1.0 Introduction

The Papua New Guinea (PNG) Liquefied Natural Gas (LNG) Project (the Project) aims to commercialize the gas resources in the Hides, Angore and Juha fields and associated gas resources in the Kutubu, Agogo, Gobe and Moran fields in the Southern Highlands and Western provinces of PNG.

The Project will be operated by an affiliate of ExxonMobil Corporation, Esso Highlands Limited, in co-venture with parties including Oil Search Limited, Kroton No. 2 Limited, Santos Ltd, Nippon Oil Exploration Limited and Mineral Resources Development Company Limited (MRDC) on behalf of Project Area landowners.

The Project is an integrated phased development that includes gas production and processing facilities in the Southern Highlands and Western Provinces of PNG, liquefaction and storage facilities located northwest of Port Moresby on the Gulf of Papua and over 700 kilometers (450 miles) of pipelines connecting the facilities (Figure 1.1).

Figure 1.1: Project Areas

The investment for the initial phase of the Project, excluding shipping costs, is estimated at US$15 billion. Over the life of the Project, it is expected that over 9 trillion cubic feet of gas will be supplied to major LNG customers in Asia through long-term sales agreements, including Chinese Petroleum Corporation, Taiwan; Osaka Gas Company Limited; The Tokyo Electric Power Company Inc.; and Unipec Asia Company Limited, a subsidiary of China Petroleum and Chemical Corporation (Sinopec). The first LNG deliveries are scheduled to...
begin in 2014, following a construction period of about four years.

Esso Highlands Limited recognizes that it is operating in a high biodiversity\(^2\) country and that the Project Area itself has high biodiversity values. Moreover the ecosystems services within the Project Area are likely to be significant at several scales from local to international. Ecosystem services are the ‘processes by which the environment produces resources that we often take for granted such as clean water, timber, and habitat for fisheries, and pollination of native and agricultural plants’. Ecosystem services include (i) provisioning services, which are the products people obtain from ecosystems; (ii) regulating services, which are the benefits people obtain from the regulation of ecosystem processes; (iii) cultural services, which are the nonmaterial benefits people obtain from ecosystems; and, (iv) supporting services, which are the natural processes that maintain the other services. The range of services extends beyond the physical to psychological, cultural and spiritual support that nature provides humanity\(^4\). In a country like PNG where most inhabitants are subsistence cultivators who rely directly on the forest for their everyday needs ecosystem services are of particular relevance. Esso Highlands Limited recognizes the direct role of ecosystem services in meeting the subsistence, cultural and spiritual needs of the people of PNG and as such is committed to maintaining the ecological integrity of the Project Area\(^5\).

This Biodiversity Strategy document presents a multifaceted approach to biodiversity management, which reflects good international industry practice.

The Project is generally described in terms of general areas, which include the Upstream, Marine and LNG Plant areas (see Figure 1.1) as discussed below.

The Biodiversity Strategy follows a 6-step process. **Step 1** involves the identification of biodiversity values and the major potential risks to such values. **Step 2** involves the development of goals and objectives for biodiversity management. **Steps 3, 4 and 5** involve the formulation of measures to prevent, avoid, manage and mitigate identified risks and where this is not possible, identify need for offset. Offset planning is not completed at this stage and awaits final development following consultation with stakeholders. **Step 6** is the development of a Biodiversity Monitoring Plan (monitoring is also subject to further definition subject to field trials of methods). The process is further described in Chapters 5 to 10 of this Biodiversity Strategy.

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\(^2\) For the purpose of the Biodiversity Strategy, the term ‘biodiversity’ (or biological diversity) is defined in Article 2 of the Convention on Biological Diversity as the ‘variability among living organisms from all sources including, inter alia terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part: this includes diversity within species, between species and of ecosystems’. (http://www.cbd.int/convention/articles.shtml?la=cbd-02).

\(^3\) www.esa.org/education_diversity/pdfDocs/ecosystemservices.pdf.

\(^4\) For a detailed presentation of ecosystem services see the Millennium Ecosystem Assessment, 2005 (www.millenniumassessment.org and http://www.maweb.org/en/index.aspx and for a short introduction see, for example, Ecological Society of America, 1997).

\(^5\) This document is not intended to provide an ecosystem services analysis.