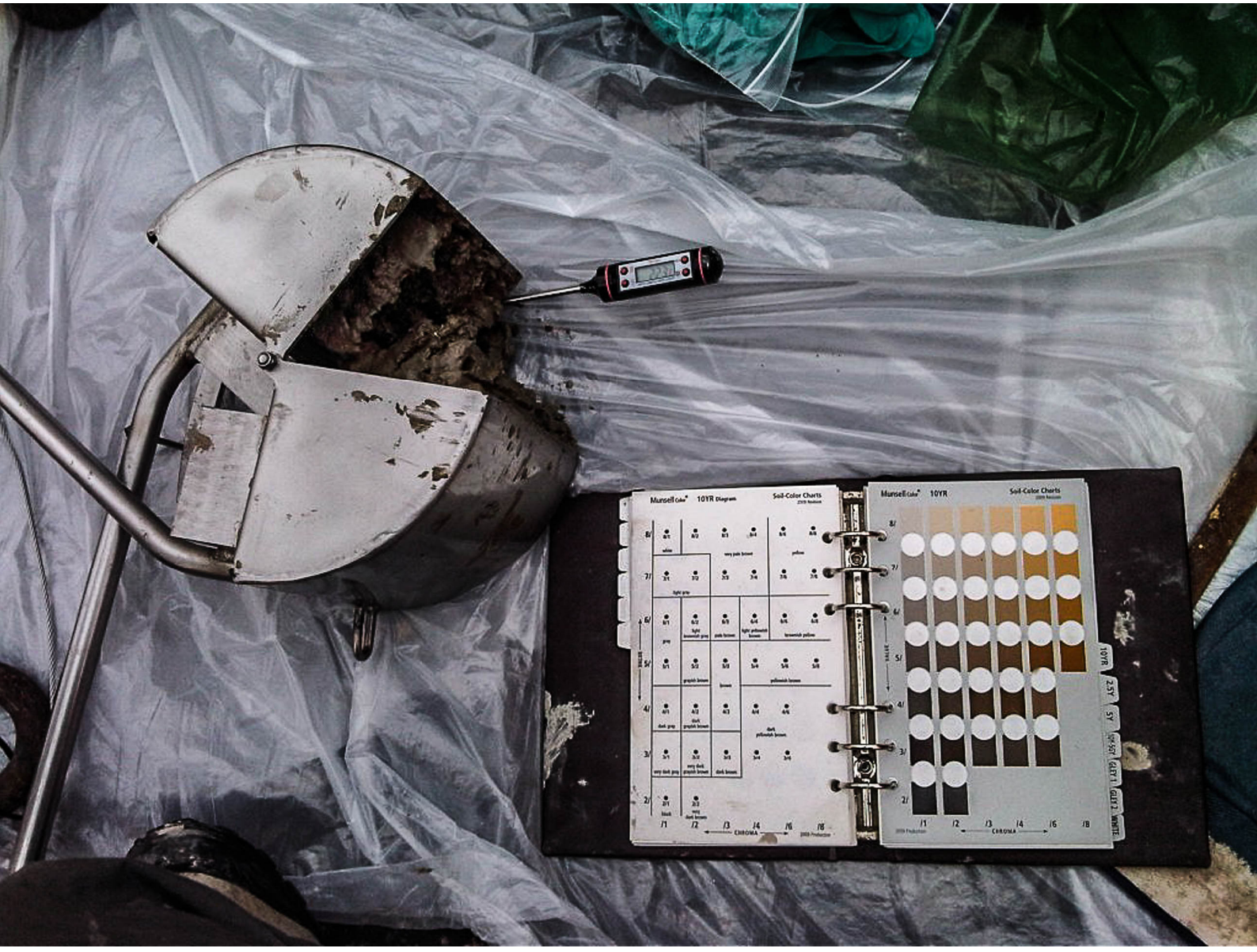
Chapter 2 – Approach and Methodology



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2 ESIA Approach and Methodology

2.1 Introduction

This chapter describes the process undertaken to complete the Environmental and Social Impact Assessment (ESIA) that is the subject of this report. This chapter presents in particular, the methodology and rationale used to assess the significance of impacts that may result from the Project and identifies the potential impact scenarios that were considered.

The results of the baseline surveys, impact assessment, assignment of mitigation measures and discussion of residual impacts for each media considered are presented in subsequent chapters of this report.

2.2 ESIA Process

The principles of ESIA are now widely established both nationally and internationally. *Figure 2.1* illustrates the key stages in the general approach.

All major projects will cause some changes to the environment. In the past the ESIA process mainly identified what these changes would be and, after proposing mitigation, reported them to the decision maker. As ESIA has evolved, the emphasis has moved on to the reduction of potential adverse impacts and maximising potential benefits through appropriate design measures. Designing out the significant effects of a project is the central tenet of the approach.

As can be seen from *Figure 2.1* an iterative assessment process is shown in the central box of the diagram. The aim of the process is to design out or minimise potential impacts and to do so in a way that prioritises those that are potentially most significant.

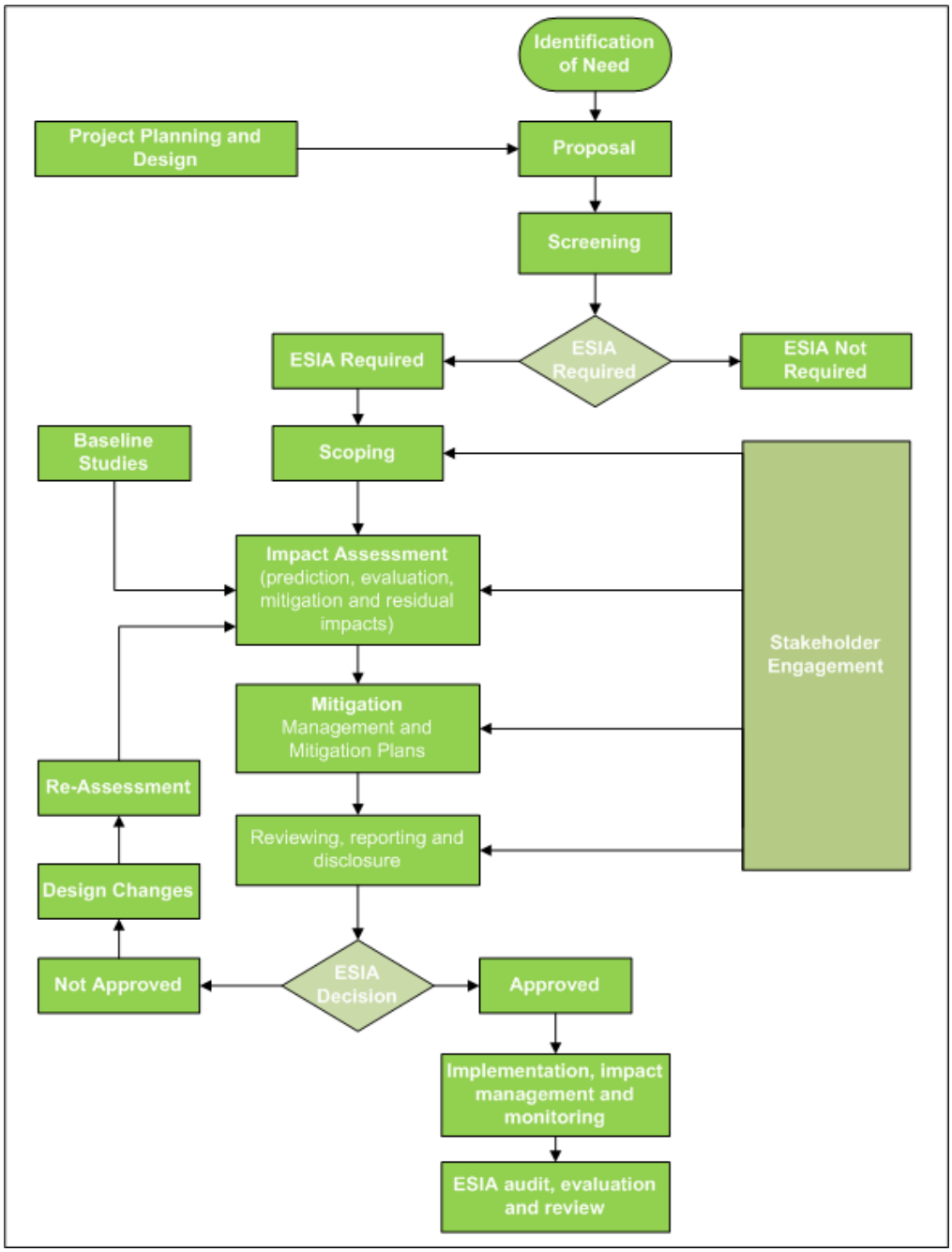


Figure 2.1: *ESIA process stages*

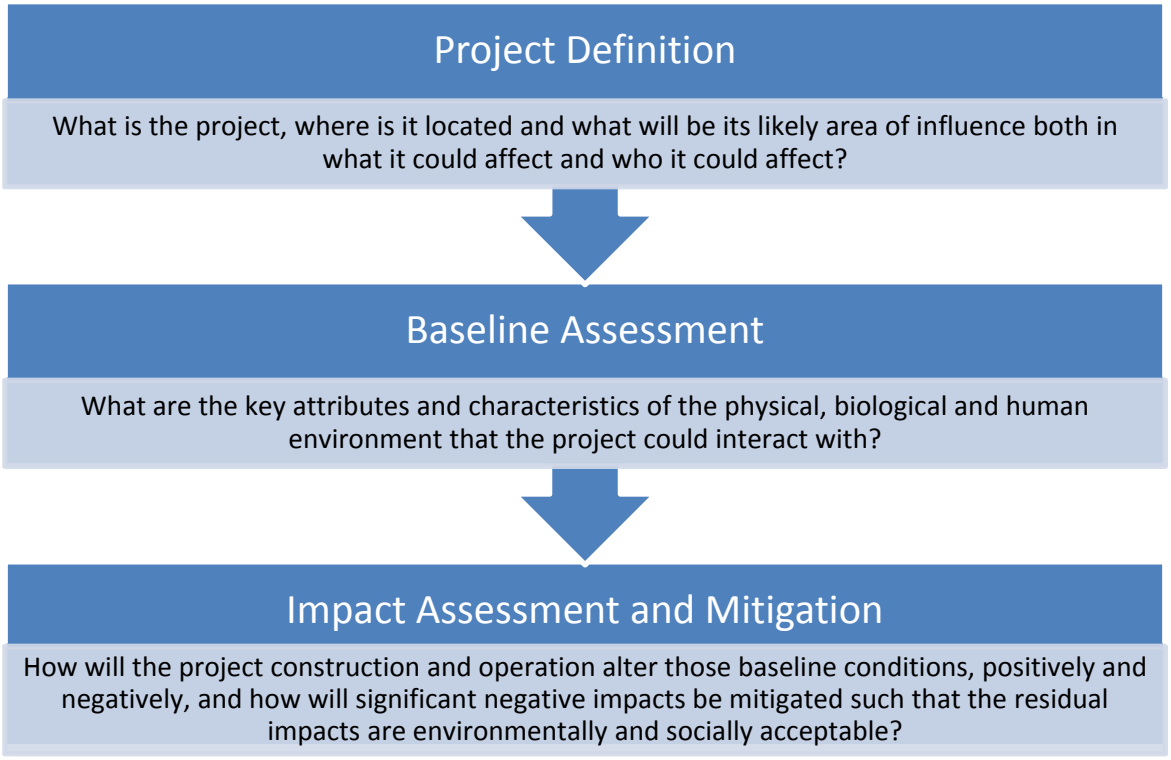
The assessment process constitutes a systematic approach to the evaluation of the proposed project in the context of the natural, regulatory and socio-economic environments in which development is proposed. Each of the steps in the ESIA process will be described in turn in the following sections. All of the potential impacts arising from this Project have been

identified, and either standard, recognised industry-practice mitigation measures or impact-specific, feasible and cost-effective mitigation measures have been applied. Any potential impacts that remain after the application of mitigation measures are referred to as residual impacts.

The methodology takes account of potential impacts on a wide range of receptors including:

- the physical environment (*e.g.* climate, air quality, soil and groundwater quality);
- the biological environment (*e.g.* plants, animals, birds and their food chains); and
- the human environment (e.g. communities, social groups and individuals, employment generation, changes in per capita incomes, threats to vulnerable groups and exposure to health and safety risks).

The ESIA process at its core fundamentally seeks to answer a series of questions as follows:



All residual environmental and social impacts are assigned a level of impact of low, medium, high or beneficial and are managed in the long-term by the application of a project specific Environmental and Social Management and Monitoring Plan (ESMMP).

2.3 Stakeholder Consultation and Disclosure

2.3.1 Overview

The process of stakeholder consultation and disclosure is an ongoing requirement that applies throughout the entire ESIA process. Consultation is important in gaining understanding of the key environmental and social issues relating to the site's proposed development and addressing the concerns of stakeholders as well as helping to develop mitigation strategies, if required.

2.3.2 Stakeholder Identification

Using EAME's particular knowledge and experience of Southern Iraq, the key stakeholders were identified and approached as part of the project. This was to ensure that the people who may be affected or who may have an interest in the proposed Terminal had an opportunity to obtain information about the Terminal and to express their opinions and concerns.

2.4 Screening Assessment

Screening is undertaken at the early stages of the project development process to identify potentially significant impacts and to determine whether an ESIA is necessary. Early identification of these potential impacts enables an early understanding of the key environmental and social issues and the potential project impacts. It results in a list of prioritised potential impacts that are likely to require either further detailed assessment and/or management throughout the life cycle of the project. The output from screening informs the scoping assessment.

Screening for the Iraq Terminal project was undertaken by Waterway Trading & Petroleum Services LLC (WTPS), in the UK on 22nd April 2013 in conformance with internal policies on Environmental and social Requirements for New Access Projects, Major Projects, International Protected Area Projects and Acquisition Negotiations".

The screening process determined that an ESIA would be necessary for this project given its scale and location.

2.5 Scoping Assessment

An important stage in the ESIA process is the scoping of key environmental and social issues that need to be evaluated more thoroughly. An ESIA is a multidisciplinary study and its success in connection with any given project depends largely on the ability to identify at an

early stage the key environmental and socio-economic issues that should be addressed. Scoping is the process of determining which issues are likely to be important and defining the ESIA Terms of Reference (ToR). The Scoping exercise is also an opportunity for initial consultation with potential stakeholders and feedback from them on the approach being applied. A successful scoping exercise should:

- Describe the project sufficiently that stakeholders understand the nature and scale of the proposals and where they will be implemented;
- identify the impacts to be assessed and how they will be assessed; and
- Invite input from stakeholders as to the adequacy of what is being proposed and whether or not they hold additional information that might be available and relevant to the study.

The outcome of the scoping assessment should also identify where uncertainty remains (i.e. further information is required in order to conduct a robust assessment).

2.6 Evaluation of Alternatives

The ESIA should also seek to evaluate alternatives to the proposed project in terms of scale, site location, methods of delivering the project objectives and including a "do nothing" option (i.e. seeking to address the need for the development).

A discussion of the alternative options that were assessed and/or discounted during the Project development process and ESIA is provided in *Chapter 3*, including the social and environmental implications of a 'no development option'.

2.7 Legislative Review

The legal, policy and administrative framework review for this Project is described in *Chapter 4*. This review addresses social and environmental requirements and policies relevant to the Project at the following levels:

- Iraqi government laws and agreements;
- International conventions that Iraq has ratified;
- World Bank Standards;
- UK standards and practices;

- other national legislation and policies; and
- WTPS policy and management systems.

A detailed review of the legal and policy framework ensures that the Project has been assessed (as far as is reasonable practicable) against relevant existing environmental and social regulations and guidelines as well as WTPS's environmental, social, ethical and business policies and standards.

2.8 Baseline Assessment

The results of the scoping study indicated that there were certain key issues requiring detailed additional study for the Project area, and that certain existing baseline data for the Project were either insufficient or out of date and required supplementary information. The detailed baseline surveys therefore conducted for the ESIA addressed the following aspects:

AIR	▪ **Air Quality** (chemicals and particulates)
	▪ **Climate** (weather and seasons)
	▪ **Noise** (ambient noise levels and sources)
LAND	▪ **Soil** (chemical and physical attributes)
	▪ **Geology** (geological units and strata)
	▪ **Sediment** (chemical and physical attributes)
WATER	▪ **Surface Water** (chemical quality and dynamics)
	▪ **Groundwater** (chemical quality and dynamics)
ECOLOGY	▪ **Terrestrial** (habitat and biodiversity)
	▪ **Inter-tidal** (habitat and diversity)
	▪ **Marine** (habitat and diversity)
SOCIAL	▪ **Traffic** (land and marine)
	▪ **Socio-economic** (employment, land-use and recreation)

- **Culture** (heritage, archaeology and religious sites)
- **Demographics** (population, ethnicity and religion)

2.9 Impact Assessment

Once the baseline conditions have been established it is possible to begin the process of assessing the potential impacts of the project proposals, in other words, how the project proposals may change those baseline conditions.

A logical and systematic approach is taken to identify all potential impacts and screen out those that are deemed to be insignificant using robust and consistent risk ranking and evaluation criteria. This includes making sure that all indirect and cumulative effects are considered in addition to direct effects and of course considering positive as well as negative impacts.

The assessment of impacts considers both the short and the long-term impacts and includes all phases of the development (*i.e.* construction, production, decommissioning and post decommissioning), in accordance with industry norms.

Characteristics of the Potential Impacts

All of the potential effects of the development will be considered in detail according to the following characteristics:

- nature (positive, negative, direct, indirect, cumulative);
- magnitude (severe, moderate, low);
- extent/location (area/volume covered, distribution);
- timing (during construction, operation, decommissioning, immediate, delayed, rate of change);
- duration (short term, long term, intermittent, continuous);
- reversibility/irreversibility (temporary vs. permanent);
- likelihood (probability, uncertainty or confidence in the prediction); and
- significance (local, regional, global).

Evaluation of Potential Impacts

Once potential impacts are determined then the level of impact, in terms of its relative value, can be assessed. The key elements for evaluating impact include:

- level of stakeholder concern;
- professional and scientific judgment;
- disturbance/disruption of ecosystems;
- accord with relevant legislation and regulation; and
- degree of negative impact on social values and quality of life.

The purpose of impact evaluation is to assign relative significance to the predicted impacts associated with the development and then to determine the priority in which impacts are to be avoided, mitigated or compensated. This ranking is obtained from the determined importance of the environmental impact and to the concerned communities.

All impacts identified and their relative significance are presented in a detailed impact assessment matrix in this ESIA report. This allows risk ranking of the identified impacts and identifies all impacts that have been screened out as being insignificant with an appropriate justification for why these have been screened out.

Preventing, Mitigating and Monitoring

Once all of the significant impacts have been identified, these should be mitigated or reduced to an acceptable level of significance where possible. Wherever possible, unacceptable impacts should be avoided by altering the project design or construction.

Monitoring programmes generally arise from the findings of the assessment, and are based on the identified potential impacts and sensitive areas environment, including communities and natural resources.

Socio-economic Impacts

Impacts on local populations and communities may disrupt current local lifestyles and livelihoods; however, there may also be positive impacts by providing employment in an otherwise depressed area. Current resource use, such as agriculture, wildlife harvesting, fishing, and tourism are important and cultural issues must also be considered.

Social impacts can be divided into four main types:

- *demographic impacts* such as changes in population numbers and characteristics (such as sex ratio, age structure, in-and-out migration rates and resultant demand for social services, hospital beds, school places, housing *etc*);
- *cultural impacts* including changes to shared customs, traditions and value systems (*e.g.* language, dress, religious beliefs and rituals) archaeological, historical and cultural artefacts and to structures and environmental features with religious or ritual significance;
- *community impacts* including changes in social structures, organisations and relationships and their accompanying effect on cohesion, stability, identity and provision of services; and
- *socio-psychological impacts* including changes to individual quality of life and well-being, sense of security or belonging and perceptions of amenity or hazard.

Residual Impacts

All the residual negative impacts found to have a medium or high significance and any the impacts that are found to be significantly beneficial shall be reported and appropriately mapped.