Chapter 1 - Introduction

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1 Introduction

1.1 General

This document reports the findings of an Environmental and Social Impact Assessment (ESIA) that has been undertaken to assess the potential adverse and beneficial impacts and associated mitigation and management measures for the Khor Al-Zubair (KAZ) Oil Terminal Project in Southern Iraq. This is a development by Waterway Trading & Petroleum Services (WTPS) who have commissioned this study.

This ESIA has been prepared in-line with requirements outlined within Protection and Improvement of the Environment (Law No. 27, 2009) and in accordance with Iraqi National guidelines (where available), internal BP performance recommendations and International Finance Corporation (IFC) Performance Standards (PS) and Environmental Health and Safety (EHS) Guidelines.

The ESIA has been undertaken by Earth & Marine Environmental Consultants (EAME), a multi-disciplinary environmental consultancy practice that has competence and specialises in such studies and which has extensive experience of and operational bases and teams in Iraq.

1.2 Background to the Iraq Oil Terminal Project

WTPS intends to construct a new marine terminal for the import (and eventually export) of refined petroleum products.

As a result of armed conflicts, trade sanctions and isolation from the international community for decades, Iraq does not presently have the resources to provide refined petroleum products at a sufficient rate to meet demand. As such, the import of these products is required to facilitate the reconstruction of Iraq and growth of its economy and the proposed terminal will be a major contributor to this.

Furthermore, Iraq has a distinct lack of suitable export facilities for refined products. Therefore, when the country's refining capability has reached levels that it is able to export refined products, the proposed terminal will help to meet these future export ambitions.

The proposed development is located on the western bank of the Khor Al-Zubair channel, adjacent to the Khor Al-Zubair Port (KZP) and the KZP Freezone.

Figure 1.1: *Location of the Khor Al-Zubair (KAZ) Iraq Oil Terminal Project*

United States Central Intelligence Agency (2004), 1:6,000,000 Map of Iraq

The Terminal will provide berthing facilities, storage infrastructure, truck loading/unloading facilities and all associated utility and support systems. The Terminal will provide multiple berths capable of discharging vessels up to 47,000 deadweight tonnage (DWT). The

construction of the Terminal will be phased: the first phase being a single Deeper Water Berth (DWB) and associated pipeline connection to the existing SKA bulk storage terminal within the Freezone; subsequent additional phases will include storage tanks and associated utilities, with the potential to accommodate storage capacity up to 300,000m^3. The Terminal will be constructed to the appropriate international industry standards using reliable and proven technology and will be operated in accordance with standards and practices generally prevailing in the petroleum marine terminal and storage industry. A fuller description of the development is provided in *Chapter 3*.

Although there are existing operating facilities/berths within a few hundred metres of the proposed site, the Terminal is effectively located on a 'Greenfield site'.

1.3 ESIA Process

1.3.1 Aims

The principal aim of the ESIA process is to protect the environment and the quality of life by ensuring that a project which may have significant environmental effects, is subject to a formal assessment before permission is granted and/or the Project is implemented. It also provides an opportunity for consultation with potentially affected stakeholders.

1.3.2 Objectives

The overall objective of the ESIA process is to identify and, wherever possible, eliminate or minimise adverse environmental or socio-economic impacts arising from activities associated with the Terminal and to incorporate appropriate mitigation into the design, construction and operation. The purpose of the ESIA process is to:

- identify and assess the anticipated positive and negative environmental and socio-economic impacts of the Project;
- identify and analyse alternatives to the Project;
- recommend mitigation measures for significant negative impacts and enhancement measures for positive impacts to be implemented during the construction and operation of the Terminal;
- verify compliance with Iraqi environmental regulations and policies, World Bank Safeguard Policies, and industry best practice and standards;
- generate baseline data for monitoring and evaluation of executed mitigation measures (if any) during the operation of the Terminal;

- seek the views of relevant stakeholders (including the public); and
- prepare an ESIA Report compliant with recognised national and International standards.

1.3.3 Scope

This ESIA covers all activities that are located within the defined Project boundaries during the construction and operational phases of the development and addresses all aspects of the natural, physical and social environment that could be impacted by the development, *i.e:*

- Socio-economic context;
- Soils, Geology and Hydrogeology;
- Surface Water and Sediment Quality;
- Air quality;
- Noise;
- Marine, Intertidal and Terrestrial ecology;
- Cultural Heritage and Archaeology; and
- Waste Management.

In each case the assessment involves defining the baseline conditions, assessing the potential impacts of the development (i.e. how those baseline conditions may be altered and how significantly), definition of mitigation measures to address significant adverse effects and an account of the residual impacts.

1.3.4 ESIA Stages

The ESIA process is outlined below:

- **Environmental and Social Screening** – This involved the early identification of environmental and social impacts in order to develop an understanding of the key environmental and social issues and the potential impacts related to the project.
- **Project Definition** – This involved the evaluation of alternatives with regard to the Project concept, location, technical approaches and mitigation options.

- **Scoping** – This activity has involved a number of components including stakeholder identification and preliminary consultation, the development of an environmental and socio-economic baseline for the Project and identification of potential impacts destined for detailed assessment.

- **Stakeholder Consultation** – This has included both the distribution of Project information to key stakeholders (*e.g.* local communities and authorities, non-governmental organisations (NGOs)) and further identification of potential impacts through face-to-face meetings. It is recognised that consultation and dialogue are important activities and that engagement will also continue throughout construction and operational phases.

- **Baseline Environmental and Socio-economic Data Collection** – This involved the identification of environmental and socio-economic baseline conditions through review of existing data and undertaking of appropriate environmental and social surveys.

- **Environmental and Social Assessment** – This involved the identification and assessment of potential construction and operational impacts including an appraisal of their significance. Furthermore, it has included the investigation and development of measures to mitigate potentially significant negative impacts and enhance benefits associated with the proposed development.

- **Public Disclosure** – Public disclosure has been initiated via the publication of a range of draft disclosure materials, such as the non-technical summary (which will also be provided in Arabic).

Whilst this ESIA report presents the findings and recommendations of the ESIA process prior to project implementation, the inclusion of an Environmental and Social Management and Monitoring Plan (ESMMP) will focus of on-going management activity as the development progresses beyond construction and into operation.

The management and monitoring plan provides the technical basis for development and implementation of a focused Environmental and Social Management System (ESMS) to manage all relevant activities during both the construction and operational phases of the Project. As such, the intention is that the management and monitoring plans will evolve and be further developed as the implementation of the Project is progressed with a view to achieving continual improvement of performance against Project Key Performance Indicators (KPIs).

1.4 Project Team

EAME were appointed by WTPS in June 2014 to undertake the ESIA for the Project. The specific ESIA team members are outlined below:

- **Project Director: Steve Rowan** – The Project Director for the project will be Steve Rowan, who is a Chartered Chemist with over 25 years' experience as an environmental specialist. He has worked on sampling and analysis programmes for almost every industrial sector and is an expert on international environmental regulations, protocols and best practice and has worked on large scale projects in Southern Iraq for a number of years.

- **Project Manager: David Wells** – David has extensive experience of designing; managing and executing both onshore and offshore field work in Iraq and is experienced in a range of environmental consultancy projects, particularly environmental baseline surveys, auditing, and site characterisation, auditing and monitoring.

- **Social Impact Assessment Specialist: Zainab Al-Ribhawi** – Zainab is EAME's in-country Iraqi Project Manager who is able to speak both Arabic and English. She is an experienced Project Manager, Project Coordinator and trainer, plus has been a team leader, observer and Liaison Officer for various UN agencies in Iraq. She has specific training in Security with NCA, women rights with (NIRAS) AIHR, human rights with mercy hands humanitarian society, proposal writing and project cycle management with mercy hands humanitarian society, conflict resolution with mercy hands humanitarian society, accounting by NDI, negation and mediation (Baghdad University Social Centre), various biochemistry and water analysis courses, radio operator training with International Medical Corps and collection of information from IDPs and Refugees camps. In addition she is an experienced environmental scientist and chemist and has worked on all of EAME's field campaigns over the last 4 years.

- **Terrestrial Ecological Specialist: Josh Smithson** – Josh has over 8 year's ecological experience working in the UAE, Qatar, Algeria, Kazakhstan, Australia and the UK. During this time he has designed, coordinated and led field surveys varying from three days to six weeks. Josh is trained in the safe handling of animals, inclusive of reptiles, and regularly undertakes surveys for IUCN Red List Species. Josh is responsible for the compilation and implementation of Health and Safety protocols for all ecological field work. With many surveys taking place in Oil and Gas Concession Areas, he is trained in H2S awareness and the appropriate use of Breathing Apparatus. Josh's relevant skill base includes: international Ecological Impact Assessments, environmental management plans, biodiversity assessments, protected species licensing and mitigation plans, land

rehabilitation and habitat management, invasive fauna and species control and mitigation plans.

- **Marine Ecological Specialist: Steven Atkinson** – Steven has experience of undertaking marine ecological sampling and monitoring in Iraqi territorial waters including the mouth of the Khor Al-Zubair and Khor Abdullah. This includes collecting phytoplankton, zooplankton and benthic organisms whilst complying with CEFAS SOPs as well as recording the appearance of marine mammals and seabird. Steven is currently studying for an MSc in Marine Planning and Management and is a certified Marine Mammal Observer (JNCC accredited), Gulf of Mexico Protected Species Observer (BOEM and BSEE accredited) and qualified open water, advanced open water and rescue diver. In addition, Steven holds BOSIET and MIST, Norwegian Escape Chute Training and current UK and Norwegian Offshore Medical accreditation.

- **Noise and Vibration Specialist: Steve Butler** – Steve Butler is an environmental consultant who has in excess of 15 years industrial and corporate experience. He holds a Post Graduate Diploma in Acoustics, Vibration and Noise Control and has extensive experience in noise monitoring and impacts assessments. Steve also has a broader range of experience in environmental auditing, having undertaken due diligence audits on behalf of EBRD in Eastern Europe, Russia and Turkey and has worked on noise and air quality monitoring projects in Iraq for Environmental Baseline Surveys.

- **In-country Environmental Specialist: Abbas Balasem** – Abbas is a former regional Director of the Iraqi Ministry of Environment and has extensive knowledge and contacts within governmental departments and has worked for EAME on numerous projects in Iraq.

- **Project Health and Safety Manager: Michael Sylvester** – Michael is a Technical Manager and has over fifteen years consultancy experience in EHS projects and two years industrial experience. Michael is an experienced auditor and is well versed in H&S legislation, EHS management systems, environmental permit applications and undertaking EHS and environmental audits. Michael holds a NEBOSH National Diploma in Occupational Health and Safety (Level 6) (DipNEBOSH) and is a Graduate Member of the Institution of Occupational Safety and Health (Grad IOSH).

- **Field Scientist: Asaad Hameed** – Biology graduate and a former employee at the Ministry of Health, Asaad is a field scientist with attention to detail and a high level of accuracy in preparing and entering information. In addition, Asaad is highly skilled in NGO management and administration as he has been involved with such organisations as the International Research and Exchange Board, International Organisation of Migration, United Nations Office for Project Services and USAID/NDI since 2005.

- **Field Scientist: Aqeel Ahmed** – Aqeel is a bilingual field scientist experienced in soil, sediment, groundwater and surface water sampling and lives in Basra.

1.5 ESIA Structure

The ESIA document is presented in a series of chapters and supporting appendices as outlined in *Table 1.1*.

Table 1.1: Structure of the ESIA Report

Volume/Report Section	Description
VOLUME I – NON TECHNICAL SUMMARY	
Non-Technical Summary	A summary of the ESIA report using non-technical language. This has been produced in both English and Arabic and summarises every aspect of the ESIA in a way that is understandable to the non-expert reader.
VOLUME II – ESIA REPORT	
Acronyms and Abbreviations	A glossary of common abbreviations and acronyms used.
Chapter 1 – Introduction	A general introduction to the Project, a brief outline of the objectives of the assessment, and the report structure of the ESIA.
Chapter 2 – Approach and Methodology	A description of the methods used to conduct the ESIA assessment.
Chapter 3 – Project Description	A detailed description of the Project.
Chapter 4 – Policy, Legal and Administrative Framework	A summary of relevant environmental and social standards and guidelines and BP HSE policy, environmental and social standards and expectations.
Chapter 5 – Air	A description of the baseline conditions for air, noise and climate and how these may be impacted by the development (and to what level of significance) and a discussion of mitigation measures for significant impacts and summary assessment of the residual impacts.

Table 1.1: Structure of the ESIA Report	
Chapter 6 – Land	A description of the baseline conditions for geology, soils, sediment and waste and how these may be impacted by the development (and to what level of significance) and a discussion of mitigation measures for significant impacts and summary assessment of the residual impacts.
Chapter 7 – Water	A description of the baseline conditions for surface water and groundwater and how these may be impacted by the development (and to what level of significance) and a discussion of mitigation measures for significant impacts and summary assessment of the residual impacts.
Chapter 8 – Ecology	A description of the baseline conditions for terrestrial, inter-tidal and marine ecology and how these may be impacted by the development (and to what level of significance) and a discussion of mitigation measures for significant impacts and summary assessment of the residual impacts.
Chapter 9 – Social-economic Conditions	A description of the baseline conditions for socio economic conditions, marine and land traffic, cultural heritage and archaeology and how these may be impacted by the development (and to what level of significance) and a discussion of mitigation measures for significant impacts and summary assessment of the residual impacts.
Chapter 10 – Hazard Analysis and Risk Assessment (Unplanned Events)	An assessment of the potential environmental and socioeconomic impacts associated with unplanned events associated with the Project.
Chapter 11 – Summary & Conclusions	A high-level summary of residual impacts associated with the Project and a summary matrix of all impacts and mitigation measures.
VOLUME III – TECHNICAL APPENDICES	
Appendix A - Contributors	Details of the participants, contributors and local institutes involved in the production of the ESIA.
Appendix B – Constraint Maps	Maps of environmental, cultural heritage and social constraints surrounding the Project site.

Table 1.1: Structure of the ESIA Report	
Appendix C – Public Consultation and Disclosure	Results from the public consultation and disclosure process.
Appendix D – Environmental and Social Management and Monitoring Plan	Overarching ESMMP including individual topic management plans.
Annex E – Commitments Register	The register of all commitments made in the ESIA.

The ESIA has been presented in English and the Non-Technical Summary in Arabic and English. All efforts have been made to ensure that the Arabic translation of this ESIA is an accurate and true reflection of the intent and meaning the English original.