition to on-site construction workers;

- approximately 1,000 operational jobs through direct employment by Qatalum and the opportunity for substantial number of on-site contract jobs;
- direct GDP enhancement of US$1.5 billion per annum or 5.5% of prevailing GDP and potentially double that when the impacts of downstream or economic diversification of the Project are taken into account;
- 700 indirect and induced jobs when issues of supply chain and the impact of household spending in the local economy;
- spin-off benefits or downstream employment, which could amount to 2,400 jobs over the next twenty years;
- industrial cluster development of engineering and assembly based activities; and
- enhancement of the image of Qatar as an emerging manufacturing based economy.

Difficulties may arise if too high a proportion of employees have to be recruited from overseas, such that long distance commuting becomes necessary, or that there is wholesale influx of people to the area from elsewhere in Qatar, seriously overloading facilities in the MIC.

There may be initial onsite and offsite language difficulties with workers without Arabic language skills. Qatalum will operate in English and information should be provided in both English and Arabic in its work procedures, notices, and other communications. The initial elements of training will be to teach the locals the technical language used within the plant.

Qatalum should encourage the opportunities for local employment recruitment via the Ministry of Labour Affairs, recruitment agencies, schools, colleges and QP Training Centre in order to promote maximum local employment in both construction and operational phases.

Monitoring and Evaluation

The Qatalum Project is large scale, complex and will be complicated to deliver efficiently and effectively. There is the potential for social impacts to develop throughout the construction and operational phases of the Project. In order to effectively monitor these impacts it will be necessary to have in place monitoring programmes to gather data and evaluate information in a timely manner. Table 7.1 sets out the monitoring and evaluation procedures that will be considered.

Social Action Plan

A basis for a Social Action Plan (SAP) has been provided in Table 7.2. This will be taken forward by Qatalum, in consultation with and through MIC, as part of the process of constructing and operating the Project.

Environmental Management

The general approach to Environmental Management for the Qatalum Project, for the construction / commissioning and operational phases of the Project has been presented, along with an outline plan for the Project Environmental Management Plans (EMPs). Preliminary monitoring plans have also been prepared.

Operation

A HSE programme will be developed specifically for the Qatalum Project, which will take into account relevant Qatari / international legislation and Hydro's / QP's Corporate Policies and requirements. This, in conjunction with this EIA report, will provide the basis for the development of an Environmental Management System (EMS) for the operation of the Qatalum Project. An operational EMP will be produced from the EMS; the EMP will incorporate the Waste Management Plan

Construction

The Qatalum HSE enterprise will submit a Master HSE Management Plan for construction. On the basis of this, and the findings of this EIA, all Contractors will be required to produce their own EMPs.

The EIA has identified that the construction activities with the greatest potential to result in adverse impacts on the environment are dredging to construct the Qatalum Port facilities, shipping access and turning basins and meeting the site fill requirements. The specific issues associated with dredging and fill requirements will depend on the final selection of the Port location / dredging scenario and where the overall fill materials are ultimately sourced from. Nonetheless, whichever Port concept is selected, dredging activities will need to be carefully managed; thus, Qatalum will commit to submitting a separate EMP for dredging activities, prior to commencing works. This will provide the details of the dredging and the specific measures and protocols that will be adopted to ensure environmental protection.

Conclusion

None of the impacts or issues identified in the EIA or SIA are so serious as to affect implementation of the Project.