



Chapter 1

Introduction

1. INTRODUCTION

1.1 PURPOSE OF THIS REPORT

This Environmental and Social Impact Assessment (ESIA) presents an assessment of the potential environmental and social impacts associated with the proposed Long Son Petrochemicals Complex in Vietnam (the 'Project' or the 'Complex').

This report was originally prepared for the **Long Son Petrochemicals Company Limited (LSP)** by Environmental Resources Management (ERM) to present the objectives, methodology and outcomes of the ESIA based on the configurations in 2014. LSP has undertaken an optimization strategy and there have been some changes to the project scope. Thus, the ESIA has been updated by a consortium of Monkey Forest Consulting Ltd. (MFC), ESSA Technologies Ltd. and ICEM Asia. All of the consortium members are international companies with ample experience with past and ongoing projects seeking international finance in the same manner as LSP.

1.2 BACKGROUND

Long Son Petrochemicals Co., Ltd. (LSP) is 100% owned by The Siam Cement Public Company Limited (SCG) via its subsidiaries that are Vina SCG Chemicals Co., Ltd. (VSCG) and Thai Plastic and Chemicals Public Company Co., Ltd. (TPC).

The Vietnamese Government agreed to directly lease land to LSP for the deployment of the Project under the Investment Certificate number 492022000118, dated 11 July 2008, issued by the Ba Ria – Vung Tau Industrial Zone Authority (BIZA). Three amendments to the certificate were made, on 11 January 2012, 15 June 2012, and 5 October 2012, with the third amendment being issued by the People's Committee of Ba Ria – Vung Tau province (Investment Certificate number 491022000366). Amendments included separation of the Petrochemical Complex in South of Vietnam project from the Long Son Petroleum Industrial Zone.

The Project, which consists of a Petrochemical Plant (as defined hereunder) and Seaport Development (as defined hereunder), is part of the objectives and directions stipulated in the National Strategies and the Master Development Plans for Oil & Gas and Chemical industry by local regions. With a capacity of ethylene and propylene production up to around 0.95 and 0.4 million tons per year, respectively, the Project will be fully integrated to the downstream polyolefins (PE /PP) capacity of similar scale. The total capital investment of approximately USD 5 billion, and the Project will be the biggest independent petrochemicals complex in Vietnam.

The Project is located in Hamlet 2 and Hamlet 3, Long Son Commune, Vung Tau City, Ba Ria – Vung Tau Province, Vietnam.

According to the Decree No. 29/2011/ND-CP, dated 18 April 2011 of the Vietnamese Government on regulation on strategic environmental assessment, environmental impact assessment and environmental protection commitment, LSP shall produce an Environmental Impact Assessment (EIA) report and submit to the Ministry of Natural Resources and Environment (MoNRE) for appraisal and approval. In this regard, three (3) EIA reports have been prepared by local Vietnamese consultants, VITTEP and Haskoning Vietnam & Portcoast

Consultant Corporation, in compliance with Vietnamese regulations¹ and requirements for the petrochemical plants, the port system and other supporting facilities for the Project. These include:

- EIA Report of Land Development and Construction of Common Infrastructure Works. This report was approved by MONRE in Decision 1882/QD-BTMT dated 5 September 2014.
- EIA reports for the Plants construction and operation: This EIA report was approved by MONRE in Decision 3260/QD-BTNMT dated 31 December 2014.
- EIA report of Seaport: This report was approved by MONRE in Decision 2039/QD-BTNMT dated 23 September 2014.
- Clarification report, The changes in comparison with the approved EIA in 2014 for Petrochemical Complex in South of Vietnam project was approved by MONRE in Decision No. 656/ BTNMT-TCMT dated 21 February 2017. This report updated the Complex's configuration optimization.
- Clarification report, The changes of seaport and infrastructure in comparison with the clarification report in 2017 and the approved EIA reports in 2014 for Petrochemical Complex in South of Vietnam project was approved by MONRE in Decision 2829/ BTNMT-TCMT dated 14 June 2019
- EIA reports for the Plants construction and operation: This EIA report was approved by MONRE in Decision 2037/QD-BTNMT dated 6 August 2019, with updated complex's configuration.

As LSP has approached a Financial Institution for the purpose of obtaining a lending facility, environmental and social (ES) performance of the Project is required to adhere to the international standards/guidelines. In 2010, ERM were appointed by LSP to conduct an independent review of the EIA reports prepared by local Vietnamese consultants against the IFC Performance Standards on Environmental and Social Sustainability, 2012 (IFC PSs) and the World Bank Group Environmental, Health and Safety Guidelines (WB Group EHS guidelines). This independent review was referred to as the "Gap Analysis" and was completed for the Plants and Port in 2010 and 2012 respectively. In addition, a Gap Analysis for the resettlement action plan was conducted by ERM in 2009.

In September 2013, ERM was commissioned by LSP to prepare the original ESIA report in order to align the Project with Vietnam's regulations and international standards/guidelines. The report incorporated the findings and recommendations from the Gap Analysis reports and provided additional studies and assessment work in a wider scoped Environmental and Social Impact Assessment. The key changes presented in this ESIA report included:

- Additional environmental and socio-economic baseline sampling
- Additional stakeholder engagement and community survey
- Additional air quality and major hazard assessment (MHA)
- Development of Environmental and Social Management Plan (ESMP)
- Development of Stakeholder Engagement Plan (SEP) and Supplemental Resettlement Action Plan (SRAP)

At the time it was acknowledged that not all aspects of the Project were considered "detailed design". Design is ongoing and some layout logistic components will only be finalised once the EPC contractor is signed and then mobilised. This phased-approach is common practice in large Projects, i.e., a phased assessment commensurate with the design details available.

While detailed design was still ongoing in summer 2016 there have been some major changes to the project design already identified such as the decision to draw power from the national grid rather than constructing a captive power station. Other elements have been dropped from the scope are the Vinyl Chloride Monomer (VCM) Plant, the Air Separation Plant (ASP), MTBE units, 2 stacks of the cracking furnaces, B1 unit, coal fired boiler, coal handling system including the coal berth. Other items in the scope have been reduced in size and volume such as the tank farm being reduced from 43 to 31 tanks, the warehousing site reduced from 155,000m² to 90,000m² and plant throughput reduced. And these changes had been approved by MONRE on 17 February 2017.

1.3 OVERVIEW OF THE PROJECT

The Long Son Petrochemicals Complex Project is located in Hamlet 2 and Hamlet 3, Long Son Commune, Vung Tau City, Ba Ria – Vung Tau Province, Vietnam. The total land area acquired for the project is 464 ha, consisting of 398 ha for the Complex, and 66 ha for the specific port. The total area acquired for Seaport is 194 ha. The main Project components comprise of two areas:

- Petrochemical Plant (Plants and Balance of Complex (BOC)) – cover an area of 398 ha and will consist of an Olefins plant, High Density Polyethylene (HDPE) Plant, Linear Low Density Polyethylene (LLDPE) Plant, Polypropylene (PP) Plant, Central Utility Plant (CTU), Tank farm and Balance of Complex (i.e., complex administration building, canteen, laboratory, emergency centre, first aid station, etc.) (hereinafter referred to as ‘Petrochemical Plant’);
- The Seaport– covers an area of 194 ha and consists of jetty, access channel and turning basin (hereinafter referred to as ‘Seaport’).

An overview of the location of Project is illustrated in **Figure 1.1**.

LSP will be able to manufacture ~~up to~~^{about} 1.35 million tons per year of polyethylene (PE), and polypropylene (PP), accounting for majority of the Polyolefins demand in Vietnam. LSP will produce and mainly supply PE and PP to the domestic market.

In order to support materials import and product export of the Petrochemical Complex, LSP constructs and operates the Seaport on a 194 ha, with berths designed to accommodate 1,500-100,000 DWT vessels for receiving hydrocarbon, oil and petroleum.

Figure 1.1 Location of Long Son Petrochemicals Complex Project



The Complex covers about 464 ha of land (Complex land area 398 ha and specific port area 66 ha) and 194 ha for the Seaport, and the land use before land acquisition is mainly farming area (e.g., cultivation land, salt farms and aquaculture farms), mangrove and coastal areas. The total area acquired for the resettlement is 20.4 ha in Hamlet 1. The Project land acquisition physically or economically affects a total of 392 households (HHs) from two (2) hamlets (i.e., Hamlet 2 and Hamlet 3 in Long Son Commune. These 392 HHs, as well as one temple (Ba Ong temple) were tentatively identified for relocation to a new resettlement site (Long Son Resettlement Site (RS)). The resettlement is a government-led process, and the Department of Transportation is responsible for construction of the resettlement area. At the time of reporting, the compensation payment has been completed for the affected households of the host communities (Hamlet 1) and is being implemented for those residing in the Complex area.

The Stakeholder Engagement Plan (SEP) and Supplemental Resettlement Action Plan (SRAP) of the Project have been prepared in compliance with Vietnamese legislation, Equator Principles and the IFC Performance Standards. SEP and SRAP are stand-alone documents, though closely linked with the ESIA.

The purpose of SEP implementation is to build long-term relationships with the parties in the local social environment who are influenced by, interested in or can influence the outcomes of the Project's activities. A key outcome of the SRAP will be to close the gaps between the government-led resettlement process and the requirements of the IFC Performance Standard 5 on Land Acquisition and Involuntary Resettlement.

1.4 PROJECT NEED

Polyolefins demand in Vietnam was estimated to be around 3 million tons in 2019 and is growing at 4-5% p.a. This demand is currently met almost entirely by imports from various

countries, including Thailand, Singapore, Korea and Middle East countries. Given the limited foreseeable additional supply, Vietnam will continue to rely on imports to meet existing demand as well as growth in demand for the domestic market in the future.

As the first integrated petrochemicals Project in Vietnam, the strategic importance of LSP lies in its import substitution nature to meet Vietnam's sustained and fast growing domestic demand for polymer resins and to enhance the competitiveness of its plastics industry, an important export earner for Vietnam.

The Project is a key part of the Vietnamese government's plan to enhance the country's industrial development, particularly of the downstream sector, and is a national priority Project for the country which is in the list of the national important Projects in petroleum sector under the supervision of the National Guidance Committee.

1.5 ENVIRONMENT AND SOCIAL IMPACT ASSESSMENT OBJECTIVES

The specific objectives of this ESIA are as follows:

- Facilitate an understanding of the elements of the existing baseline conditions that are relevant to resources/receptors that could be potentially impacted by the Project;
- Identify the aspects of the Project that could potentially result in significant environmental impacts on resources/receptors;
- Document how stakeholders have been engaged during the ESIA Process, and how stakeholder feedback has been considered in the ESIA;
- Predict and evaluate the significance of the potential environmental impacts of the Project;
- Identify the aspects of the Project that need to be managed, and recommend appropriate and justified mitigation and enhancement measures;
- Determine the significance of residual impacts, taking into account the implementation of mitigation measures;
- Generate plans for the management and monitoring of impacts, including plans for ongoing stakeholder engagement; and
- Meet international environmental and social requirements.

1.6 IMPACT ASSESSMENT SCOPE

This report has been prepared to ensure the compliance with IFC requirements. It identifies the potential environmental and social impacts that could be associated with the proposed Project activities and its associated facilities including those of an indirect and cumulative nature.

The study area for environmental impact assessment covers all Project operational areas, both onshore and offshore facilities, including Plants and port where supporting activities take place.

The scope of the impact assessment includes Project operations that may affect the environment. Details of the Project include location, Project overview and components, schedule, Project facilities and activities, associated facilities, construction and operational process, as described in **Chapter 2**. The scope does not provide an assessment for any other/future developments or activities, either at the site location or anywhere else within the Complex, unless these activities are specifically identified in **Chapter 2** of this report.

Should any further development be planned, either as result of this Project or other related work, additional planning and assessment must be carried out specifically in relation to that proposed development. This amendment of the ERM ESIA takes into account the changes proposed due to the project requirements evolving and changing over the period of the original document being produced and the project scope proposed for Financial Close in Q3 2018.

1.7 STRUCTURE OF THIS REPORT

An outline of the ESIA report is provided in **Table 1.1**.

Table 1.1 ESIA Report Structure

Chapter	Title	Description
1	Introduction	Presents introduction to the Project
2	Project Description	Presents technical description of the Project infrastructure and activities
3	Administrative Framework	Outline legislation and lender requirements and guidelines determining Project design and operation
4	Impact Assessment Methodology	Describes the impact assessment process undertaken to identify potential environmental and social impacts, including Area of Influence (AOI), details on data collection and public consultation activities, and impact identification and assessment
5	Scoping	Presents the Scoping outcomes previously undertaken as part of the ESIA process.
6	Description of the Environment – Biophysical Baseline	Describes the environment baseline relevant to the Project, which forms the basis for assessment of potential impacts.
7	Description of the Environment – Socio-Economic Baseline	Describes the social baseline relevant to the Project, which forms the basis for assessment of potential impacts.
8	Stakeholder Engagement and Disclosure	Provides an overview of the stakeholder engagement activities undertaken during the ESIA.
9	Air Quality	An assessment of potential air quality impacts
10	Greenhouse Gas	An estimation of GHG emissions from the Project activities
11	Noise	An assessment of potential noise impacts
12	Hydrology and water quality	Provides an assessment of the potential hydrology impacts associated with the proposed project
13	Soil and Groundwater	An assessment of the potential for soil and groundwater contamination
14	Terrestrial and marine biodiversity	An assessment of the potential impacts on wildlife, fisheries and marine ecology
15	Fisheries	An assessment of the potential impacts on fisheries
16	Waste	An assessment of the potential impacts associated with waste from the construction and operation of the LSP Complex
17	Social-Economic	Overview of the socio-economic impacts associated with the project and its associated facility (i.e., the resettlement site).
18	Traffic	An assessment of the potential impacts associated with traffic during different project phases
19	Unplanned and accidental events	An assessment of the potential impacts associated with accidental spills, fire and explosion and vehicle accidents.
20	Cumulative Impacts	An assessment of potential cumulative impacts from other projects operating in the area.
21	Environmental and Social	Outline of the ESMP taking into account the identified impacts and planned mitigation measures, management and

	Management Plan (ESMP)	monitoring requirements.
22	Environmental and Social Management System (ESMS)	Outline of the ESMS and what should an ESMS do and what standards these should uphold or be designed to.
23	Summary and Conclusions	Summary and key points from the ESIA
24	References	List of references
	Annexes	Include a list of Annexes developed for the IA