FINAL REPORT OF THE:

INDEPENDENT ENVIRONMENTAL & SOCIAL CONSULTANT

ENVIRONMENTAL & SOCIAL COMPLIANCE MONITORING

PAPUA NEW GUINEA LNG PROJECT

Site Visit: May 2010

Prepared for

Export-Import Bank of the United States

Export Finance and Insurance Corporation

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Revision 2 – August 2010
Document No: 09-142-H9

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TABLES

ACRONYMS

BSA	Benefits Sharing Agreement
CBI	Chicago Bridge and Iron
CJJV	Chiyoda JGC JV
CCJV	Clough Curtain Brothers JV
CEA	Cumulative Effects Analysis
CHMP	Cultural Heritage Management Plan
CSS	Community Support Strategy
CIP	Contractor Implementation Plan
CSSAP	Community Support Strategy Action Plan
CTA	Common Terms Agreement
CTF	Construction Training Facility
DEC	Department of Environment and Conservation
DLPP	Department of Land and Physical Planning
DPE	Department of Petroleum and Energy
EHL	Esso Highlands Limited
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
ELC	Environmental Law Centre
ESIA	Environmental Social Impact Assessment
ESMP	Environment and Social Management Plan
ESMS	Environmental and Social Management System
HGCP	Hides Gas Conditioning Plant
IESC	Independent Environmental and Social Consultant
HH	Highlands Highway
IFC	International Finance Corporation
ILG	Incorporated Land Groups
KPI	Key Performance Indicator
L&CA	Land and Community Affairs
LBSA	License Area Benefits Sharing Agreement
MCJV	McConnell Dowell CC Group JV
MOC	Management of Change
MOF	Marine Offloading Facility
MOH	Manager of Occupational Health
MoU	Memorandum of Understanding
MTPA	Million Tons per Annum
NAQIA	National Agriculture Quarantine and Inspection Authority
NCD	National Capital District
NCDC	National Capital District Commission
NGO	Non-Governmental Organization
OSL	Oil Search Limited
NLB	Northern Logistics Base
Para.	Paragraph
PNG LNG	Papua New Guinea Liquefied Natural Gas Project
PS	Performance Standard
RAP	Resettlement Action Plan
RoW	Right-of-Way
RPF	Resettlement Policy Framework
RPNGC	Royal Papua New Guinea Constabulary
SELCA	Socio-Economic, Land & Community Affairs
SMP	Social Management Plan
SSH&E	Safety, Security, Health and Environmental
TOR	Terms of Reference

UBSA	Umbrella Benefits Sharing Agreement
VG	Valuer General
WAA	Waste Accumulation Area
WMA	Weed Management Area
WWTP	Wastewater Treatment Plant

EXECUTIVE SUMMARY AND CONCLUSIONS

This report represents the first post-financial close field visit to Papua New Guinea (PNG) made by D'Appolonia S.p.A. of Genoa, Italy serving in the role of the Independent Environmental and Social Consultant (IESC) for the Papua New Guinea Liquefied Natural Gas (PNG LNG) Project with Esso Highlands Limited (EHL) as the Operator (a subsidiary of ExxonMobil) on behalf of Export Credit Agencies (ECAs) and commercial banks providing Project financing (Lenders). The purpose of this visit has been to monitor compliance with Project environmental and social commitments made during actual Project development. This visit was conducted between May 5 – 18, 2010 with eight days spent in Papua New Guinea (PNG) and the remainder spent with ExxonMobil staff in Brisbane, Australia.

The commitments made by the Project for environmental and social management are defined in three documents. The Environmental and Social Management Plan (ESMP) is the main document defining EHL's environmental and social commitments. An additional document termed the Lender Environmental and Social Requirements (LESR) was prepared to supplement the ESMP and provide a single point of reference to all information and documents that do not form part of the ESMP, but are required to demonstrate compliance with Lender Group requirements. At the time of Financial Close in February 2010, it was not practical for EHL to fulfill all of the Lender requirements to finalize aspects of environmental and social management. Therefore, a third document termed Environmental and Social Milestones (Milestones Schedule) was prepared as Appendix H3 to the Common Terms Agreement (CTA) to reflect twenty additional time-bound commitments. These three documents together define the roadmap to achieve Lender compliance as defined in the International Finance Corporation (IFC) Performance Standards (PS) and Equator Principles and the benchmarks against which the IESC audits the Project.

EHL has begun the process of commercializing the undeveloped petroleum resources in the Hides, Angore and Juha fields and the associated gas resources in the currently operating oil fields of Kutubu, Agogo, Gobe and Moran in the Southern Highlands and Western provinces of PNG. The gas will be conditioned for transportation by pipeline to an LNG facility twenty kilometers northwest of Port Moresby on the coast of the Gulf of Papua. There, the gas will be liquefied and the resulting LNG product (approximately 6.6 million tons per annum) loaded onto ocean going tankers and shipped to gas markets overseas. At the time of this visit, field work was limited to the initial development of the infrastructure to support the planned main construction program, with activities such as pre-construction surveys, site preparations, road and bridge improvements, access road construction, construction of bypass roads, logistics base development, construction of work camps, resettlement activities, etc. As such, it is necessary to appreciate that our observations reflect that the Project is at an early stage in its development and that it is normal to find that staffing is not complete and not all management systems are fully in place.

As a general comment, it is apparent that EHL is committed to avoiding adverse social, environmental, health and safety impacts that could be caused by Project activities. EHL's program for environmental and social management is very comprehensive. The IESC has also positively observed the experience and dedication of environmental and social staff in the field. These positive observations need to be considered as the backdrop to all of our sector-specific findings.

Organization and Staffing

The primary components of the Environmental and Social (E&S) organization and staffing are in place, and EHL has employed some exceptionally strong resources. We did observe the possibility that some components of the Project may be overly compartmentalized in the sense that some communications links among different groups appear to be weak. An example would be communications between the logistics management and the environmental and social teams. Also, in other similar projects we have observed the social and environmental staff to be part of a single group, whereas in this Project they are separate, and we did find some evidence where in-field E&S management could have been improved if communications between these two groups were more defined. We believe that EHL has internally recognized some of these communications issues, and as mentioned above it is normal that these types of situations need to be worked out at the beginning of a major Project.

With respect to staffing, it is apparent to the IESC and also to EHL, we believe, that there is an urgent need to add more staff to meet the current program requirements. In particular, we have observed a critical shortage of staff involved with the stakeholder engagement program. EHL requires that Contractors use local labor forces through Lancos, which implies that EHL has responsibility to make sure these local workers are fully integrated into the Project environmental and social management system. This implies

the need for additional staff to closely work with the Lancos to achieve this objective. Staff requirements could also be reinforced for development of the Biodiversity Strategy and its associated components.

Environmental and Social Management System

In general, the IESC has observed a concerted effort to complete an Environment and Social Management System (ESMS) to Lender standards, but for a wide variety of reasons, the timeframe for finalizing the required documentation is slipping. The ESMP and the LESR are not final documents. In the case of the ESMP, the Item #1 of the Milestones Schedule was to complete the ESMP by the end of Q2 2010. This will not be achievable, as there have been significant delays associated with obtaining approval from the PNG Department of Environment and Conservation (DEC), in particular for the associated Environmental Monitoring Plan, whose completion is Item #4 of the Milestones Schedule. Although there are valid reasons for schedule slippage, these delays in fulfilling the commitments of the Milestones Schedule do represent a non-conformance.

One of the requirements of the LESR is for public disclosure of the ESMP, as well as the Milestones Schedule, the Biodiversity Strategy, Community Support Strategy, National Content Plan, Resettlement Policy Framework (RPF) and the Komo Airfield Resettlement Action Plan (RAP). These disclosures have not taken place and EHL is currently behind schedule with respect to expected disclosures. Similarly, another commitment within the LESR is for the development of a Management of Change (MOC) process following criteria defined in the LESR for Lender reporting. This process has not started. Regardless of the reasons for the delays, the lack of public disclosure of key documents is a significant non-conformance and it is recommended that the Lender MOC process be initiated and a revised document/disclosure schedule be provided to the Lenders via the MOC process.

Specifically regarding the MOC process, the IESC believes that reviewing MOC documentation should be a routine part of a field audit, but that documentation was not made available to us. We consider that an MOC process is a normal part of a large construction project and this information would allow our team to better understand the status of the Project at the time of our visits. It would also allow our team to be able to confirm to the Lender Group that what eventually is reported to the Lenders is consistent with the intent of the LESR. The current situation is considered a non-conformance with the LESR.

Another requirement of the LESR is for the extension of EHL environmental and social stewardship to third-party facilities and activities where the Project is responsible for construction on a third-party site or the sharing of facilities with a third party. Such cases are identified within the LESR as Associated Facilities and the implementation of ESMP protocols established on the basis of a risk assessment. Esso Highlands Limited is in the process of finalizing a process to identify the additional third-party facilities and activities where the ESMP should be directly enforced or where there at least needs to be Project stewardship on the basis of a risk assessment. Field activities have reached the stage where this process needs to be started and actions taken as appropriate.

Environmental Management – Waste and Wastewater

Waste and wastewater treatment have been generally well managed where EHL has been able to take advantage of OSL facilities. Nevertheless, construction wastes from C2 Infrastructure (early works) and POMTech, were disposed at unapproved municipal and other third-party facilities not formally audited by the Project. Overall, the current waste management strategy should be reviewed throughout the Project, as the use of external third-party facilities should have been considered only after having successfully completed the Project waste management facilities review requirements as outlined in the ESMP. In consideration that the Project has yet to develop a waste disposal facility that approaches good practice, the fundamental observation is that EHL has been fortunate to be able to take advantage of OSL facilities or the situation could be much worse. Nevertheless, EHL cannot afford to continue to depend on OSL as there is no guarantee that OSL will continue to be able to help as their facilities become more and more stressed by the increased amounts of waste and wastewater. The development of Project waste and wastewater management facilities needs to be given a high priority prior to the beginning of the main construction phase.

Environmental Management – Hazardous Materials

Overall, the Project is doing a good job with the management of hazardous materials. Some areas where some pollution prevention systems are needed to be constructed or existing facilities repaired/upgraded were identified at the Kobalu site. Possibly the biggest issue for the upcoming construction phase is going

to be the management of fuel trucks, especially those needed to supply the fleet of earthmoving equipment that will be utilized at the Komo airfield.

Ecological Management and Biodiversity

The Project's strategy for biodiversity and ecological management is illustrated in the Ecological Management Plan, the Weeds, Plant Pathogens and Pest Management Plan, the Induced Access Management Plan, the Reinstatement Plan and the Erosion and Sediment Control Plan. The Project is also developing a Biodiversity Strategy document for both the construction and operation phase that will address the subject of biodiversity offsets and the development of a long-term biodiversity monitoring plan. The IESC observed many examples of EHL's and the contractors' environmental staff implementing on-site ecological-related mitigation measures. The skill and knowledge level is very high amongst both contractors' and EHL staff. With respect to the overall Biodiversity Strategy document, EHL is still building the team necessary to address the more specialized topics of biodiversity offsets and monitoring. The quality of EHL's eventual Biodiversity Offset Program and its alignment with current practices in offset design is fundamental to achieving long-term compliance with IFC's PS6.

Land Access and Resettlement

The land access and resettlement program is running well behind the schedule originally provided in the Resettlement Policy Framework. Reasons for the delays include limited availability of camp beds, delays caused by the Benefit Sharing Agreement (BSA) negotiations towards the end of 2009 and security constraints limiting field access in February 2010. Resettlement for the Komo airstrip was very close to completion at the time of the IESC visit and a groundbreaking ceremony attended by 1200 people was held on 30 April 2010. The IESC had frank and detailed discussions with the Resettlement team and a cross-section of displaced people. A number of areas of non-conformance pertaining to land access and resettlement were observed. These included (but were not limited to) the following:

Selection of a densely populated and productive garden site for the Hides landfill - not consistent with the PS 5 requirement to avoid or at least minimize involuntary resettlement;

Resettlement agreements were being executed and compensation paid prior to RAPs being approved by the Lenders and before they have been locally disclosed (HGCP);

Compensation rates being paid in accordance with Valuer General's schedule rates and not the rates reflecting 'full replacement value' as indicated by the Komo Airstrip Valuation Study – the Project has not demonstrated its compensation agreements are equivalent to or exceed 'full replacement value' (HGCP and Komo air strip);

Loss of community assets or reduced access to community services and infrastructure such as churches, schools and medical facilities caused by the Project has not been addressed in the Komo airstrip and HGCP RAPs;

Compensation advisers had not been provided to advise resettlers on options for compensation investment. To date this commitment has not been delivered for Komo airstrip resettlers;

EHL entered into compensation and resettlement agreements with 15 families who spontaneously settled on the Komo access road without a covering RAP.

These issues can straightforwardly be addressed. Livelihood restoration measures were proving effective thus far for those that have resettled. EHL has assembled a world class team of resettlement and livelihood specialists. With the improved law and order situation in the Hides Komo area, progress going forward should be more rapid than over the past nine months. Since its visit to PNG, the IESC has received a draft RAP for the Hides Gas Conditioning Plant (HGCP). The IESC has requested a MOC to indicate the revised schedule for completing RAPs and resettlement implementation.

Community Impacts Management

The IESC observed potentially hazardous situations where contractor measures to comply with the Community Impacts Management Plan did not appear adequate. These included a child running through an active works area, insufficient measures to separate heavy vehicles from pedestrians and bystanders and villagers, including the elderly, forced to traverse a steep and slippery embankment to reach their dwellings due to Project severance of an access track. These observations related to the C1 contract, which commenced prior to finalization of the ESMP. They highlight the need for greater attention to the

identification of potential community exposure to hazards and more careful consideration of measures to mitigate these. They also point to a need for the Project to more rigorously monitor contractor conformance with the requirements of the Community Impacts Management Plan.

Community Security

As requested by the Lenders, the IESC received a detailed briefing on security arrangements and the Operator's responses to the recent unrest in Southern Highlands Province and in the Boera-Porebada villages located near the LNG plant site. The IESC was satisfied that neither of the incidents in Southern Highlands Province or Boera-Porebada were related to the Project. Project security arrangements closely follow the Voluntary Principles for Security and Human Rights. The Operator has executed a Memorandum of Understanding (MoU) with the Royal PNG Constabulary (RPNGC). The MoU sets out expectations for training and conformance with the Voluntary Principles, expectations for response, reporting and investigation of any allegations of human rights abuses and defines the types of assistance that can be provided by the Operator to the RPNGC. The RPNGC mobile squads deployed in the project area have received training on the Voluntary Principles provided by Red Cross International. Similarly, provisions in contracts with private security providers require that all personnel are fully trained regarding the Voluntary Principles and that all personnel abide by these at all times. Following unrest in Southern Highlands Province in February 2010, the RPNGC deployed three mobile squads to the province to cover the Project affected area. Community members interviewed by the IESC were very positive about the police deployment and noted that it had contributed to a marked improvement in their personal security and the general peacefulness of their communities. After three months, a relatively small intervention on the part of the RPNGC had resulted in a very significant improvement in local law and order, particularly around Hides and Komo. Project work has been able to proceed unhindered. The operator has recently reviewed its security staff numbers and is presently preparing to increase security staff numbers. The IESC was satisfied with the security arrangements that it observed.

Community Support Strategy

A Community Support Strategy Action Plan (to fulfill the requirement for an Indigenous Peoples Development Plan) is a deliverable under Item# 19 of the Milestones Schedule. The Community Support Strategy team has completed a thorough data gathering process involving field work as well as extensive consultation and engagement with a wide range of multilateral, bilateral and civil society groups. After initial analysis, three thematic areas have been identified for detailed development: community capacity building to help communities identify and address social development priorities; livelihood and economic development; and, strengthened systems for delivering sustainable gas revenue benefits to communities. A Community Support Strategy Action Plan (CSSAP) is in preparation and will be completed in August 2010. This is later than stipulated in the Milestones Schedule.

Camp Management

The Project is in the initial stages of constructing its main camp sites. The HGCP will be the central location with three camps located within it (i.e., HGCP UI Camp, HGCP EPC4 Camp and HGCP Drilling Camp). An additional camp is located immediately outside the HGCP site on Well Pad A. Other main construction camps will be at Nogoli (existing OSL camp in the process of being expanded), Tagari, Kobalu (existing OSL camp), Komo Main Camp, Homa (proposed), Moro (existing OSL camp) and Moro Camp B (already constructed), Ridge Camp (OSL existing camp), IDT10 Camp (near Kutubu Central Processing Facility), Gobe Airfield Camp, Gobe GFE Camp, Kantobo Camp, Kopi Camp (existing OSL Camp) and Kopi Scraper Station Camp. Transit camps will also include Hides Ridge Drilling Camp, Dagia Camp, Tamadigi Camp, Kaiam Camp. Most of these are considered 'temporary' built for the Project construction phase. Temporary camps could house several thousand people for up to three years. 'Fly camps' will also be constructed for much shorter time periods along the ROW during pipeline construction. Based on in-field observations, IESC raised three primary issues: (i) the discrepancy between the quality of male and female accommodations in OSL camps that are being used by EHL, (ii) the restrictive controls on women's behavior, which are implemented for safety purposes, in both OSL and EHL camps, and (iii) a reduction in the minimum spacing requirements in EHL pioneer camps (the short-term camps used to accommodate the workforce constructing the main construction camps and other early works) from 4.6 m^2 per person. IESC has made recommendations to address these issues.

Procurement and Supply

The Operator has made excellent progress on three initiatives – the Enterprise Centre; the vocational training centers at POM Tech and Juni; and, capacity building of Lancos. Esso Highlands Limited has signed a five-year agreement with the Institute of Banking and Business Management to establish an Enterprise Centre. The Enterprise Centre will act as an independent institution and will facilitate communication between national suppliers, contractors and subcontractors, and the Project. At the time of the IESC visit, the Enterprise Centre had nine professional staff and it had facilitated over 700 local business registrations. It had also conducted workshops to introduce PNG businesses to the Project EPC contractor's. The Operator has also commenced construction of its key training facilities at POM Tech on the outskirts of Port Moresby, and at Juni, near Hides. These will be taken over by the lead EPC contractors and will be used to provide vocational training to local people to give them nationally recognized qualifications and the prospect of work with the Project. The first intake of students at POM Tech had commenced. Esso Highlands has also undertaken a gap analysis of Lancos in the areas of governance, operational capability and business infrastructure. As an outcome of this, the Operator has moved to help the formation of two 'umbrella Lancos' that will coordinate and spread business opportunities amongst the 80-90 local Lancos. Bechtel has been engaged to address gaps and develop the operation capacity of the Lancos to facilitate them to become sustainable, national scale businesses. The IESC has noted some significant challenges for the Project in working with the Lancos, but overall these are exciting initiatives that should do much to facilitate local participation in the Project.

Stakeholder Engagement and Consultation

Formal stakeholder engagement activities commenced in October 2009. The initial focus has been on the Highlands Highway (HH) with nearly 5000 community stakeholders reached during the October 2009 to March 2010 period. The HH program has been used to train seven field trainees who will form the nucleus of a wider training program. A stakeholder program and organization consistent with best international practice has been conceived. The challenge will be to recruit, train and deploy the stakeholder engagement team well ahead of EPC mobilization. Time for this appears relatively short. There has been much more limited stakeholder engagement activity in the other Highlands and lowlands communities presently exposed to C1 and C2 construction activity. The IESC is concerned that these communities have not received basic information on community safety, employment opportunities, in-migration or avenues for making a complaint. This is a gap that needs to be addressed. The IESC is also concerned that training and presentation materials are not being provided to L&CA personnel who, under the Community Engagement Management Plan, have primary responsibility for community level engagement and oversight of Contractor Community Affairs teams. This gap also needs to be addressed.

Grievance Management

A notable shortcoming of social management plan implementation to date is the absence of a grievance management system for the C1 and C2 contracts. Ad hoc grievance recording and reporting 'to the extent feasible' are taking place, but do not constitute a compliant management system. While the letting of these contracts preceded finalization of the ESMP, the project is now in the situation of having active works sites in multiple locations with construction affected communities not having been advised of avenues for making a complaint. This situation needs to be addressed as a matter of urgency. Beyond this interim situation, the Operator is in the process of setting up a global Project grievance management system that will be effective within a few months.

Health and Safety

The Project has a well developed program to manage both occupational health and safety of workers, as well as a community health and safety program. The Health Group focuses on worker and community health issues, whereas the Safety Group focuses primarily on occupational safety of workers. Community Safety is managed primarily through the SELCA organization. From the information provided in the field, the overall Project health program is considered appropriate for a Project like this, has significant budget resources allocated, and has the opportunity to deliver long term benefits to the PNG health system. An aggressive program for TB, HIV/AIDS has been established throughout all Project locations including the partnership with several carefully selected national partners as well as NGOs. In terms of worker health, the program has full-time medical staff from International SOS in place and there is a comprehensive malaria mitigation program implemented by Mosquito Zone.

In terms of worker safety, the overall program is considered comprehensive with the Safety Group directly responsible for occupational worker safety. Good project performances in terms of safety have been achieved to date. In terms of community safety, Project traffic has the potential to adversely impact communities, unless adequately managed. Community awareness programs include specific training undertaken by SELCA at local communities, as well as work protocols designed to minimize potential community impacts, including the use of controlled convoys for heavy traffic along the Highlands Highway. The use of traffic or pedestrian control measures should be strengthened at some Project locations to minimize worker/equipment community interaction.

Cultural Heritage Management

Cultural heritage surveys are being conducted consistent with the CHMP. Internationally recognized procedures have been followed through the efforts of experts who are experienced with the cultural heritage of PNG. Affected communities who use, or have used within living memory, the cultural heritage for longstanding cultural purposes have been consulted to identify cultural heritage of importance. The overall archaeological program has involved the relevant national or local regulatory agencies and EHL reports that the overall effort has involved the entire archaeological workforce of PNG supplemented with by professional archaeologists from around the world. This effort has undoubtedly represented a major capacity building exercise for the PNG archaeological profession.

1 INTRODUCTION

D'Appolonia S.p.A. (D'Appolonia), located in Genoa, Italy, has been appointed as the post-financial close Independent Environmental and Social Consultant (IESC)[1] for the Papua New Guinea Liquefied Natural Gas Project (PNG LNG or the "Project") being developed by Esso Highlands Limited (EHL), the designated Operator and a subsidiary of ExxonMobil Corporation and also representing a consortium of co-venturers including Oil Search Limited (OSL), Santos Ltd, Nippon Oil Exploration Limited and PNG State and landowners as represented by Mineral Resources Development Company (MRDC) and Eda Oil. D'Appolonia's role as the IESC is to support the Export Credit Agencies (ECAs) providing Project financing, including the Export-Import Bank of the United States (USEXIM); Japan Bank for International Cooperation (JBIC); Export Finance and Insurance Corporation (EFIC) of Australia; Servizi Assicurativi del Commercio Estero (SACE) from Italy; Export-Import Bank of China (CEXIM); and Nippon Export and Investment Insurance (NEXI), as well as a group of commercial banks, collectively referred to as the Lenders or Lender Group.

The overall role of D'Appolonia as the IESC within the PNG LNG Project is to assess and report to the Lender Group on the compliance with the environmental and social provisions contained within the Environmental and Social Management Plan (ESMP), the associated Lender Environmental and Social Requirements (LESR) document, and Schedule H3 Environmental and Social Milestones Schedule to the Common Terms Agreement (CTA) (herein referred to as "Milestones Schedule"). Specifically within the IESC scope of work, the following requirements for an audit visit are identified:

- evaluate the Project's compliance with Environmental and Social Laws, the Environmental and Social Management Plan and Applicable Lender Environmental and Social Standards ("Environmental and Social Requirements") and evaluate the Project's proposed corrective action regarding any failure by the Project to comply with Environmental and Social Requirements in all material respects;
- evaluate issues identified during previous monitoring visits relating to compliance with the Environmental and Social Requirements;
- evaluate the Project's environmental and social reports, described in Section 12.2(b)(vi) of the CTA; and
- evaluate compliance by the Project in all material respects with the Milestones Schedule.

The second and third requirements are not yet relevant as we do not have previous trips to reference and the Project is not scheduled to complete their first required report until the end of May. This report summarizes the results of D'Appolonia's first field visit held between 5th and 18th May, 2010 for the PNG LNG Project.

The above Terms of Reference (TOR) requirements refer to an evaluation of Project "compliance", whereas the reporting requirements of the TOR state that the reporting will include a "list of non-conformance findings". Within this report the terms "compliance" and "conformance" are considered to be equivalent. In general, issues to be resolved are identified as non-conformances, but one of the requirements of the IESC is to identify any "material non-compliances" within the context of the CTA. The IESC believes that a "material non-compliance" within the context of the CTA would need to be a Lender decision, but for the purposes of this report a potential "material non-compliance" would be a Level III non-conformance or repeated Level III non-conformances as defined in the Section 2 Issues Table.

IESC's review has included the environmental and social (E&S) and health and safety (H&S) management activities of EHL and the individual Engineering, Procurement and Construction (EPC) Contractors and infrastructure and "early works" contractors currently active in the field. Emphasis has been placed on evaluating conformance based on written information provided by EHL and observations made in the field including discussions with EHL and Contractor personnel. Most of the findings identified in this report have been based on field observations and interactions with the individuals actually responsible for the field implementation of the ESMP, as well as meetings with stakeholders. Government representatives were not interviewed during this trip.

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1 *IESC Team members: Giovanni Battista De Franchi (Team Leader – Environmental Specialist), Robert Barclay (Social Development Specialist), Lori Anna Conzo (Biodiversity and Natural Resource Management Specialist) and William J. Johnson (Earth Scientist/Cultural Heritage Specialist).*

1.1 CONSTRUCTION STATUS

The Project consists of three components:

- *LNG Plant and Marine Facilities Site* (plant and marine terminal facilities) at a location designated Portions 2456 and 2457 located approximately 20 km northwest of the capitol city of Port Moresby, PNG. A relatively recent change has been not to construct a Marine Offloading Facility (MOF) and design the jetty such that it will now be constructed as a trestle on pile foundations, which will allow for improved nearshore water flow and will reduce the potential environmental impact of the construction as dredging will not be required;
- *Offshore Pipeline (Marine Project Area)* extending 407 km that begins at the Omati River landfall and extends to the marine facilities located at the LNG Plant site. A relatively recent change for this component of the Project is the need for additional trenching and natural backfilling of the offshore pipeline from KP 50 to KP 75. This change is necessary to ensure the stability of the pipeline in this shallow water section and to provide protection to the pipeline in the vicinity of the Kumul terminal. Also, as a result of selecting a pipe-lay vessel with a deeper draught, approximately 14km of the Omati River will now need to be dredged to create a floatation channel for the pipe-lay vessel;
- *Upstream Facilities and Onshore Pipeline (Upstream Project Area)* consisting of wells at the Juha, Hides, Angore, Agogo, and Southeast Hedinia fields, a new Hides Gas Conditioning Plant (HGCP), a new Juha Production Facility, expansion of the existing Agogo Production Facility, and expansion of the existing Kutubu and Gobe Production Facilities, which all tie into a main onshore pipeline 284 km from the Hides Plant to the Omati River landfall where it connects with the offshore pipeline.

The development of the above three components is at an early stage and is broken down into infrastructure and early works contractors and EPC contractors. Their overall responsibilities and current construction status are as follows:

- *C1 – Upstream Infrastructure (Clough Curtain Brothers JV - CCJV)*: responsible for Kopi Shore Base; Southern Supply Route; HGCP site preparation; the Highlands Highway upgrades, and associated work camps. The Kopi Shore Base has been staged to start with Kopi Roll-on/Roll-off (RoRo) and Laydown area covering 6 Ha that was completed on March 31; the first Kopi wharf was completed on March 31. 11 Ha of the second Kopi wharf and laydown area have been constructed with completion projected for June 30. The accommodation Barge "Otto 2" was mobilized from Singapore to provide camp beds for the Kopi construction team with 150 beds to replace the proposed Kopi work camp. The Southern Supply Route consists of road upgrades and the construction of 39 km of new road and three bridges associated with 2.3 million m^3 of earthwork. The 2 Ha camp pad at Gobe has been constructed and the construction of 250 man camp is nearly complete. The Southern Supply Route is currently projected to be open by November 15. Activities at Hides have experienced significant delays due to logistics difficulties due to custom clearance delays and Northern Logistics Road closures due to landslides, washouts and a bridge collapse. EPC4 Camp laydown and accommodations originally projected for August 1 are now projected for November 15 and the handover of the HGCP site originally projected to take place by the end of 2010 is now projected for the middle of April 2011. Highlands Highway construction efforts are proceeding approximately as scheduled with this construction expected to be completed by the beginning of December 2010. A work camp at Oiyarip (Mendi) with 80 available rooms has been constructed for the Highlands Highway workforce. Esso Highlands Limited's workcamps are under construction, but behind schedule. The camp at Moro is complete, but about a month behind schedule. Camps at Kobalu and Juni are expected to be complete by the end of July and the end of September, respectively, in both cases at least three months behind schedule;
- *Red Sea Housing*: Red Sea Housing provides support for the development of upstream infrastructure by means of the construction of the Juni Construction Training Facility (CTF), currently under construction (close to the HGCP site) and expected to be operational by Q1 2011. Red Sea Housing is also responsible for the construction of new camps at Kobalu, Gobe, Juni CTF, and Moro Parker (all under construction at time of visit);

- *C2 – LNG Plant Early Works (Parsons and Curtain Brothers)*: responsible for 5.4 km bypass road around LNG Site; 12.6 km of road construction to replace deteriorated public roads; 800 person Pioneer Camp; the 3-wire lease line perimeter fence; and the PNG LNG site security fence. The bypass road construction was nearly complete at the time of the site visit. The public road reconstruction was anticipated to be completed by September 2010, whereas the fencing was expected to be completed by the end of June 2010. The Pioneer Camp is expected to be completed by September 2010;
- *EPC 1 – Telecommunications (TransTel Engineering)*: occupation primarily of sites already used by Oil Search for communications towers. This construction effort started Q1 2010 and the expected completion is October 2010;
- *EPC 2 – Offshore Pipeline (Saipem)*: The construction will encompass the shore approach excavation and backfilling at the LNG Plant and the trenching and natural backfilling of a 75-kilometer section of the pipeline beginning at the Omati River landfall, 25 km of which is inside the Omati River. The EIS stated the pipeline would be buried for protection against impacts from vessels and anchors in the Omati River (and some distance beyond river mouth to a water depth of between 5 and 10 m), this approximately equates to KP 50. The current execution plan now forecasts the trenching and natural backfilling of the pipeline to KP 75 (KP 50 to 75 is considered Gulf of Papua). The reason for the additional burial is to ensure the stability of the pipeline in this shallow water section and to provide protection to the pipeline in the vicinity of the Kumul terminal. The EIS also assumed a shallow-draft barge would be used for pipe-laying in the Omati River. Saipem prefers to avoid excessive trafficking within the Omati River, which would be the case if pipe-laying were to be conducted by a shallow-draft barge as originally planned. Instead a larger pipe-lay vessel (the Castoro 10) will be employed. Dredging is required to create a floatation channel for the Castoro 10 in the Omati River as part of the execution plan. Due to the river morphology and in particular the presence of some shallow banks, localized dredging works of the shallower areas of the river along the pipeline route will be required to allow for Castoro 10's draught. This requires on average 1 m depth of soil to be dredged across small sections of the river. The dredging corridor extends from approximately:
  - KP 0.26 to 8.0,
  - KP 10.1 to 14.2,
  - KP 21.85 to 23.75,
  - KP 25.5 to 26.3;
- the total distance of the dredging operations is approximately 14 km and is estimated to take three to four months;
- the access channel will be approximately 40m wide (approximately 4 percent of the average width of the Omati). The approximate magnitude of natural occurring daily sediment transport in and out of the Omati River (during Ebb and Flood Tides) is reported to be 60,000 m³ (96,000 tons/day). The additional dredged material would raise this figure by a small percentage. Saipem is currently investigating the minimum amount of dredging required in the Omati River, which may reduce the volume of dredged material and distance of the dredging operations. The Project is processing an MOC that will address conditions 65 through 69 in the Environment Permit;
- *EPC3 – LNG Plant and Marine Terminal (Chiyoda JGC JV - CJJV)*: This joint-venture EPC contract between Chiyoda and JGC Corporation, both engineering and construction firms headquartered in Yokohama, Japan, is for construction of the 6.6 million tons per annum (MTPA) LNG plant, with two 3.3 million trains, including facilities for inlet processing, treating, liquefaction, storage, and the marine terminal. Site preparation and initial foundation construction activities are not scheduled to begin until approximately the beginning of Q4 2010;
- *EPC4 – Upstream Facilities including Hides Gas Conditioning Plant (HGCP) and Well Pads (CBI Clough JV)*: this joint venture of Chicago Bridge & Iron Company (CBI) from Amsterdam, Netherlands and Clough Limited from Perth, Australia is responsible for the design and construction of the HGCP, the HGCP Industrial Park, HGCP Rotator Housing Community, the construction camp and the Hides Wellpads. C1 handover to EPC 4 was scheduled to take place at the end of 2010, but is now scheduled for April 2011;

- *EPC5A – Onshore Pipelines and Infrastructure (SpieCapag)*: Spie Capag SA of Colombes, France will develop onshore pipelines and infrastructure for the project. This effort includes the construction of a 32 – 34-inch gas pipeline for a distance of 285 km, 109 km of 8-inch condensate pipeline, and the Hides Spineline and gas field flowlines and also including above ground facilities (e.g. mainline valve stations, meter stations, pig launcher/receiver stations, cathodic protection equipment), power and optic telecommunications cables. Infrastructure includes road upgrades, access road construction, bridge improvements, camps and associated facilities for waste management, vehicle washdowns, helipads, etc. Pipeline laydown activities are not scheduled to start until Q1 2011, but SpieCapag has established a Project office in Brisbane and is undertaking detailed design and procurement work. The design is being supported by pre-construction surveys initiated by EHL and now being completed by SpieCapag. The initial 80 km section surveyed by EHL will be verified by SpieCapag, while EHL will verify the remaining sections surveyed by SpieCapag;
- *EPC5B – Komo Airfield (McConnell Dowell CC Group JV - MCJV)*: A joint venture of McConnell Dowell Corporation Limited (Victoria, Australia) and Consolidated Contractors Company (Athens, Greece) will construct the Komo airfield, which will be 10 kilometers southeast of the HGCP. This airfield will be 3,200 meters long and 45 meters wide, suitable for an Antonov 124 heavy cargo airplane capable of flying in 70 ton loads of equipment and supplies. An area approximately 5 km long and 1 km wide will be fenced. Construction was initiated in February 2010 with preliminary earthworks and geotechnical earthwork trials. Clearing and grubbing for the Heavy Haul access road has started, but its final alignment is still being determined. The Pioneer Camp was nearly ready for occupancy at the time of the visit and clearing of the ground for the main construction camp had been completed. The overall progress of construction has been significantly delayed by land access issues such that bulk earthworks expected to start in March 2010 had not started by the time of our site visit and emphasis was being placed on finishing the Pioneer camp and starting the construction of the main construction camp. The procurement of aggregate is expected to be challenging for this construction effort as approximately 500,000 cubic meters is estimated to be required. ECB5B is evaluating the feasibility of using rock cut from the construction of the heavy haul road to supplement the use of local quarries as an aggregate source.

Esso Highlands Limited is directly responsible for construction of the POM Tech CTF in Port Moresby with several contractors, including EOS, Red Sea Housing, KG Contractors, Guard Dog Security, St. John's Ambulance, Hebu, Digara, and Skills Tech Australia, Orion. This training facility is currently under construction, but the Replacement Mess Hall has already been completed and turned over to POM Tech. Two new staff houses have also been completed. The complete facility, expected to house and train 750 – 800 construction graduates per year, is expected to be open for training by the end of Q3 2010.

In terms of current workforce, EHL reports that more than 1,400 PNG nationals are currently employed on the Project for EHL and Early Works Contractors, with the following breakdown: C1 – 886 as of April 23 (about 90 percent of total); C2 – 414 (about 90 percent of total); EHL 110 (about 70 percent of total). The construction target is to employ approximately 3,500 PNG nationals out of a total workforce of about 12,000 at peak (~30 percent). During production the goal is for PNG nationals to represent 80 percent of the total workforce (950 of 1,200 at steady state).

1.2 SOURCES OF INFORMATION

The main sources of information used to prepare this first IESC trip report are primarily those provided by EHL, but D'Appolonia also obtained information by means of interviews with local stakeholders including Lancos during the field visit in PNG as well as Project employees and contractor staff. The information provided by EHL has included presentations made to D'Appolonia consistent with the trip schedule provided in Appendix A. Appendix A also lists the additional documents that were provided to D'Appolonia during the course of the site visit.

1.3 REPORT ORGANIZATION

Subsequent sections of this report are organized as follows:

Section 2.0 – Issues Table

Section 3.0 – Environmental and Social Management

Section 4.0 – Environment

Section 5.0 – Social

Section 6.0 – Health and Safety

Section 7.0 – Cultural Heritage

The basic findings of the review are presented in the form of observations, comments and recommendations that are generally described according to topics within each section. The findings are summarized in the Issues Table provided in Section 2.0.

2 ISSUES TABLE

This Chapter tabulates a summary of the non-conformances raised in this report, consistent with our TOR as discussed in Section 1.0. The Table has been structured to provide a color-coding for strict non-conformances, as well as IESC observations for situations that if left unattended could result in a non-conformance. Non-conformance is referenced with respect to Project commitments as included in the ESMP and associated Management Plans, the LESR, the Milestones Schedule, the Project Safety Management Plan, the Project Health Management Plan, the Project Regulatory Compliance Plan, and the Project Security Management Plan (collectively referred to as "Project documents" in the definitions below) and with respect to on-going compliance with Applicable Lender Environmental and Social Standards. As noted in Section 1.0 of this report, "Applicable Lender Environmental and Social Standards" means the environmental and social standards applied by the Loan Facility Lenders to the Project in the form attached to Schedule H-1 (Environmental and Social – Applicable Lender Environmental and Social Standards) of the CTA. The Project should note that compliance with the Applicable Lender Environmental and Social Standards is not limited to the pre-construction due diligence, but is an on-going process. The nomenclature of the color-coded categorizations are assigned based on non-conformance levels similar to the non-conformance levels defined in the ESMP, somewhat revised to reflect the point of view of the IESC and to address that certain non-conformances need to be framed in the context of the Applicable Lender Environmental and Social Standards. The following descriptions are provided:

- **High:** Level III critical non-conformance, typically including observed damage to or a reasonable expectation of impending damage or irreversible impact to an identified resource or community and/or a major breach to a commitment as defined in Project documents or the Applicable Lender Environmental and Social Standards. A Level III non-conformance can also be based on repeated Level II non-conformances or intentional disregard of specific prohibitions or Project standards. In some cases, Level III non-conformances or repeated Level III non-conformances may represent a material non-compliance with the CTA. This would be decided on a case-by-case basis;
- **Medium:** Level II non-conformance representing a situation that has not yet resulted in clearly identified damage or irreversible impact to a sensitive or important resource or community, but requires expeditious corrective action and site-specific attention to prevent such effects. A Level II non-conformance can also represent a significant breach of a commitment, or a risk of a significant breach if not expeditiously addressed, requiring corrective action as defined in Project documents or Applicable Lender Environmental and Social Standards. A Level II non-conformance can also be based on repeated Level I non-conformances;
- **Low:** Level I non-conformance not consistent with stated commitments as defined in Project documents, but not believed to represent an immediate threat or impact to an identified important resource or community. A Level I non-conformance can also represent a minor breach of a commitment requiring corrective action as defined in Applicable Lender Environmental and Social Standards;
- **IESC Observation:** A potential non-conformance situation that could eventually become inconsistent with stated commitments as defined in Project documents or the Applicable Lender Environmental and Social Standards.

Nº	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
Environment and Social Management							
1	May '10		Certain items are past their due delivery date based on the timeframe established in the E&S Milestones Schedule. Several others are projected to miss their schedule commitments.	II	E&S Milestones Schedule	Open	See Section 3.3.2. The IESC has observed that progress is being made, but these items are significant commitments as Schedule H3 to the CTA. It is recommended that these situations be addressed by means of an MOC with Lender disclosure to develop more realistic completion schedules.
2	May '10		An MOC process involving Lender notification has not started.	II	LESR	Open	See Section 3.2.2. The IESC did not have access to MOC documentation for this audit, which we consider contrary to our scope of work to document the complete status of the Project for the Lender Group.
3	May '10		Key documents have not been publicly disclosed.	II	LESR	Open	See Section 3.2.2 – it is understood that the current schedule is to delay public disclosures until August 2010. It is recommended that these situations be addressed by an MOC with Lender disclosure to develop more realistic disclosure schedule, but also that the schedule for disclosure be accelerated.
Environmental Issues – Waste and Wastewater Management							
4	May '10		The downstream portion of the Project has used unapproved local disposal facilities that in the case of solid waste disposal are effectively open dumps and in the case of wastewater treatment are likely to be managed at a level below Project requirements. Examples include Construction wastes from C2 Infrastructure (early works) and POMTech, in particular.	II	Waste Management Plan	Open	See Section 4.1.2 - The fundamental concerns are that suitable facilities for final waste disposal are not going to be ready by the time the main construction starts and that OSL will not be able to continue to support waste management in the Highlands. In addition to constructing the permanent faculties, it is strongly recommended that the Project consider the development of Waste Accumulation Areas (WAAs) to provide storage surplus to avoid being confronted with "emergency" situations in the future. Consider trucking wastewater from POMTech to the LNG Plant septic system until a WWTP can be constructed on site. It is recommended that the environmental and social teams work together to

Nº	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
							develop recycling as local business opportunities.
Environmental Issues – Hazardous Materials Management and Pollution Prevention							
5	May '10		The engineered pollution prevention systems at some areas within the Kobalu site are not consistent with the HMMP. The basic recommendation is to develop specific properly designed areas (paved, bunded and roofed and provided with traps to collect potential spills), in particular at all sites where long-term storage of flammable materials is expected.	I	Haz-Mat Management Plan	Open	See Section 4.2.2 – It is expected the Project is well aware of deficiencies that exist with some pollution prevention systems and is in the process of rectifying these situations.
Environmental Issues – Air Quality							
6	May '10		Stack emission monitoring should be performed at all incinerators used by the Project, regardless if owned by a third party.	IESC Observation	Air Emissions Management Plan	Open	See Section 4.3.2 – Emissions tests will be required for permanent facilities, but there appears to be a likelihood that OSL facilities could have relatively long-term usage. IESC recommends that EHL consider teaming with OSL to evaluate their facilities and upgrade as appropriate.
Environmental Issues – Biodiversity and Ecological Management							
7	May '10		There is a potential risk that the Biodiversity Strategy and Offset Delivery Plan will not be adequately developed unless EHL obtains further resources and participates in creative dialogue with other entities very familiar with current practices in biodiversity offset design and who have experience in similar environments.	IESC Observation	E&S Milestones Schedule / Performance Standard 6	Open	See Section 4.7.2.5
Social Issues – Land Access							
8	May '10		Selection of a densely populated and productive garden site for the Hides landfill does not appear to be compliant with the PS 5 requirement to avoid or at least minimize involuntary resettlement.	II	Performance Standard 5	Open	See section 5.3.2.2. It is recommended that the selection of the Hides landfill site be reviewed taking into account the Project Social and Environmental Requirement obligation to avoid or at least minimize physical and economic displacement. Expand the site selection if

Nº	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
							necessary. As a systemic issue, consider reviewing site screening processes to ensure that social and land impacts (including physical and economic displacement and clan ownership patterns) become an integral part of site selection.
Social Issues – Resettlement							
9	May '10		RAP preparation and issuance to lenders for review is substantially behind the timing indicated in RPF Tables 6 and &, and Figure 4.	I	LESR, Resettlement Policy Framework	Open	See Section 5.4.2.2. It is recommended that EHL initiate an MOC indicating best estimates of the revised timing for RAP preparation (i.e. update RPF Tables 6 and 7 and Figure 4).
10	May '10		Land access and resettlement agreements are being entered into prior to RAPs being approved by the Lenders and before they have been locally disclosed.	II	Performance Standard 5, Resettlement Policy Framework	Open	See Section 5.4.2.3. It is recommended that the resettlement process be reviewed to ensure that each RAP has been approved by the Lenders and has been locally disclosed prior to any finalization of land access/resettlement agreements (i.e. before payment of any compensation and before any physical displacement occurs).
11	May '10		Parts of the Komo airstrip site have been occupied by the Contractor before physical relocation of people has been completed.	I	Performance Standard 5	Open	See Section 5.4.2.3. It is recommended that EHL define clear pre-conditions to be achieved prior to land entry by the Contractor (e.g. that all compensation has been paid and that physical relocation of people has be completed prior to such entry occurring). If staged occupation of a site is envisaged, this staging must be indicated in the applicable RAP.
12	May '10		EHL compensation rates paid to date have not been based on the 'full replacement value' rates indicated by the Komo Airstrip Valuation Study.	II	Performance Standard 5, Resettlement Policy Framework, Komo Airstrip RAP	Open	See Section 5.4.2.4. It is recommended that EHL review all PNG LNG compensation agreements entered into to date and, where warranted, make top-up payments to achieve compensation at 'full replacement value' and compliance with the Applicable Lender Environmental and Social Standards.

Nº	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
13	May '10		PS 5 requires that loss of access to assets (including community assets) be addressed and mitigated. The Komo Airstrip RAP does not satisfactorily address replacement of community infrastructure such as churches, or the issue of displaced households whose access to community infrastructure such as churches, schools and medical facilities is impaired by the Project. A similar issue is likely arise for HGCP resettlers.	I	Performance Standard 5, Resettlement Policy Framework, Community Impacts MP, Company Community Health Safety and Security MP	Open	See Section 5.4.2.5 – It is recommended that an additional step be incorporated in the RAP preparation process to provide for participatory planning to reach agreement on a post resettlement community plan to cover (i) siting of any key community facilities whose accessibility might be adversely affected by the project; (ii) Locations and alignments of roads or tracks to improve accessibility where resettlers have to move into more remote locations; and, (iii) any other measures desirable to improve community health, safety or security.
14	May '10		The RPF and Komo Airstrip RAP indicate that compensation advisers will be provided to advise resettlers on options for compensation investment. To date this commitment has not been delivered for Komo airstrip resettlers.	I	Resettlement Policy Framework, Komo airstrip RAP	Open	See Section 5.4.2.9. It is recommended that EHL mobilize compensation advisers to provide advice before, during and after compensation payments and as part of livelihood restoration in accordance with commitments contained in the RPF and component RAPs.
15	May '10		EHL entered into compensation and resettlement agreements with 15 families who spontaneously settled on the Komo access road without a covering RAP.	II	Performance Standard 5	Open	See Section 5.4.2.10. It is recommended that EHL prepare and submit for Lenders' approval retrospective RAPs appropriate to the magnitude of displacement to cover the Komo access resettlement (15 families) and the mooted Kopi waterfront houses (4 families) within 90 days.
16	May '10		Provision of resettlement agreements in English is inconsistent with the objective that displaced people be fully informed prior to signing and with the requirement that "…the client will tailor its consultation process to the language preferences of the affected communities…" (PS 1, para 21).	I	Performance Standards 1, 5 and 7	Open	See Section 5.5.2. Make available copies of Project resettlement agreements in local languages (such as Huli) so that non-English readers are engaged and understand what they are signing.
Social Issues – Community Impacts Management							
17	May '10		Communities were observed to be exposed to un-mitigated hazards at several construction	I	Community Impacts MP	Open	See Section 5.7.2. It is recommended that contractor conformance with the requirement to

Nº	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
			sites visited by the IESC. These included: • A child inside a construction area with active earthworks and heavy vehicle movements underway – Juni training facility site. • Severed village access with villagers, including elderly people, forced to traverse a steep and slippery clay slope to pass around a project perimeter fence in order to reach their dwellings – Well Pad A accommodation camp. • Pedestrians walking and crossing amongst heavy vehicles without separation or control – Juni training facility.				perform worksite hazards assessments for community hazards and develop worksite management procedures strengthened (as per ID 22.004).
Social Issues – Stakeholder Engagement and Consultation							
18	May '10		Communities affected by C1 and C2 works in other locations have not been consulted or engaged by the Stakeholder Engagement team or Contractor Community Affairs teams as envisaged by the Community Engagement Plan. They have not received basic information on community safety issues, employment, in-migration or avenues for making a complaint.	II	Performance Standard 1, Stakeholder Engagement Strategy, Community Engagement MP	Open	See Section 5.14.2.
Social Issues – Grievance Management							
19	May '10		The grievance management system described in the Stakeholder Engagement Strategy has not been implemented. Information about avenues for lodging a grievance have not been disseminated to all construction affected communities.	II	Performance Standard 1, 4, 5, 7 Stakeholder Engagement Strategy	Open	See Section 5.15.2.It is recommended that EHL implement interim grievance management and tracking arrangements to cover all active works areas and disseminate information about how to lodge a grievance to all construction affected communities.
Social Issues – Other							

Nº	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
20	May '10		The transport and servicing of the floatel has had impacts and allegedly caused damage to the property of waterway communities outside of the area covered by the Project ESIA documents. Free, prior, informed consultation with affected communities was not undertaken until after the event.	II	LESR, Performance Standard 7	Open	See Section 5.17.1. It is recommended that EHL prepare a retrospective MOC for Lenders to cover the transport and operation of the floatel and its impacts on waterways communities.
21	May '10		Ensure that commitments and actions contained in the Community Engagement, Community Health and Safety and Community Impact Management Plans are extended to all waterways and delta communities that are exposed to Project vessel movements through the appropriate Contractor.	I	Community Engagement MP, Community Health and Safety MP and Community Impact MP	Open	See Section 5.17.1.

3 ENVIRONMENTAL AND SOCIAL MANAGEMENT

Environmental and social management for the PNG LNG Project is defined in three documents. The Environmental and Social Management Plan (ESMP) is the main document defining EHL's environmental and social commitments. An additional document termed the Lender Environmental and Social Requirements (LESR) was prepared to supplement the ESMP and provide a single point of reference to all information and documents that do not form part of the ESMP, but are required to demonstrate compliance with Lender Group requirements. At the time of Financial Close in March 2010, it was not practical for EHL to fulfill all of the Lender requirements to finalize aspects of environmental and social management. Therefore, the Milestones Schedule was prepared as Appendix H3 to the CTA to reflect twenty additional time-bound commitments. These three documents together define the roadmap to achieve Lender compliance as defined in the Applicable Lender Environmental and Social Standards in Schedule H1 of the CTA and the benchmarks against which the IESC audits the Project.

3.1 ENVIRONMENT AND SOCIAL MANAGEMENT PLAN

3.1.1 Project Strategy

The base document comprising the Environmental and Social Management System (ESMS) framework for the PNG LNG Project is the ESMP. The ESMP was derived primarily from the findings of the Project EIS and its supporting studies as a means to mitigate environmental and social risks associated with its construction and outlines environmental and social management and mitigation actions and monitoring requirements. The ESMP is the umbrella document to define general performance procedures for social and environmental issues including legal requirements; Lender standards and other general requirements; verification, monitoring, assessment and audit requirements; reporting and notifications; non-conformity definitions and corrective actions; organization, roles and responsibilities; and training, awareness and competency. The ESMP also provides specific contractor and subcontractor social management and mitigation performance requirements, which are defined in appendices as a series of Management Plans that serve to define EHL's requirements for individual contractors to prepare their Implementation Plans as applicable to each contract scope of work subject to EHL approval. These include:

- Ecological Management Plan;
- Air Emissions Management Plan;
- Noise and Vibration Management Plan;
- Waste Management Plan;
- Water Management Plan;
- Spill Prevention and Response Plan;
- Hazardous Materials Management Plan;
- Weed, Plant Pathogen and Pest Management Plan;
- Erosion and Sediment Control Plan;
- Raw Materials Management Plan;
- Reinstatement Plan;
- Induced Access Management Plan;
- Cultural Heritage Management Plan;
- Hydrotest Management Plan;
- Acid Sulphate Soils Management Plan;
- Dredge Management Plan;
- Community Health & Safety Plan;
- Community Impacts Management Plan;
- Labour and Worker Conditions Management Plan;
- Camp Management Plan;
- Procurement & Supply Management Plan;
- Community Engagement Plan;

- Community Infrastructure Management Plan;
- Community Health, Safety & Security Management Plan (Company);
- Community Support Strategy (Company);
- Resettlement Framework Document (Company);
- Stakeholder Engagement Plan (Company);
- Environmental Monitoring and Reporting Plan;
- Social Monitoring Plan;
- Environmental Performance Indicators and Statutory Reporting and Notification Requirements.

The ESMP is currently applicable only to Phase I of the Project associated with construction and drilling. Esso Highlands Limited plans to revise the ESMP at least three months prior to each subsequent development phase and consistent with the requirements of the Environmental Permit with the PNG Government. A separate Operations ESMP will be prepared at least six months prior to the commencement of production.

The ESMP is not a stand-alone document for defining the requirements of EHL's ESMS. Safety, health, regulatory compliance and security aspects pertaining to the Project are not addressed in the ESMP and are discussed elsewhere in the Project documentation, including the Project Safety Management Plan, the Project Health Management Plan, the Project Regulatory Compliance Plan, and the Project Security Management Plan. The ESMP also is supported by other documentation and procedures as defined in the LESR discussed in Section 3.2 of this report.

3.1.2 Observations

3.1.2.1 Status of ESMP

The ESMP is not a final document. The commitment for ESMP completion in the Milestones Schedule is the end of June 2010. Current projection for completion of the ESMP is for July 2010 and this schedule assumes an optimistic, aggressive completion effort. A critical path is the completion of the Environmental Monitoring and Reporting Plan, which is still being reviewed by the PNG Department of Environmental Conservation (DEC). The IESC recognizes that the current completion schedule will depend on receiving DEC approval.

3.1.2.2 Development of Contractor Implementation Plans

The application of the ESMP needs to be reflected in the development of Contractor Implementation Plans (CIPs) that are sometimes referred to as Environmental Control Plans (ECPs) or sometimes with the same or similar titles to the Management Plans that are part of the ESMP. These CIPs may also be grouped in terms of Environmental Management Plans (EMPs) or Social Management Plans (SMPs). For the main ECP Contractors who have not yet fully mobilized, their plans are being developed. Where some mobilization has taken place in the case of the EPC5B Contractor for the Komo airfield, a plan for a limited work scope has been approved by EHL. EHL has also conducted a gap analysis, the results of which are currently being used to update the Contractor Management Plans. For contractors currently mobilized and working in the field, plans are in various stages of completion. The EPC1 Contractor for construction of the telecommunications towers (TransTel Engineering) is developing an ESMP to be consistent with their operations, but their first draft has yet to be issued. For the C1 Contractor for the upstream infrastructure, 11 plans are part of their EMP. Of these, three are approved and the remaining plans are in late stage draft versions. For their SMP, most of the relevant plans have not yet been submitted for review and none have been finalized. The C2 Contractor for LNG Plant Early Works (Curtain Brothers) has not been required to prepare CIPs due to their limited work scope (fencing, road upgrades, etc.). They are in the process of preparing a general EMP to cover their activities and this is expected to be approved in June 2010. The situation of not having CIPs in place while field activities are well advanced is not consistent with the intent of the ESMP. The situation is not considered serious in the sense that it is apparent that EHL is working with the contractors to comply with ESMP requirements, but the situation is not ideal.

3.1.2.3 Monitoring and Evaluation Programs

Monitoring and evaluation programs are in the process of being developed between EHL and the contractors. Social monitoring and evaluation programs have generally been developed (a general 70

percent completion reported for this activity for all contractors), but actual implementation of these programs is for the most part, just starting. The process of conducting audits is reported to be at the 50 percent level for the C1 Contractor for the upstream infrastructure, CCJV and 35 percent for the EPC5B Contractor (MCJV) at the Komo airfield. Reporting procedures for social monitoring and evaluations are still in the process of being developed, as key performance indicators (KPIs) still need to be defined, and reporting procedures need to be developed such that relevant KPIs are consolidated into a single report that is circulated to relevant parties. Environmental monitoring appears to be at a similar level of development as the social monitoring. The IESC was not informed of the progress of environmental monitoring in terms of a percentage of expected activity, but that environmental monitors need to rotate their presence among the various work fronts and that it is not practical for an environmental monitor to be present more often than about every 5 to 10 days at some work fronts and some locations. To date, the monitoring effort has concentrated on the Mendi section of the Northern Logistics Route and near ME14, 15 and 16. This effort will continue at C1 work sites as these move west. One outcome of this approach is that the eastern portion of the Northern Logistics Route has yet to be visited by an environmental monitor.

3.1.2.4 Organization and Staffing

There are basically two organizations covering the requirements for environmental and social management, health and safety, and security. One organization is Safety, Security, Health and Environmental (SSH&E), while the other is Social, Economics and Land & Community Affairs (SELCA). The SSH&E manager is supported by an Environmental and Regulatory Manager in Brisbane, who in turn is supported by Environmental Advisors for the different Project components in PNG, as well as regulatory advisory and support staff. In the field, the environmental team has a Field Environmental Lead who has a Deputy Field Lead and support staff. Esso Highlands Limited has internally recognized that the Field Environmental Lead needs more support staff and a procurement process is in place. The Environmental and Regulatory Manager is also supported by a Regulatory Advisor and staff to track regulatory commitments, and maintain a database. Occupational Health is a separate organization. There the Manager of Occupational Health (MOH) is supported by a Health Advisor, a Performance and Planning Advisor, a Project Health Manager who is supported by medical and administrative staff, and a Community Health Program Manager who is supported by Community Health Officers and advisors. Safety is integrated into all facets of Project activities. The Safety Manager reports to the SHE&S Manager and is supported by a locally based SSHE supervisor who is also the liaison to Project Management and the EPC and Site Safety Advisors. The Safety Manager also receives direct support from ExxonMobil Corporate advisors.

The SELCA Manager is supported by a National Content Manager, a Land and Community Affairs (L&CA) Manager, and a Social Programs Manager, as well as deputy support and administrative staff. The National Content Manager has six advisors and coordinators for local business development and also supports workforce development. The L&CA Manager is supported by Upstream and LNG Site supervisors who in turn are supported by 53 L&CA officers the majority of whom are in back-to-back field rotation positions. In addition, the L&CA group has 45 Village Liaison Officers residing in communities across the project area. The Social Programs Manager has nine advisors and coordinators for social programs and four officers and coordinators for strategic community investment. Together, the SELCA organization is populated by 57 PNG nationals and 32 expats.

Some components of the Project appear to be overly compartmentalized, and communications links among different groups appear to be weak. An example would be communications between the logistics management and the environmental and social teams. Also, in other similar projects we have observed the social and environmental staff to be part of a single group, whereas in this Project they are separate, and we did find some evidence that the two groups have not communicated to the degree that they should have. We believe that EHL has internally recognized some of these communications issues, and as mentioned above it is normal that these types of situations often need to be reconsidered in the initial stages of a major project.

With respect to staffing, it is apparent to the IESC and also to EHL, we believe, that there is an urgent need to add more staff to meet the current program requirements. In particular, we have observed a critical shortage of staff involved with the stakeholder engagement program. Esso Highlands Limited requires that Contractors recruit and employs local labor through Lancos, which implies that EHL has responsibility to make sure these local workers are fully integrated into the Project environmental and social management system. This implies the need for additional staff to closely work with the Lancos to achieve this objective.

Regarding field staff, EHL and their contractors have identified individuals who are very knowledgeable and experienced in environmental management. This is especially important for those in a supervisory role whose background and experience will be critical for managing environmental issues in this dynamic landscape. The downfall is that senior field environmental staff may soon be overstretched, especially considering the sheer size of the project area. Although the Project is currently managing the workload, there is a considerable risk that once construction gains further momentum, especially during pipeline development ramp up, there will be an insufficient number of supervisors available to execute their tasks to the level of detail that is currently so commendable.

3.1.2.5 Compliance with PNG Government Regulations

The three main institutional entities responsible for regulating environmental and socio-economic aspects of the Project are the DEC, the Department of Petroleum and Energy (DPE) and the Department of Land and Physical Planning (DLPP). To be able to track compliance with local regulations EHL has developed a Regulatory Framework Database, "RegFrame". With respect to PNG's legal requirements, RegFrame stores, itemizes and tracks compliance of applicable PNG national legislation and regulations, applicable PNG provincial and local laws and regulations, and permits and license conditions[2]. Although we did not interview Government representative for confirmation, EHL reports that the Project is currently compliant with local regulatory requirements.

3.1.3 Recommendations

1) Expedite the development of the CIPs. The situation of conducting work in the field without having final plans and procedures could be considered to be a non-conformance were it not apparent that the work is of relatively limited extent and procedures consistent with the ESMP are generally being followed. Care should be taken that the appropriate plans and procedures are in place prior to the start of main construction.

2) Expedite staffing. Field team members are already overly taxed and main construction has not yet started. Consider increasing the number of experienced field supervisors who can serve as mentors to inexperienced staff.

3.2 LENDERS ENVIRONMENTAL AND SOCIAL REQUIREMENTS DOCUMENT

3.2.1 Project Strategy

The LESR document was prepared to supplement the ESMP to demonstrate compliance with Lender Group requirements. Documents prepared by EHL that do not form part of the ESMP, but which are nonetheless required to fully demonstrate conformance with Lender Group requirements are as follows:

- Biodiversity Strategy;
- Project Environmental and Social Standards;
- Project Safety Plan;
- Project Health Plan;
- Regulatory Compliance Plan;
- Journey and Traffic Management Procedure.

Information not included in the ESMP but also required by the Lenders includes:

- Table of Contents for IESC Construction Monitoring Reports;
- Table of Contents for Company Quarterly Construction Environmental and Social Report;
- Table of Contents for Company Semi-annual Environmental and Social Reports (Operations);
- Table of Contents for Company Annual Reports (Operations);
- Lender Group Management of Change;
- Process for evaluating Associated Facilities;

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[2] *In addition to PNG legislative and regulatory requirements, RegFrame also tracks compliance with respect to applicable international treaties and directives, applicable PNG and United States export control requirements, applicable ExxonMobil Development Corporation environmental standards and applicable IFI requirements.*

– Consolidated list of all documentation required to demonstrate conformance to Lender Group requirements.

The LESR document was prepared by EHL to supplement the ESMP for the above topics and provide a single point of reference to all information and documents that do not form part of the ESMP, but are required to demonstrate conformance with Lender Group requirements.

3.2.2 Observations

3.2.2.1 Status of LESR

The LESR is not a final document. The commitment for LESR completion in the Milestones Schedule is prior to Financial Close. It is not clear why this document is still in a draft version.

3.2.2.2 Management of Change

The LESR has requirements for the Project to communicate changes to Lenders on the basis of significance. This process has not started. A screening process by which Project will identify Lender notifications has been drafted and there is a final Management of Change Plan (May 2010) that is being used internally by the Project, but the IESC was not provided with any of the details regarding what changes were being undertaken by the Project except that there had not been any Class I (Higher Significance) or Class II (Moderately Significant) changes that would require Lender notification. The IESC believes that reviewing MOC documentation should be a routine part of a field audit from the point of view that an MOC process is a normal part of a large construction project and this information allows our team to better understand the status of the Project at the time of our visits. It would also allow our team to be able to confirm to the Lender Group that what eventually is reported to the Lenders is consistent with the intent of the LESR. The current situation is considered a non- conformance with the LESR.

3.2.2.3 Associated or Related Facilities and Activities

Another requirement of the LESR is for the extension of EHL environmental and social stewardship to third-party facilities and activities where the Project is responsible for construction on a third-party site or the sharing of facilities with a third party. Such cases are identified within the LESR as Associated Facilities and the implementation of ESMP protocols established on the basis of a risk assessment. An example would be the use of a waste disposal facility owned and operated by Oil Search. For this example, EHL is currently using Oil Search facilities only after having conducted a risk assessment that has determined minimal risk. Other examples where EHL needs to exert stewardship are not as clearly defined in the LESR, but are defined within some of the E&S Management Plans, such as the Procurement and Supply Management Plan and the Raw Materials Management Plan. EHL is in the process of finalizing a process to identify the additional third-party facilities and activities where the ESMP should be directly enforced or where there at least needs to be Project stewardship on the basis of a risk assessment. Field activities have reached the stage where this process needs to be started and actions taken as appropriate, specifically for situations such as the use of third-party quarries/borrow pits and fuel transportation.

3.2.2.4 Public Disclosure

One of the requirements of the LESR is for public disclosure of key Project documents. At the time of this audit only the Project EIS had been posted of the project web page. Several other documents were scheduled to have been made public by the end of March 2010, including the following documents:

– ESMP;
– Milestones Schedule;
– Biodiversity Strategy;
– Community Support Strategy;
– National Content Plan;
– Resettlement Policy Framework;
– Komo Airfield Resettlement Action Plan.

These disclosures have not taken place and EHL is currently behind schedule with respect to expected disclosures. This situation is a non- conformance with Project commitments. It is understood that disclosures are now scheduled for August 2010.

3.3 MILESTONES SCHEDULE

3.3.1 Project Strategy

As previously described, the Milestones Schedule was prepared as Appendix H3 to the CTA to reflect twenty additional time-bound commitments for Lender environmental and social management compliance that were not practical for EHL to fulfill at the time of Financial Close in February 2010. A synthesis of these requirements is as follows:

1) Finalize the ESMP to Revision 1 by the end of Q2 2010;
2) Finalize the LESR by Financial Close (February 2010);
3) Provide a Project Standards document to the IESC by the end of Q2 2010;
4) Finalize an Environmental Monitoring and Reporting Plan by the end of the Q2 2010;
5) Finalize a Social Monitoring Plan by the end of the Q2 2010;
6) Prepare an Operations ESMP at least six months prior to the production of process hydrocarbons;
7) Prepare an Operations Oil Spill Response Plan at least six months prior to the production of process hydrocarbons;
8) Provide a Noise/Vibration Management document to the IESC by the end of Q2 2010, or contain the requirements in the Project Standards document;
9) Finalize a process for conducting periodic noise monitoring during construction by the end of Q2 2010;
10) Provide a final Journey Traffic Management Plan to the IESC prior to Financial Close (February 2010);
11) Complete a Komo Airfield Resettlement Action Plan with an independent compensation rates study by the end of December 2009;
12) Conduct a comprehensive nearshore baseline marine survey (including endemic fish species) within the area of potential impact, including the exclusion zone, of the LNG Plant site prior to the start of construction;
13) A revised Biodiversity Strategy document by the end of the first Quarter 2010;
14) Develop a Biodiversity Monitoring Program (initial draft due Q2 2010);
15) Develop a Biodiversity Offset Strategy (to be initiated by the end of Q2 2010) and deliver the offset delivery plan (initial draft by the end of Q1 2011; finalize by the end of Q3 2013);
16) Integrate conservation programs in the Kutubu Wildlife Management Area into an offset delivery plan the end of Q4 2010;
17) Develop a Project-wide Induced Access Management Plan whereby there is an access road register that specifies level of closure/reinstatement for each road and is linked to the Project GIS prior to the approval of the first access road;
18) Develop a quarantine program to manage invasive species by the end of Q2 2010;
19) Develop a Community Support Strategy Action Plan (Indigenous Peoples Development Framework equivalent) by the middle of June 2010; the strategy of this Plan to be defined prior to Financial Close; and
20) Revise the Cultural Heritage Management Plan (CHMP) to commit to interpretation and documentation and reporting of cultural heritage results; continue to engage with the National Museum of Papua New Guinea regarding their capacity for curation (preservation and storage/display) of materials found during the course of construction and revise the CHMP as appropriate (revisions to be complete by the end of Q2 2010).

As noted in Section 3.2, the LESR commits that the Milestones Schedule will be made public by the end of March 2010.

3.3.2 Observations

IESC has observed a concerted effort to fulfill the Milestones Schedule commitments, but many of the required activities are behind schedule. Some of the documents were past their commitment dates at the time of the site visit, whereas other schedules are expected to slip. As noted in Sections 3.1 and 3.2 of this report, the ESMP and the LESR are not final documents. In the case of the ESMP, Item #1 of the Milestones Schedule was to complete the ESMP by the end of Q2 2010. This will not be achievable, as there have been significant delays associated with obtaining approval from the PNG DEC, in particular for the associated Environmental Monitoring Plan, whose completion is Item #4 of the Milestones Schedule. The current situation is a non-conformance, but the IESC does not consider the schedule slippage to be a major issue as it preferable for EHL to take more time to develop high quality documents using additional resources.

3.3.3 Recommendations

1) An MOC process should be invoked for those commitments where a schedule is going to be missed.

4 ENVIRONMENT

4.1 WASTE AND WASTEWATER MANAGEMENT

4.1.1 Project Strategy

The Project strategy for the management and disposal of waste and wastewater generated since the early stage of the Project construction is clearly defined in the Waste Management Plan and in the Water Management Plan developed by EHL and included as appendices to the ESMP. Both documents identify the minimum general requirements for the management of waste and wastewater generated during the construction phase of the Project, including the identification of potential sources of impacts, the proposed mitigation and management options, the monitoring requirements and responsibilities. These documents are intended as a general outline to guide the Contractors in developing their site-specific Contractor Implementation Plans for the management and final disposal of waste and wastewater.

The Waste Management Plan has also been supplemented by a Waste Management Template, a detailed report which specifies the requirements of Contractor's waste management plans and identifies methods for proper identification, classification, temporary storage, transport, and final disposal options, as well as defines how to implement an effective waste and wastewater management strategy.

As outlined in these documents, the main objectives of the Project are as follows:

- contain, transport, handle and dispose of solid and liquid wastes arising from project construction activities in such a manner as to minimize impacts to human health and the environment;
- dispose of wastes at facilities approved by Company, for which disposal (with or without prior treatment) is the only practicable option;
- follow a systematic program that applies the waste management hierarchy to reasonably minimize wastes requiring disposal. This program shall include monitoring equipment performance and having regularly scheduled maintenance programs to provide optimum performance and minimize waste generation;
- establish facilities and procedures appropriate to prudently manage wastes requiring disposal on-site in accordance with applicable standards;
- manage waste on-site: no disposal is planned to facilities not owned by Company (such disposal is to be handled on an exception basis and approved by Company) and off-site re-use and recycling (to facilities not owned by Company) is accomplished in a controlled manner that benefits the applicable community. For the cases where the disposition of Project wastes to non Project dedicated facilities will be required, the Company shall follow its internal waste management facilities review requirements before allowing the use of the site;
- establish a network of properly designated, drainage-controlled Waste Accumulation Areas (WAAs), designated by Contractor for storage/treatment/disposal;
- interim waste management procedures and facilities (burn pit/landfill or incinerators for combustibles and food wastes at the early works camps, containerized storage of restricted wastes, sanitary wastewater treatment capability, etc.) should be utilized as necessary, pending development of construction-phase facilities and/or permanent facilities;
- reduce the impact on water quality (and associated beneficial values[3]) from construction activities;
- reduce the impact on existing surface water flow regimes and groundwater aquifers (and associated beneficial values) arising from construction activities.

The Project strategy is designed to reduce impacts associated with waste generation through the development of comprehensive and rigorous waste management practices. The determination of waste types, amounts of waste and waste ownership (i.e., those individuals or entities responsible for managing the waste), recycling options, and other aspects are endorsed in the EHL management plans as requirements to be reflected in the Contractor's site-specific waste management plans. Overall, the Project intends to be fully self-sufficient regarding waste management processes, procedures and facilities after the preliminary phases of the construction.

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3 *Beneficial values' includes use as drinking water and aquatic ecosystem protection.*

4.1.2 Observations

According to the documentation provided and the information acquired during the visit, it is evident that EHL is trying to self-manage the wastes associated with Project construction, but the limited local infrastructure, the remote location of Project areas, and the near absence of an effective in-country re-use and recycling market are proving to be challenging at this early stage of the construction. Although the IESC acknowledges these difficulties, it is important that the Project demonstrate steps that are being taken to verify proper implementation in the field of the commitments clearly stated in the ESMP.

To date, the Project is able to fulfill the waste management requirements as indicated in the ESMP only for a few of the Project components, mainly for upstream sites where OSL has existing facilities where both restricted and non-restricted wastes can be managed at incinerators or stored pending a final long term solution. Solutions for the interim handling waste oil including the injection at Gobi and/or at the Central Production Facilities are being evaluated.

During the mission, a number of Project facilities were visited. These include the following:

- *Nogoli Camp*: owned by OSL and used to accommodate a limited number of Project personnel. All wastes are managed by OSL through incineration at the Hides Gas Plant, which has not been audited by EHL. Wastewater is treated in the onsite Waste Water Treatment Plant (WWTP);
- *CCJV Camp at Well Pad A*: under construction at the time of the visit with start-up expected by the end of May with no workers lodged onsite. Non restricted wastes are taken to Nogoli for incineration in OSL incinerator. Limited restricted wastes are stored in sealed shelters on site;
- the long term disposal option for the majority of wastes is incineration at an on-site incinerator (yet to arrive at site). Wastewater will be treated in a new onsite WWTP package undergoing final commissioning;
- *Kobalu*: an existing site from BP/Chevron operations that will be used as a construction camp and helicopter refueling base. Upgrading works were ongoing with an expected start-up in August. The site will be provided with an incinerator and a dedicated WWTP package. To date, non-restricted wastes have been sent to the OSL incinerator at Nogoli, whereas restricted wastes have been temporarily stored onsite waiting for the commissioning of the CCJV incinerator at Well Pad A. Scrap metal is segregated onsite and recycled via OSL to a recycler at Lae at facilities not audited by the Project. Because of the unavailability of in-country recyclers, glass will be stored long-term onsite pending a final disposal option. Wastewater has been previously sent off site to a CCJV facility at Mendi, but now is temporarily stored onsite until the WWTP at the CCJV camp at Well Pad A is operational;
- *Pioneer Camp at the Komo Airstrip*: the camp under development with commissioning expected by the end of May. Non-restricted wastes are currently treated in an incinerator located at the Catholic mission that was reported to be demobilized and transferred onsite until the incinerator to be installed at the permanent camp will be fully operational. Restricted wastes are temporarily stored onsite in a properly designed, sealed shelter. Wastewater is currently stored onsite in two tanks and periodically hauled by truck to the OSL WWTP or to the municipal WWTP at Mount Hagen until the treatment plant at the main camp is commissioned. Although it is recognized that both options represent temporary solutions, the use of these facilities for the disposal of Project wastewater should be discontinued as soon as practical as not being consistent with both the Project strategy and best practice. Alternatively, the Project should consider increasing the number of storage tanks and put the construction of the sewage treatment plant to be installed at the main camp on fast track to allow the project to be fully independent;
- *CCJV Oiyarip Camp at Mendi*: still under construction. Both restricted and non-restricted wastes are burned in the onsite incinerator with ashes temporarily stored in bags in a nearby container, pending the construction of the Hides landfill. There are plans to start stack emissions monitoring although no tests have yet been undertaken;
- *CCJV Camp at Gobe*: designed to house up to 250 people, the camp is under construction with completion anticipated for the end of June. Both the incinerator and the WWTP are under construction. With reference to recyclable wastes, glass is temporarily stored on site until the Project landfill will be available while metals are sent to a recycler at Port Moresby at facilities not audited by the Project;

- *Kopi Base*: owned by OSL, the site has been in operation for about twenty years. Esso Highlands Limited is currently lodging about sixty people with new additional shelters being commissioned at the time of the visit. Non-restricted wastes are currently treated at the onsite OSL incinerator with ashes buried near the plant, pending the installation of the new CCJV incinerator that will be dedicated to treat most of their waste, except for excess domestic waste that may need to be disposed through the OSL incinerator. Restricted wastes, although reported in limited amounts, are stored onsite pending a final solution. Recyclable wastes such as metals, wet batteries and oil cartridges are sent to recycling facilities at Port Moresby that have not yet been audited by the Project. Waste oil is recycled via OSL. Grease from the kitchens is treated in a grease trap connected to a hot oil separator with solid residue sent to the onsite incinerator. Project tires are temporarily stored on site until the Project landfill at Hides will be available. Wastewater is treated at the 200/220 people capacity OSL WWTP. The plant was visited and was observed to include a primary sedimentation tank, an aeration section, a separation chamber and final chlorination before discharge. Treated waters are sampled daily for pH, fecal and total coliforms. According to the information provided during the visit, although the plant complies with effluent limits, they often experience problems due to overflow because of heavy rain. As EHL will rely on this WWTP to treat the wastewaters from the new modules, they should consider supporting OSL in upgrading the plant by roofing the sedimentation tanks to limit/avoid runoff. Furthermore, as the plant has a maximum storage capacity of one day, improvements to the system should be identified and implemented to avoid hauling the sewage to non authorized third parties facilities. Many of the workers are currently accommodated at a "floatel," an offshore supply vessel anchored at the base. The accommodation barge is provided with a WWTP on board that pre-treats the wastewaters to comply with offshore standards. The discharges are sent to an additional WWTP package to achieve Project effluent standards. Effluents are tested fortnightly for pH, fecal and total coliforms and results of the analyses are reported to be in conformance with project effluent standards. At the concrete batching plant, wood was observed to be segregated onsite and reported to be sent to the incinerator. An option to recycle wood through locals should be considered;
- *Port Moresby Technical Construction Training Facility (POMTech)*: currently under construction and expected to be open for training in Q3 2010. Non-restricted wastes like construction debris, cardboard, paper, timber/treated wood, plastic and other wastes generated by the subcontractors working onsite are reported to be disposed of at the Baruni landfill, a landfill licensed by the DEC and managed by National Capital District Commission (NCDC). Wastewater goes to the Waigani wastewater treatment ponds, a government run public disposal facility managed by Eda Ranu Ltd, used to dispose effluent from the NCD residents. Although the facilities were not visited by the IESC, from the information provided during the mission, the use of both sites should be discontinued as their continued use does not meet the Project strategy to be fully self-sufficient, and the requisite internal review process of a third-party facility was not performed prior to their use;
- *C2 LNG Plant Site*: activities ongoing at site are as described in Section 1.1. Restricted and non-restricted waste (first aid medical wastes, plastic bottles, paper, office consumables, cardboard, plastic, wood, scrap metal, oily rags and ash) from early works activities generated by EHL and the different subcontractors working at site were initially disposed at Mango Hill, a customary land used by PNG Dockyard Ltd as a dumpsite, Aurutu Pit, an uncontrolled dumping site located within the Central Province close to Mango Hill, and the Baruni landfill. Since February, the use of these facilities was reported to have been discontinued and all solid waste from construction activities is incinerated onsite through a burning pit located at the Pioneer Camp pending the installation of a new incinerator. Sewage from the camp is treated onsite in a new 245 m^3 septic tank already in operation.

– *Northern Logistics Route and Drivers' Accommodations:* According to the information provided, waste and wastewater at the Mt. Hagen and Goroka drivers' stop areas are managed through local existing facilities that will be upgraded by the existing owner/operators and through existing hotels/hostels with no new camp/accommodation foreseen. These facilities that have not been audited by either EHL or the EM logistics department, contrary to ESMP requirements. At the time of the visit, the Northern Logistics Base (NLB) was not yet used by the Project who has requested the owner/developer to install an incinerator and wastewater treatment plant as part of any future development in support of their activities.

According to the documentation provided and what was observed during the visit, some positive aspects of waste management were encountered. Proper waste collection and segregation were observed to be in place throughout the facilities visited and waste trucking registers are maintained to record all waste generated (non-hazardous, hazardous, and wastewater effluent) at the main facilities on a monthly basis. The main negative aspect to the waste management process is final disposal. Acceptable recycling options are currently highly restricted, which means that even if waste is appropriately segregated at the source, the overall volume of waste to be disposed might not be significantly reduced if there is no market for waste streams that might be recyclable in other parts of the world. This situation is a major challenge to the Project as a whole. At the upstream sites waste management effectively relies on the use of OSL facilities that can handle the relatively small amounts of waste currently being generated. In the absence of OSL facilities, the LNG Plant site and other facilities near Port Moresby like POMTech have been forced to become more self reliant, not always with success. No waste management facility used by the Project or by its subcontractors has yet been established consistent with the standards set for the construction phase by the ESMP.

With specific reference to field observations, CCJV, although having in place site-specific Waste Management Plans, still relies on OSL facilities until the commissioning of the incinerators, WWTPs, and WAAs are established at their different camps. MCJV still has to identify realistic suitable waste management options without considering external third party facilities. Curtain Brothers, in charge of early works at the C2 LNG Plant, has developed and submitted to EHL for final approval their site-specific EMPs, but it must be recognized that the current practice of open burning, even considering that the burning is in a controlled, remote area, is not good practice and should be phased out as soon as practical. The use of municipal facilities at POMTech contradicts the intent of the ESMP and acceptable disposal options need to be identified and implemented as soon as practical.

The site where the construction of the proposed Project landfill near Hides is proposed was visited. This area, identified by the Project to be suitable for the construction of a landfill from an environmental and geotechnical standpoint, is a greenfield site where about thirty local families occupy the land and use it for farming. The need for improvement in considering social implications in the siting process is discussed further in Section 5.3 of this report. According to the information provided in the field, the facility will not be available before mid 2011. Although the IESC recognizes that no significant amounts of waste are produced at this stage of the construction, this situation will quickly change at the start of the main construction phase. Another concern regarding the ability of the Project to manage the waste streams that will be generated when the main construction phase starts is the use of incinerators. The IESC has observed at other similar projects that it is difficult to achieve consistent success with incinerator operations (i.e., incinerators have complex construction where maintenance and operation need to be carefully monitored, spare parts can be difficult and time consuming to acquire, and qualified personnel are needed to be permanently on site). The point of expressing these concerns is to emphasize that the Project will need to have contingency plans in place for in case there are system failures and that these contingency procedures should not involve the use of local uncontrolled dumps or municipal wastewater treatment facilities.

Overall, the current waste management strategy should be reviewed throughout the Project, as the use of external third-party facilities should have been considered only after having successfully completed the Project waste management facilities review requirements as outlined in the ESMP. In consideration that the Project has yet to develop a long-term waste disposal facility, the fundamental observation is that EHL has been fortunate to be able to take advantage of OSL facilities or the situation could be much worse. Nevertheless, EHL cannot afford to continue to depend on OSL as there is no guarantee that OSL will continue to be able to help as their facilities become more and more stressed by the increased amounts of

waste and wastewater. The Project needs to develop contingency plans that include temporary storage to make sure that emergency solutions do not have to be adopted.

4.1.3 Recommendations

1) The Project should fully implement the waste management strategy to reflect in the field the commitments included in the ESMP. The construction/commissioning of the incinerators and the WWTPs at all camps and Project facilities should be expedited to discontinue the use of public uncontrolled dump sites and municipal wastewater treatment facilities and become fully independent. In particular, the EHL environmental department should work with EM Logistics to develop a waste and wastewater management program consistent with the ESMP.

2) Discontinue the use of the Waigani wastewater treatment ponds for the discharge of untreated effluent from POMTech. Consider diverting this sewage to the new septic tank installed at the LNG site until a WWTP is constructed at the POMTech site.

3) To avoid having to use uncontrolled dump sites because there is no other solution in an emergency, consider providing a number of WAAs at each camp or main construction location to be used as interim waste storage facilities until all the incinerators and the landfill are commissioned. These areas should be designed and sized to temporarily store both hazardous and non-hazardous waste. In general, these areas should be provided with paved/concrete platforms, bunded, and possibly roofed to minimize the amount of runoff through the area and the need for treating potentially contaminated rainwater.

4) Expedite the construction of the Hides landfill (not necessarily at the selected site given the Project social and Environmental requirement obligation – see discussions in Section 5.0) providing a commitment and a timeline for the final completion to ensure the Project will have its own permanent waste disposal facility available to receive the significant amounts of waste expected when the main construction phase starts.

5) Review the overall waste recycling strategy to reflect the limited reuse/recycling options effectively available in PNG. Identify realistic disposal solutions for specific waste categories such as tires, scrap metal and batteries whose production is expected to be significant during the main construction phase. Audit recycling facilities currently used by the Project at Lae and Port Moresby to ensure they fulfill Project/good practice requirements. If they do not, consider if it is practical to help these companies develop good practices through EHL's programs to enhance local businesses and work with EHL's social teams develop effective capacity building programs.

6) Improve, where already in place, the waste tracking system and maintain a proper hazardous and non-hazardous waste inventory to accurately reflect amounts of waste generated and the ultimate disposal facilities.

7) Verify that third party incinerators and WWTPs currently used by the Project are well operated (e.g. stack emissions, effluent analyses, etc.) and sufficient safeguards are implemented, according to applicable and relevant regulations.

8) Verify the incinerators and WWTPs being installed at the different Project locations are constructed and operated by specialists/appropriately trained personnel that will be able to continuously attend to this equipment when operated to avoid the difficulties encountered in other similar projects associated with the complexity of these packages that often require long commissioning times to reach compliance standards and often have significant down times when being operated.

9) The Project should consider supporting OSL in upgrading the OSL WWTP at the Kopi base that will continue to be used also from the Project to treat the wastewaters from the new modules.

10) The EHL environmental department should work with EM Logistics to ensure the existing third parties facilities identified to treat waste and wastewater produced at the NLB are upgraded to the standards included in the ESMP to support any future Project development.

4.2 HAZARDOUS MATERIALS MANAGEMENT AND POLLUTION PREVENTION

4.2.1 Project Strategy

The Project strategy for the management of hazardous material throughout the Project is defined in the Hazardous Material Management Plan and in the Spill Prevention and Response Plan, included as appendices of the ESMP. These documents describe the Project approach and strategy to identify potential impacts associated with the handling and transport of hazardous materials throughout different Project locations and the mitigation and management measures to avoid or reduce these impacts. Both plans include the minimum requirements to be reflected in the CIPs, as well as indicating responsibilities, reporting and notification requirements. The overall objective is to prevent uncontrolled release of any hazardous material during transportation, handling, storage and use by undertaking several activities:

- conduct hazardous materials handling risk assessments and identify mitigation and management measures to be included in site-specific Hazardous Materials Management Plans developed by the Contractors. These plans will establish high risk locations and activities and will be commensurate with the potential risks effectively present at site based on the types and amounts of hazardous materials, the analysis of potential release scenarios and consequences identified;
- classify spills according to the Tier I to III categorization depending upon the potential impact of the spill and the capability of Contractor's on-site resources to face the emergency. The level of spill response is dependent upon the potential impact of the spill. Contractor shall work closely with Company to define the spill categorization and include it in their own site-specific Spill Prevention and Response Plans;
- built properly designed fuel and chemical storage systems, to be located in designated above ground areas away from watercourses, and provided with secondary containment (e.g. double-walled tanks/lined containment bunds) to enable containment of complete volume stored. Provide secondary containment, drip trays or other overflow or containment measures for hazardous material containers at connection points or other possible overflow points;
- train personnel in the handling, transportation and storage of hazardous materials. Train an Appropriate number of staff in the handling of emergency response and release scenarios;
- maintain an inventory of all hazardous materials and Material Safety Data Sheets (MSDS) for all stored substances at each storage area and at the site office;
- clearly label vessels with name or description of material, date of last filling, name and address of supplier and hazardous materials characteristics;
- assess and establish the need to provide potentially affected communities with information on the results of the risk assessments, specifically in relation to the nature and extent of hazardous material use and transfer, and the prevention and control measures being established, and information relating to community responses in the event of releases or spills.

Given the nature of the activities undertaken by the Project that require the mobilization of significant amounts of materials throughout PNG, the Hazardous Material and the Spill Prevention and Response management Plans have been supplemented by a Journey and Traffic Management Procedure that defines the requirements to ensure that the journeys are properly planned, approved and managed, and provide rules and applicable standard for light vehicles, buses and heavy goods vehicles operations. The document includes requirements for drivers, vehicles, training and authorization requirements for drivers, monitoring of journeys in terms of safety and assistance in the case of incidents, including indications and requirements for emergencies and hazardous material spill response.

The main hazardous material expected to be used at the different Project locations is fuel for vehicles and diesel generators, but also includes paints and other chemicals used at the different stages of the construction. These materials are supplied to the different Project locations by local contractors on as-needed-basis with limited amounts reported to be stored on site.

4.2.2 Observations

From what was observed in the field and the information provided during the visit, the Project is generally at an early stage of construction associated with mainly civil works ongoing at the different Project facilities. No significant amounts of chemicals or hazardous materials are presently required except for the fuels and lubricants needed to supply the construction equipment. To date, according to the information

provided, spill records account for about of 500 liters of hydrocarbons spilled throughout the Project caused mainly by failure to properly maintain and inspect equipment and to a lesser degree by improper work procedures. The amount of fuel required to date is quite limited, but will significantly increase with the start of construction at the Komo airstrip. Therefore, both the Project and the Contractors need to be prepared to handle a significant amount of hazardous materials expected as soon as the main construction activities begin. The challenges associated with the movement of significant amounts of fuel are well understood by the Project. All fuels for the construction effort are supplied by Inter Oil through IPI, a well referenced and experienced transportation company that also serves large local mining projects. Where observed in the field, the fuel trucks being employed were new and well maintained.

In terms of the development of site-specific CIPs, only CCJV has an environmental control procedure for hazardous materials management, spill prevention and spill response for their locations that was approved by EHL. For each of their site locations (Kopi, Gobe, Kantobu, Highlands, Hides) CCJV is conducting risk assessments for all the activities involving hazardous materials and is in the process of developing site-specific oil spill prevention and response plans. At the time of the visit, the only plan reported to have been developed and fully in operation was for fuel transfers at Kopi base, where there is also an agreement with OSL who maintain spill kits and have an oil spill prevention team on site. Curtain Brothers has developed and submitted to EHL for final approval their site specific Hazardous Material Management Plan, while MCJV is still in the process of developing the plans for their works at the Komo airport.

Good pollution prevention systems were observed at the CCJV camp at Well Pad A, where the diesel to run the power generators is properly stored in a 30 m^3 storage tank located in a sealed shelter to prevent spills. Two sealed shelters provided with spill traps were also observed on site to store hazardous materials.

At Kobalu, a former BP/Chevron operations site where upgrading works were ongoing at the time of the visit, the helicopter refueling area was found not in a good condition. The area where the fuel tanks are stored, although properly located inside a concrete bunded and paved secondary containment, is missing a runoff water collection system to prevent the accumulation of water inside. At this location the Project could benefit from the construction of a roof to minimize stormwater accumulation. Some oil drums were observed to be stored on a plastic sheet on the ground, where they should have been located together with the other fuel containers. Connection pipes between the tanks and the refueling area are currently located above ground, rather than inside open concrete channels where they could facilitate the detection, containment, and repair of any potential flowline failure and avoid damage from vehicles moving in the area. In addition, the truck loading area is not bermed and does not have a trap to collect potential spills during refueling operations. The location of the spill kits was relatively far from the storage area. The oil storage area currently used by Oilmin Land Co. needs to be improved, as it was an open area with no water collection system, no fire extinguisher, and no spill kits available. Chemicals were observed to be stored in a shelter with no ventilation.

At the Pioneer Camp fuel is supplied by truck and refueling done at site directly from the tanker. Although the site was still under construction, spill kits and fire extinguishers were observed to be properly located at site. A couple of drip trays were also noted nearby the refueling truck. Hazardous materials will be stored in a dedicated, aerated shelter observed to be onsite. Diesel generators are properly located in a paved and bunded area.

At the Kopi Base the batching plant, the fuel station and the explosives depot were visited. At the batching plant, oil/chemical drums are properly stored on a paved, bunded, and roofed area provided with an oil separator trap to prevent potential spills. The maintenance area nearby the batching plant was found in good overall condition and probably represents the best area in terms of housekeeping and pollution prevention measures observed by the IESC during the visit. The truck loading area is paved, fuel is properly stored within a shelter located on a concrete bunded pad and fire extinguishers and spill kits were properly located around the site, although if this area had a roof, the potential for contaminated runoff would be minimized. The explosives storage area is well located to minimize potential blast effect due to its position among limestone pinnacles, but the oil/water separator at the diesel storage area was observed to require replacement/upgrading. Also, the overall housekeeping of the site was observed to need improvement. Although the IESC recognizes the site is located in a remote area and there are minimal risks from an environmental standpoint, some minor improvements could enhance the overall conditions of the site.

4.2.3 Recommendations

1) Develop specific properly designed areas (paved, bounded and roofed and provided with traps to collect potential spills) at all sites where long-term storage of flammable materials is expected. For temporary loading/out facilities, the provision of portable bunds/spill pads/tanks, etc. should be considered for effective spill prevention.
2) Areas for road tanker loading/unloading of hazardous material (e.g. diesel fuel) should be surfaced and drained to a concrete trap or an oil water separator to trap potential spills receiver/interceptor.
3) Ensure that proper oil/chemical spill kits be provided at all locations where potential spills may occur including diesel generators/storage areas, oil/chemicals storage areas, and equipment maintenance warehouses.
4) Ensure an appropriate labeling of hazardous material drums and containers. As a minimum, the container labels should include: producer and contact details; hazardous material characteristics (e.g. description, hazardous components); date of arrival at site. MSDS should be located and made visible at each site where hazardous material is stored.
5) Periodically perform site inspections to review the location and distribution of fire extinguishers throughout the Project sites and verify they reflect the effective locations of flammable materials.
6) Ensure that all contractors' site-specific oil spill response plans are in place by the start of the construction phase.
7) Expedite the upgrading of the pollution prevention systems at the Kobalu site, especially at the refueling station.
8) Expedite the upgrading of the diesel storage area at the Kopi Base explosive depot.
9) Consider roofing the fuel station at the Kopi Base fuel station.

4.3 AIR QUALITY

4.3.1 Project Strategy

The Project strategy for the monitoring of the air quality and the management of air emissions is defined in the Air Emissions Management Plan developed by EHL and included as an appendix to the ESMP. The document refers to the management and mitigation of both fugitive dust emissions and gaseous emissions and identifies the different sources of impact, a number of mitigation and management measures to avoid or reduce these impacts together with indications of monitoring requirements, and roles and responsibilities. The overall objective of the plan is to control atmospheric emissions during the different stages of Project development.

Given the early stage of construction, fugitive dust is recognized as the main potential impact on air quality. Although temporary and limited to the time of construction, dust emissions affect those areas in close proximity to the sites where there is on-going work and along routes frequently used by project trucks. Dust is mainly associated with civil work activities including excavations, vegetation/soil clearance, trenching, material hauling, dumping, site grading, backfilling activities, as well as from increased vehicular traffic in the area.

The general control measures to mitigate fugitive dusts as outlined in the EIS and in the ESMP include the use of dust suppression techniques such as watering of the working areas and of those roads where project traffic is expected to be intense, use of cover sheets on topsoil and/or soil piles, reclamation and revegetation, use of covers on vehicles delivering to/from the site construction materials containing fine particles (e.g. sand, aggregates, etc.), control speed limits and road maintenance. Dust masks are required as standard Personal Protection Equipment (PPE) for workers involved in operations that may entail potential dust inhalation.

Other sources of air emissions, including greenhouse gasses, are associated with gaseous emissions from the operation of diesel generators and vehicular exhausts, although considered to be minor, localized and transient in nature at this stage of the construction. These emissions are commonly mitigated through proper operation and maintenance of all equipment, the use of low sulfur diesel fuel and through a proper location of fixed and mobile equipment as far as practical from local villages or worksite accommodations.

Air emissions from waste incineration will be controlled by installing high temperature dual combustion burners commensurate with proposed waste inventories, through proper maintenance and by developing ad hoc emissions monitoring plans to detail emissions composition and criteria.

By developing site-specific air emissions monitoring plans the Contractors are responsible for the implementation of all measures to limit/control air emissions and for undertaking continuous monitoring of incinerator emissions to ensure compliance with the applicable emissions criteria.

4.3.2 Observations

Given the current level of ongoing construction activities at the different Project locations, and considering what was observed in the field, air emissions are yet not considered to be a significant issue due to the limited number of vehicles and equipment currently mobilized. The dust control activity at active sites through the use of watering is still limited also because of the wet conditions of the region that keeps the soil moist and naturally prevents dust formation. However, water sprinklers were observed at some site locations (CCJV Camp at Well pad A, Pioneer Camp at the Komo Airstrip) where significant earth moving will start soon. From what was observed at the different Project locations visited, the Project commitment to "*maintain construction vehicles and equipment in order to limit emissions, and remove from service any equipment from which emissions are visibly excessive*" is being achieved. The equipment, vehicles and mobile diesel generators observed in the field were either new or in evident good condition.

At the Juni Training Facility, where site stripping, clearance and earth movements were ongoing, large piles of excavated soil that could potentially be a source of suspended dust even with light winds were observed. At this site, although dust was not an issue at the time of the visit, the Project will need to consider that watering might be needed at some point to limit potential nuisance to the local communities surrounding the site.

Vehicles delivering aggregate and sand to the different Project locations were observed not to be provided with covers to reduce/prevent dust emissions. This is not considered to be an issue at the Project sites located in remote areas or far from communities, like the quarries visited or the Kopi base, but it may significantly affect the overall air quality of the villages located nearby the main roads or construction sites if not controlled during the dry season.

Workers throughout the Project were observed to be provided with protective masks at sites where potential dust particles may be present.

Although it was reported that some of the contractors have developed their own site-specific air emissions management plans, to date no air monitoring of emissions has started. From what was understood in the field, the Project is currently using OSL incinerators whose emissions are not monitored. Although the IESC recognizes this is an interim solution, the lack of proper air emissions monitoring is considered contrary to the ESMP. Because it may take some time before fully discontinuing the use of these facilities, the Project should coordinate with OSL to perform stack emissions at these facilities and verify they fulfill the Project emissions criteria set in the ESMP. Furthermore, as noted in Section 4.1, the IESC has observed at other similar projects that it is difficult to achieve consistent success with incinerator operations (i.e., incinerators have complex construction where maintenance and operation need to be carefully monitored, spare parts can be difficult and time consuming to acquire, and qualified personnel are needed to be permanently on site). Because of these difficulties, incinerator startup times can be unexpectedly long, which also suggests that emissions monitoring of the existing OSL incinerators should be considered. Of course, the new incinerators will need to demonstrate compliance with emissions standards by means of stack testing. Monitoring of stack emissions from the main diesel generators installed at the camps should also be performed to ensure they comply with the IFC EHS Guidelines limit, especially for those located close to living and/or working areas.

4.3.3 Recommendations

1) Stack emission monitoring should be performed at all incinerators used by the Project, regardless if owned by a third company.

2) The Project should work closely with the Contractors to ensure that the incinerators will be fully operational and in compliance with the project emissions criteria as soon as they begin routine operations.

3) The Project should work closely with the Contractors to identify the specific locations where dust emissions generated by the construction works or heavy equipments movement could affect the local communities and implement site-specific mitigation measures (use of covers for the trucks, cover sheets for soil piles, additional watering of the site roads, etc.).

4) Ensure that diesel generator stacks, especially those close to living and/or working areas, are high enough to properly disperse fumes and to avoid excessive ground level concentrations.

4.4 NOISE AND VIBRATIONS

4.4.1 Project Strategy

The strategy undertaken for the management of noise and vibrations is still in the process of being developed. Esso Highlands Limited has committed to include procedures in the Noise and Vibration Management Plan (NVMP) and/or in the Project Standards document to reflect that Australian and New Zealand Environment Council guidelines will be followed for vibration and overpressure associated with blasting activities. This is a deliverable scheduled for completion by the end of Q2 2010, as further documented in the Milestones Schedule (Item #8).

4.4.2 Observations

Noise being generated by the Project is currently within camps associated with the diesel generators and with earthmoving equipment and truck traffic associated with the early works construction and the two training facilities at POMTech and Juni. Diesel generators were observed to be effectively contained with noise suppressant siding. The only areas where the communities were observed to live close to construction sites was at Juni and POMTech, where the construction activities are reported to be daytime. Blasting is currently taking place at quarries isolated from local communities, such that it is not expected that there is any significant potential for community effects.

The submittal of the final NVMP is expected to be linked with the issuance of Revision 1 of the ESMP. As there are delays expected to be associated with completion of the ESMP, there may also be delays with the NVMP such that it is not finalized by the end of June 2010. Esso Highlands Limited did not indicate if they expected any change regarding the scheduled submittal of the NVMP.

4.4.3 Recommendation

1) If a delay is expected for the submittal of the NVMP, the change should be reflected in an MOC process along with other changes to document submittals from the requirements of the Milestones Schedule.

4.5 RAW MATERIALS MANAGEMENT

4.5.1 Project Strategy

EHL has developed a Raw Materials Management Plan (RMMP) as part of the ESMP, which covers all sources of aggregate other than material obtained beneficially during preparation of the pipeline trench or other Project facilities and roads/tracks. The RMMP requires social and environmental surveys and assessments for any new quarries or expansions of existing quarries. For existing abandoned quarries, or existing quarries operated by third parties, there is a requirement to establish a reinstatement strategy for approval by EHL. There is also a requirement to avoid quarry development on Hides Ridge. The RMMP establishes the policies of reducing the number of quarries developed by using previously worked (old) quarries and using limestone generated by construction activities for road base material. This plan also provides guidance for the management of timber that may need to be removed and defines that slopes that excavations should be made in a manner to maintain safe slopes and avoid areas of water accumulation.

A requirement of the LESR and also of the RMMP is for the extension of EHL environmental and social stewardship to quarries and borrow pits where the Project is responsible for construction at a third-party facility or shares the site with a third party. Esso Highlands Limited is in the process of finalizing a process of identifying the additional third-party aggregate sources where the ESMP should be directly enforced or where there at least needs to be Project stewardship on the basis of a risk assessment.

4.5.2 Observations

Several project quarries were observed in the field with four (MEG1 limestone quarry, Gobe 2000, Gobe 7000 and Q32) visited. New quarries are being well managed. Where the Project had intervened into an old abandoned quarry, there has sometimes been the need to stabilize the quarry from its existing abandoned condition before it has proved practical to safely extract aggregate. It is not reasonable to expect that the Project will be able to undertake reinstatements of these quarries to a pre-quarry condition, but what can be observed is that the Project is leaving these quarries in a better condition than existed prior to their use by the Project.

The Project is keeping records of its involvement with quarries and the efforts to date appear to be consistent with the intent of the ESMP and the RMMP. Stewardship to third-party facilities is being undertaken appropriately.

4.5.3 Recommendation

1) Finalize the procedures whereby third-party quarries and borrow pits require stewardship.

4.6 EROSION AND SEDIMENT CONTROL

4.6.1 Project Strategy

EHL has developed an Erosion and Sediment Control Management Plan (ESCMP) as a fundamental part of the ESMP. The basic objectives of the ESCMP are to:

- maintain stable landforms to reduce erosion and enhance reinstatement;
- maintain integrity of assets (through stable landforms); and
- reduce adverse impacts on stream water quality, and associated beneficial values, and in-stream sedimentation.

The ESCMP requires comprehensive pre-construction survey such that the potential for soil erosion is well defined, potential receptors are identified and a plan is in place to minimize the mobilization and dispersion of sediment into freshwater and estuarine environments. The ESCMP defines requirements for assessing and establishing erosion and sediment control requirements (particularly in relation to site preparation earthworks, road construction across watercourses, watercourse diversions, and site drainage), detailing specific erosion and sediment controls to be implemented (e.g., diversion drains, sediment ponds and fabric silt curtains). Monitoring requirements are also defined.

4.6.2 Observations

The Project is currently at the beginning of construction where major earthworks requiring extensive erosion and sediment control systems have not yet been started. Where observed in the field, the erosion and sediment control systems in place are generally appropriate and consistent with what would be expected for the current earthmoving activities. The biggest challenges for erosion and sediment control have yet to be faced, in particular for the Komo airfield, where it will be necessary to divert a significant river from around the field and also protect sensitive wetlands.

4.6.3 Recommendations

None arising from the first IESC visit.

4.7 BIODIVERSITY AND ECOLOGICAL MANAGEMENT

4.7.1 Project Strategy

The Project's strategy for biodiversity and ecological management is illustrated in several management plans that appear as appendices to the ESMP and in the upcoming Biodiversity Strategy document, which presents a more long-term approach. Mitigation measures within the relevant management plans, which are the Ecological Management Plan, the Weeds, Plant Pathogens and Pest Management Plan (which covers alien invasive species; herein referred to as the 'Weeds Management Plan'), the Induced Access Management Plan, the Reinstatement Plan and the Erosion and Sediment Control Plan, will be implemented by the contractors during the construction phase, and, in some cases by EHL. Mitigation

measures are often specific to each of the three project areas (Upstream Project Area, Marine Project Area and LNG and Marine Facilities Site), and are sometimes site-specific (e.g., the Ecological Management Plan contains a section on Hides Ridge).

Central to the Ecological Management Plan and the Weeds Plan is the pre-construction survey, which was to be conducted by both EHL and the contractors at project-disturbed greenfield sites. The survey covers a number of ecological attributes such as pinnacles that contain bat colonies, potential Bulmer's fruit bat (*Aproteles bulmerae*) colonies, bird-of-paradise and bowerbird display grounds and trees, areas of *Pandanus* swamp forest, sink hole swamps greater than 50-m deep on Hides Ridge, *Nothofagus* (beech) forest that will require special hygiene measures, etc.

The Biodiversity Strategy is being developed to address long-term mitigation of biodiversity for both the construction and operation phase. The document will contain the Project's approach to its Biodiversity Offset Program and Biodiversity Monitoring Program. The Strategy also provides an overview of EHL's overall approach to mitigating impacts on biodiversity in alignment with the Mitigation Hierarchy[4]. The Biodiversity Strategy will be released in the public domain when finalized. Following the Biodiversity Strategy, the Project will develop the actual Offset Delivery Plan, which will be a detailed document on offset design and management, and a Biodiversity Monitoring Program.

4.7.2 Observations

4.7.2.1 General

Due to civil unrest at the LNG Plant site, the IESC was only able to visit the upstream project area; hence in-field observations are limited to that area. As construction in the upstream project area is still limited to the C1 sites and to the Komo airport (EPC5b), which largely consisted of earthworks at the time of the site visit, the IESC focused on the structure and function of Project management and field staff in addressing ecological and biodiversity issues. At present, EHL and its contractors are doing an exceptional job of implementing related on-site mitigation measures, which are based on the findings of the preconstruction surveys. One change is that only the contractors will be responsible for carrying out the preconstruction survey in the future, instead of the 'dual-layered' approach, which was that EHL would conduct the survey, followed by a second survey carried out by the contractor. The Project has assured D'Appolonia that a fauna and flora specialist of adequate experience in PNG will be amongst the contractors' pre-construction survey team members. Esso Highlands Limited will also be responsible for vetting specialists to be included on the contractors' team. Rev. 1 of the Ecological Management Plan and all other relevant plans should be modified to reflect this change, and an MOC should be processed.

The Project is in the process of building the necessary capacity within its overall Environment team to address ecological/biodiversity management. Building a critical mass of staff to manage biodiversity/ecological issues is in line with Item #13a)(iii) of the Milestones Schedule, which states that "[Operator shall develop and maintain a Biodiversity Strategy that includes…] an effective system of managing the biodiversity strategy and ensure that over the long-term it is adequately resourced and financed to meet International Finance Corporation Performance Standard 6." A strategist has been in place since the Project's conception and has many years of experience in managing biodiversity impacts and in conducting academic research in PNG and in other tropical environments. Coffey International, the consulting company that conducted the EIS, now carries out the pre-construction surveys, including the ecological aspects. Species specialists from within PNG's academic cadre are contracted on an as-need basis for managing potential impacts on highly threatened species. For weeds management, Biotropica Australia is contracted to develop the project-wide Integrated Weeds Management Approach. For the Biodiversity Monitoring Program, the Project has initiated discussion with a specialized consultant in restoration and revegetation of tropical landscapes. The building of staff resources to manage ecology and biodiversity issues is still in its initial phases. Biodiversity impacts in the project area potentially present a significant risk to EHL on various levels. Further bolstering of this team should be a priority in the coming months.

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[4] *Defined as - to avoid adverse impacts, reduce significant impacts when avoidance is not possible, restore significant impacts when both avoidance and minimization is not possible and offset significant residual impacts.*

4.7.2.2 Ecological Management

The implementation of mitigations per the Ecological Management Plan is well underway in the sites visited by the IESC (e.g., Juni Training Facility, Komo Airport and various camps and quarries). Preconstruction surveys have identified numerous bat caves, large trees and display grounds and focal habitats (e.g., *Pandanus* swamp and *Northofagus* [beech] forest) where disturbance should be minimized or entirely avoided. The help of species specialists is enlisted if particularly rare or threatened species are encountered (e.g., long-beaked echidna [*Zaglossus bartoni*], lowlands tree kangaroo [*Dendrolagus spadix*], Bulmer's Fruit Bat (*Aproteles bulmerae*) and Thomas's big-eared bat (*Pharotis Imogene*). At the Komo Airport site in particular, both the EHL environmental specialists and the contractor's (MCJV) environmental specialists have established good communication links with EPC5B construction staff. Notable mitigations at this site include (i) special avoidance mitigation measures, including a buffer zone for Wugaba River; (ii) hydraulic modeling to maintain the more intact forested area on the east side of the runway (which contains patches of *Pandanus* swamp) and a spirit lake that has cultural importance to local communities on the west side; (iii) modifications of the outer fence to allow the passage of certain animals; and, (iv) the development of species-specific guidelines for the long-beaked echidna.

Species-specific guidelines are being developed and implemented when the presence of certain threatened species becomes evident during the preconstruction survey (e.g., den sites, markings). Whist this approach might be appropriate for animals whose presence is readily identifiable (e.g. congregatory species, highly vocal species), the IESC recommends that the Project take a more cautious approach for certain highly threatened species (i.e., Endangered and Critically Endangered) and reclusive species with less likelihood to easily flee if disturbed (e.g., non-volant mammals). For certain species, such as the long-beaked echidna, it is recommended that the Project consult with a species specialist to discuss the possibility of identifying areas along the pipeline route in which more stringent species-specific guidelines will be implemented even if the animal's presence is not specifically identified (by direct or indirect observation) during the pre-construction survey. Additional surveys might also be warranted in such areas prior to construction.

4.7.2.3 Invasive Species Management

The Project's Weeds Management Plan articulates a strong set of inspection, washdown, quarantine and other prevention measures to control the spread of invasive fauna, flora, weeds and pathogens. The identification of weed species is also a central aspect of the pre-construction surveys. The Project has assigned each weed species a priority rating for control purposes. Priority 1, 2 and 3 ratings are based on observed levels of persistence and invasiveness, and known history in other tropical locations (Priority 1 weeds warrant more stringent control measures). The Project also developed a weeds master list and fact sheets for each weed species.

These tools appear to be effective at the site level as EHL and contractor environmental specialists were very familiar with in-field identification of weed species. For example, at the Kopi quarry sites, an area of primary rainforest, prevention measures are being implemented by the contractor's (CCJV) environmental specialists with some rigor. Weeds that show signs of spread in this area are removed by hand before becoming established. Areas of *Northofagus* (beech) dieback have also been identified as part of pre-construction surveys. Dieback is a serious disease caused by a range of root-rotting fungi that can kill a variety of plants and has been found in parts of the upstream project area. *Northofagus* forest is especially susceptible as the interconnected root systems allow rapid spread of the disease beyond the initial infection point. In one instance, the Project re-routed the pipeline ROW to avoid one large area of dieback based on the findings of the pre-construction surveys. Washdown and/or other measures will be required for other situations.

The Project, and notably the EHL environmental managers located in Brisbane, has demonstrated an impressive amount of foresight and skill in addressing this topic. The Project has recently retained a specialized consultant (Biotropica Australia) to develop an Integrated Weeds Management Approach, which is currently being finalized. As part of this approach, the project area has been categorized into a series of 'Weed Management Areas' (WMAs), which are determined by ecological characteristics, levels of human disturbance and weed distribution. The Integrated Weeds Management Approach is to be used as the basis for consistent management of weeds throughout all work sites. Esso Highlands Limited will work with the contractors to ensure that the integrated approach is reflected in the contractors' Weed Management Plans. The emphasis will be on continuous control of priority weeds with limited distribution

(e.g. *Chromoleana odorata*, *Tetrapanax papyrifer*) and on limiting vehicle-mediated dispersal (e.g., construction of vehicle wash-down points). This type of strategic approach, including the project-wide Quarantine Program described below, will be fundamental in managing this considerably challenging indirect impact.

The Project has made progress on the development of a project-wide Quarantine Program (for invasive species and pests), which is listed as a Project commitment in the EIS and the Weeds Management Plan. This commitment is also spelled out in #18 of the Milestones Schedule as, "*…the Operator shall develop a quarantine program upon an assessment of PNG quarantine related laws and regulations, practices and capacity and comparison with related practices in Australia. The outcomes of this assessment will include measures/plans (the quarantine program) to address identified gaps in laws and regulations and capacity.*" The objectives of the Quarantine Program will be as follows:

- ensure full compliance with all PNG laws and regulations as a minimum, and, where appropriate, utilize Australian practices;
- prevent the importation and spread of any pest, plant pathogen or disease via LNG Project personnel or cargo;
- facilitate expedient customs and quarantine clearance of all freight imported into PNG; and,
- implement effective quarantine control measures for the export of any LNG project freight.

The regulatory authority responsible for quarantine control in PNG is the National Agriculture Quarantine and Inspection Authority (NAQIA). Esso Highlands Limited reviewed assessments of NAQIA conducted by AusAid and other organizations as part of a gap analysis of PNG versus Australian inspection and quarantine procedures and policies. Findings revealed areas where additional support may be required to assist NAQIA handle the significant increase in cargo expected to arrive in PNG as part of the Project's construction phase. Gaps included limited human resources, budget and infrastructure needed to carry out inspection and quarantine procedures on this scale (e.g., dock space, container depots, wash-down stations, fumigation facilities). Esso Highlands Limited has prepared a Customs and Quarantine Procedure to fill some of these gaps, which is under final review. Recommendations that address NAQIA internal and physical capacity are also being developed. In sum, the Project has made good progress with respect to Item #18 (Invasive Species). An MOC might need to be processed however to adjust the intended date of completion (2Q-2010).

4.7.2.4 Induced Access Management

The Induced Access Management Plan is designed to control vehicular access by third parties on project roads in the Upstream Project Area. Access control is especially warranted along certain sections of the Southern Access Route, namely from the Kaiam (and, specifically from the Samberigi turnoff) to Gobe (~30 km), from Gobe to the Mubi River Bridge (~18 km), from the Mubi River Bridge to Kantobo ("Heartbreak Hill") and from Kantobo to Kutubu. Mitigation measures will range from the implementation of a permit system to the removal of culverts at the end of the construction phase, which would render roads impassable.

A primary concern for the IESC is ensuring adherence to commitments made to restrict access on project roads for the construction and the entirety of the operations phase. The Induced Access Management Plan is indeed in place, but during the site visit it appeared that construction staff was not fully aware of the Project's long-term access control commitments. Further communication may be required. Item #17 in the Milestones Schedule states that the Project should develop "*…a project-wide access road register, which specifies the level of closure/reinstatement for each road and is linked to the Project's GIS.*" The register has been created and will be integrated into EHL's new SELCA/Environment Information Management System by the end of June (2010), which has GIS capabilities. As the development of the register may be an on-going exercise, both the IESC and the Project agree that Item #17 will be considered open for the time being.

It is worth repeating that the predictions of biodiversity impacts made in the EIS are largely based on the success of previous Operators (Chevron, OSL) in the Kikori River Basin to effectively control access along project roads. Both Operators had had much success in this regard as after more than 15 years of oil development activities, project-induced access between the lowlands to Lake Kutubu has been insignificant. This partly may be due to the efficacy of the existing OSL permit system between Kopi and Gobe and between Kantobo to Kutubu, in addition to the rope-pulley ferry across the Kikori River. Given

the significantly larger dimension of the PNG LNG with respect to previous enterprises, minimalist transport measures will need to be replaced with the construction of two multi-million dollar bridges: one at Kikori River and the other at Mubi River.

D'Appolonia fully agrees with the Project's EIS, which states that "If increased indirect impacts are mitigated through project-constructed roads remaining private and controlled, the overall magnitude of the impact [on biodiversity] is considered to be low [brackets added]." (EIS / p. 18-91). The EIS also states that, "Isolation and difficulty of access have probably been the most important factors maintaining the ecological integrity of the upstream project area and all indirect impacts will be exacerbated by any improved accessibility along the project roads and access tracks." (EIS / p. 18-88). In addition to controlling access along the Southern Access Route, EHL should also ensure that construction staff, including contractors, are highly discouraged from developing further access routes in the lowlands area, such as between the Kopi Shore Base and the Kopi Scraper Station Camp, which is an area of primary rainforest. Furthering the Project's footprint in areas of largely undisturbed forest would directly impact on the scope and design of the Biodiversity Offsets Program as briefly described below.

4.7.2.5 Biodiversity Strategy

Items #13 (Biodiversity Strategy), #14 (Biodiversity Monitoring) and #15 (Offset Mitigation) of the Milestones Schedule all pertain to the development of the Project's Biodiversity Strategy and the future development of the more detailed Offset Delivery Plan and Biodiversity Monitoring Program. The IESC has reviewed a draft of the Biodiversity Strategy. As the document is not yet finalized, comment is limited in this report. The Project plans to finalize the Biodiversity Strategy in the coming months, after which it will be available in the public domain. The timeframe for development of Revision D of the Biodiversity Strategy on the Milestones Schedule (Item #13) was Q1 2010. The Project submitted Revision E of the Biodiversity Strategy in April 2010 to meet this requirement. More time is needed however to develop the final Biodiversity Strategy (Revision 0), which should be a high quality document developed with the help of additional resources. It is noted that the completion indicator in the Milestones Schedule for the development of the Biodiversity Strategy is that the "*Operator has developed Revision 0 of the Biodiversity Strategy in consultation with the Independent Environmental and Social Consultant and ECAs, and the Independent Environmental and Social Consultant has confirmed….that it is satisfied that the Biodiversity Strategy is consistent in all material respects with the applicable requirements of the Environmental and Social Management Plan, Applicable Lender Environmental and Social Requirements and all applicable Environmental and Social Laws*." Esso Highlands Limited has invested a considerable amount of time and resources in devising mitigation measures in alignment with the Mitigation Hierarchy for biodiversity management. This should be adequately reflected in the document.

The Biodiversity Offset Program is a critical element for compliance with PS6. More precisely, the quality of the Biodiversity Offset Program and its alignment with current practices in offset design is fundamental. Over the past ten years the practice of offset design and management has advanced considerably. Established methodologies of obtaining 'no net loss' of biodiversity are often quantitative, but it is also recognized that offset methods must adjust to local circumstances and conditions based on expert opinion and the ability to demonstrate measurable on-the-ground conservation gains. The challenges faced in PNG in implementing offsets, such as the significant amount of customarily-owned land and limited governmental capacity, are real, but they are not singular to PNG and to this Project. In order to address these challenges, it is our strong recommendation that EHL reach out to conservation organizations, companies and/or academic institutions that are also dealing with similar issues in offset design and are in the position to share current practices and experiences. An attempt by EHL to develop a Biodiversity Offset Program in isolation for a project of this significance in one of the most extensive rainforest landscapes worldwide in isolation is strongly discouraged.

The Biodiversity Strategy will contain EHL's approach to addressing biodiversity offsets, an important first step in laying the foundation of its eventual Biodiversity Offset Program. In the future, the more detailed Offset Delivery Plan will follow. The EHL Environment staff is making progress on this front, and the IESC encourages their current approach. Going forward, the team should be strengthened by a specialized resource with current experience in developing offset mitigations for a project of this magnitude. Such a resource would also be helpful in finalizing the Biodiversity Strategy.

Regarding the Biodiversity Monitoring Program, the Project has done a considerable amount of thinking on this topic and has initiated discussions with a revegetation/restoration specialist in tropical environments.

The full-fledged design of the Biodiversity Monitoring Program will follow in the future. As of now, it appears that EHL is well-positioned to set an example of industry Best Practice of international significance for this topic.

Lastly, regarding Item #16 (Legally Protected Area) of the Milestones Schedule, this item was included to ensure that the Project pursues an additional program that furthers the conservation aims of Lake Kutubu. The program will be included as part of the Offset Mitigation Strategy, which is a section in the Biodiversity Strategy.

4.7.2.6 Freshwater and Marine Ecology

Esso Highlands Limited has conducted a number of additional surveys of the freshwater and marine environments. These include the following: (i) freshwater ecology and freshwater quality in the Upstream Project Area, (ii) marine ecology, marine water quality and sedimentation in Caution Bay, (iii) aquatic biology and hydrology at the LNG Marine Facilities site, and, (iv) hydrology and river bed profiles of the Omati River. The Project has provided reports that document the results of the majority of these elements to the IESC. The methods and results reported are within the scope of expectations for these baseline surveys. The nearshore marine survey as referenced in Item #12 (LNG Facilities Baseline) of the Milestones Schedule has therefore been completed and is under review. The report will be provided to the IESC for review in the near future. The Project remains within the identified timeframe for completion of this task (i.e., 'before construction begins'). No marine endemic species in the LNG Facilities Site were identified to date.

No additional mitigation measures are envisaged as part of the design alternations of the LNG Marine Facilities Site (see Section 1.1 of this report), which are expected to reduce environmental impacts, such as the potential for long-shore drift and sediment accumulation in the mouth of the Vaihua River. The Project will be implementing a marine monitoring plan in Caution Bay that is under review by DEC and its consultants.

4.7.3 Recommendations

1) Consult with species specialists to discuss the possibility of identifying areas along the pipeline route (based on habitat preferences/condition) in which more stringent species-specific guidelines will be implemented even if the animal's presence is not specifically identified (by direct or indirect observation) during the pre-construction survey. This is especially relevant for highly threatened, reclusive and non-volant species. If deemed appropriate based on further consultation, conduct additional surveys to establish such 'precautionary areas' and to further supplement pre-construction surveys.

2) Take steps towards further bolstering the Environment team to address ecological/biodiversity issues, including the resources necessary for finalizing the Biodiversity Strategy and the section on biodiversity offsets.

3) EHL should ensure that contractors are aware of the commitments contained in the Induced Access Management Plan. This is especially relevant with respect to the installation of any permanent infrastructure required to achieve the induced access management objectives (e.g. road access controls and gates etc) and the management of short term induced access.

4) EHL should reach out to conservation organizations, companies and/or academic institutions that are also dealing with similar issues in offset design and are in the position to share current practices and experiences when developing the Biodiversity Strategy, Offset Delivery Plan and relevant offset design / implementation documents that might follow.

5 SOCIAL

5.1 INTRODUCTION

5.1.1 Scope of Social Review for this Site Visit

The May 2010 review had a greater focus on Project progress in setting up and implementing key social management systems than will be the case for later reviews. This focus notwithstanding, the opportunity was taken to meet with significant numbers of project affected people including displaced landowners and users. The IESC social review included the following principal activities:

- introductory presentations by the SELCA in Port Moresby;
- in-field discussions with a range of project personnel including project managers, L&CA officers, the Resettlement team and Stakeholder Engagement team;
- in-depth discussion with members of the Environmental Law Centre (independent observers of the RAP process);
- attendance of a Resettlement Team weekly meeting at Nogoli;
- informal interviews with individuals and groups affected by the project including displaced landowners and users at the Komo airstrip, the HGCP, Lanco directors, the Komo absentee landowners committee & members of communities in the vicinity of major works areas[5].

The IESC consulted with Project affected people, both in groups and individually. Some consultations occurred through organized meetings. Others occurred informally on the roadside or in the proximity of proposed or actual PNG LNG work sites.

The IESC was unable to visit the villages adjacent to the LNG terminal. Local villagers were maintaining a road block on the Port Moresby to LeaLea road preventing access to the villages. The blockage was over village assertions that the government owed them compensation for the deaths that occurred as a result of inter-village fighting in January 2010. An account of the incident that led to the deaths is described in Section 5.8.

All PNG LNG personnel interviewed by the IESC were forthright in describing their progress and the challenges that they are facing. This greatly facilitated the IESC's task. Logistical arrangements and the breadth of project works areas that were covered during the first review were assessed as excellent and provided a more than adequate basis for preparing this initial IESC review report.

The first review provided some useful lessons for improving the efficiency and effectiveness of future IESC reviews. These include:

- in future, it would be preferable to separate the IESC social review itinerary from that of the IESC environmental team. The two teams have differing interests (one predominantly inside the project fence, and the other largely outside the fence). The two teams should commence and end their reviews together, but diverge while in the field;
- the group size for social visits and consultations with communities needs to be minimized (ideally not more than 3-4 people, including the IESC reviewer). Larger groups become a target for local proselytizing and political rhetoric that are not particularly conducive to insightful interview or discussion;
- culturally appropriate arrangements need to be made to capture the views of community sub-groups (e.g. women, youth, elderly, vulnerable, etc) away from the male-dominated majority. The IESC heard some insightful comments from women when spoken to alone, but their views were adjusted as soon as men joined the discussion.

5.1.2 Waiver

The IESC social review is substantially based on interviews conducted with project affected people, NGOs and other stakeholders. It was not within the remit of the IESC to verify or substantiate the statements

[5] *Sites visited during the May 2010 IESC included, but were not limited to: Nogoli camp, Juni training facility worksite, proposed solid waste site, Well Pad A, HGCP site, Heavy Haul Road alignment, Komo Pioneer Camp, Komo airstrip site, Highlands Highway alignment and selected bridge and quarry sites, Gobe camp & nearby quarries Gobe 7000 and Gobe 2000, Gobe to Kopi road & Kikori river crossing, Kikori village and the POMTech training centre worksite.*

made by interviewees and, unless otherwise indicated, the IESC has taken no steps to verify or substantiate such statements. Due caution should therefore be attributed to all statements reported to have been made by interviewees. Accordingly, the IESC makes no representation as to the substance of reported 'perceptions' or 'beliefs' of interviewees and notes that hearsay evidence should not be treated as proof of any specific statement or concern expressed.

The IESC review provides a "snapshot" of the PNG LNG Project's state of compliance with the commitments and standards defined in the Project Environmental and Social Requirements, including but not limited to the RPF, component RAPs and other Social Management Plans. As such, the review does not purport to be a fully comprehensive evaluation of compliance.

5.2 SELCA ORGANIZATION AND RESOURCES

5.2.1 Project Strategy

The Project will provide the organization, personnel and resources necessary to comply with national legislative requirements and to deliver commitments contained in the ESMP.

5.2.2 Observations

In its closing presentation, the IESC made some observations on the SELCA organizational model. IESC is mindful that considerable effort has been expended in developing a clear and functional SELCA organization model. The following observations are made from an outsider's perspective and are intended constructively:

- SELCA has adopted a 'functional department' organization which is ideal for project planning, but less suitable for delivering SELCA services to Project Managers at multiple, diverse locations and where there is a need to be flexible to respond to rapidly changing circumstances on the ground;
- in order to meet the demands of rapid growth and accelerating workload, the principal SELCA teams have become inward focused and compartmentalized, rather than oriented at delivering SMP-compliant services (community engagement and preparation, resettlement, land access ahead of construction) to Project Managers charged with construction delivery;
- there is a degree of overlap in roles particularly between L&CA and the Stakeholder Engagement team, and L&CA and the Resettlement team and many duplicated or parallel processes.

The L&CA team is the most significant repository of local knowledge and has long established relationships with project communities however its strengths are not being optimized strategically to meet SELCA goals.

Discussions with Project Managers in the field revealed that there is a level of frustration that SELCA is Port Moresby based and not fully responsive to their immediate needs in the field. Equally, there was frustration from the SELCA teams that fundamental logistical requirements (camp beds, compensation delivery, and building materials delivery) were impeding their ability to perform in the field.

SELCA has not yet managed to fully operationalize two critical functions to keep apace with the needs of C1 and C2 construction. These are grievance management and community engagement ahead of construction mobilization (particularly with respect to delivering key community health and safety messages). This is indicative of a gap that needs to be addressed now and for the EPC contracts going forward. The activities that SELCA needs to be able to deliver in the field are:

- Land access and resettlement;
- Community liaison (including grievance management);
- Community development support;
- Contractor SMP compliance.

A key challenge for SELCA is to optimize use of the L&CA resources. The land access team and resettlement teams are in most instances dealing with the same landowners, negotiating agreements and paying compensation, but these activities are being undertaken in parallel rather than as one seamless process. There are time and resource efficiencies that could be achieved by jointly mapping out end to end land access and resettlement processes.

With some training the L&CA team also has some of the resources, the geographic spread and local knowledge to undertake interim community engagement and grievance management for the C1 and C2 contracts, at least until the EPC Contractors are mobilized.

The L&CA team needs clear definition of its function and roles within the context of the PNG LNG project – which is a very different function from what they are used to in OSL. At present, some L&CA team members appear somewhat tentative about their scope of responsibility in relation to separate Stakeholder Engagement activities. With clearly defined roles, the team would undoubtedly gain in confidence and could contribute a lot more than they are presently doing.

Given the high day-to-day workload and the challenges of ramping up for the EPC contracts, there may be value in having an external management consultant undertake process mapping, role definition and make recommendations on re-organization of the SELCA group. This is a straightforward issue.

All SELCA teams mentioned delays due to internal processes for approving and recruiting new staff. SELCA teams all need to scale up very rapidly to deliver all SELCA commitments ahead of EPC mobilization. Impediments to efficient recruitment need to be resolved as a high priority.

5.2.3 Recommendations

1) Consider transitioning SELCA to a 'project team' or 'matrix' based organizational model geographically distributed along the Project corridor with the following disciplines reporting to the in-field Project Managers:
    a. Land access and resettlement,
    b. Community liaison (including grievance management),
    c. Community development support,
    d. Contractor SMP compliance.
2) Consider integrating land access and resettlement functions into a 'land access cum resettlement team' and develop an end-to-end land access and resettlement process.
3) Resolve internal impediments to efficient and timely recruitment.

5.3 LAND ACCESS

5.3.1 Project Strategy

The Project strategy to land access can be summarized as follows:

- avoid and minimize the need for physical/economic displacement through alternatives analysis and siting, alignment and other design modifications (RPF, Sect 2.2, Resettlement Principles);
- to avoid or at least minimize involuntary resettlement wherever feasible by exploring alternative project designs (IFC PS5 Objective); and
- the client will consider feasible alternative project designs to avoid or at least minimize physical or economic displacement, while balancing environmental, social, and financial costs and benefits. (IFC PS5, para. 7).

5.3.2 Observations

5.3.2.1 Screening for Social/Land Impacts in Site Selection

Various quarry sites and a solid waste facility site had been selected for Contractor use based on engineering and environmental criteria. The IESC was concerned that social impacts (in particular, resettlement impacts and impacts on productive land) did not appear to have been incorporated into the screening and site selection process. Rather, the number of affected dwellings and agricultural plots appeared to have been surveyed only after sites had been selected.

The selection of the Hides landfill site appeared to be a clear case where screening for social impacts had not been adequately applied for the purposes of the PNG LNG project. Development of the 57 Ha site will involve physical displacement of 31 families and economic displacement of a further 75 families. The site had previously been selected as the compressor station site for the Australian Gas Pipeline project. At that

time, it reportedly was settled by only five families. Interviews with some of the people living and cultivating on the site confirmed that some of them had resettled there following Oil project land acquisition for Well Pad A about 5 years ago. From an IESC perspective, selection of such a densely occupied and utilized site for a solid waste facility is inconsistent with the resettlement principles expressed in the PNG LNG Social and Environmental Requirements - irrespective of whether or not it had been deemed suitable as a facilities site for an earlier project.

With earlier proactive L&CA field involvement it may be possible to reduce the level effort and time taken to achieve land access. If site selection took into account clan-ownership, it might be possible to configure sites so that they affected the land of only one or two clans, not four or five as often is presently the case. Dealing with a smaller number of clans could greatly simplify and shorten the time taken to negotiate land access.

As noted earlier, the pre-construction environmental baseline studies are an important tool for verifying impacts and mitigations prior to site entry. The IESC noted that these would be an even more effective tool if they incorporated social impacts. The environmental baseline survey for the Juni training facility site, for example, did not include any observations about the close proximity of settlements, or the need to pay particular attention to community HSE preparation, effective fencing of works or traffic measures to separate heavy vehicles and pedestrian traffic.

5.3.2.2 Avoidance and Minimization of Physical and Economic Displacement

A key thrust of IFC PS5 that forms part of the Project Environmental and Social requirements is avoidance of resettlement impacts and where avoidance is not possible, minimization. Nearly 70 percent of the PNG LNG displacement is caused by three components as shown in **Table 1**.

Table 1: Project Components with greatest Displacement Impact

	Physically displaced families (no.)	Economically displaced families (no.)	Total Displacement (physical + economic)
Heavy haul road	228	167	395
Hides landfill	31	75	106
Highlands highway bridges	40	80	120

Having inspected the heavy haul road route, the IESC considers that there is still considerable scope for reducing the physical and economic displacement of this component. Given that the census and survey of adjacent dwellings and productive land were completed after the alignment selection, the IESC questions whether the scope of physical and economic displacement was fully understood when the heavy haul road alignment was initially selected and whether the costs and schedule risks of attempting to move such a large number of families were fully factored into the route selection. When the Operator submits the RAP for the Lender approval, the IESC will be looking for robust information on the following:

- thorough evaluation of the alternatives that were considered for the alignment of the heavy haul road including assessment of the relative physical and economic displacement impacts of each alternative – in particular, why the current alignment was preferred over improvements to the existing Komo-Hides road, and why the heavily populated ridge (and adjacent valleys) on the selected alignment was preferred over the relatively uninhabited ridge lying further to the east;
- description of design and operational measures taken to minimize physical and economic displacement such as, for example:
  - road design to limit side-casting to one side of the ridge only (potentially reducing displacement impacts by perhaps 50 percent),
  - measures to prevent the uncontrolled encroachment of road construction detritus on productive agricultural lands in adjacent valleys,
  - determination of a variable width ROW based on detailed consideration of road cross-section and side slope conditions – rather than adoption of an arbitrary 50-metre ROW;

- use of night-time road closure and one-way traffic movements, so that very large loads can use the full carriage way width (both lanes) to minimize the road carriage way width.

5.3.3 Recommendations:

1) Review site screening processes to ensure that social and land impacts (including physical and economic displacement and clan ownership patterns) become an integral part of site selection – either SELCA needs to be directly involved, or the Environmental team needs to acquire social expertise.
2) Expand pre-construction baseline surveys to encompass both environmental and social baseline and mitigations.
3) In the Heavy Haul Road RAP for Lender approval, provide (a) a thorough evaluation of the alternatives that were considered for the heavy haul road alignment, including assessment of the relative physical and economic displacement impacts of each alternative; and, (b) a description of design and operational measures taken to minimize physical and economic displacement.

5.4 RESETTLEMENT

5.4.1 Project Strategy

The Project strategy for achieving land access and resettlement is described in the RPF and individual RAPs. The RPF lists the following resettlement principles:

- avoid and minimize the need for physical/economic displacement through alternatives analysis and siting, alignment, and other design modifications;
- conduct consultation processes that achieve free prior and informed participation of affected people and communities (including hosts) in decision making related to resettlement was continuing participation during implementation and monitoring/evaluation;
- compensate people affected by land acquisition for loss of assets at full replacement value;
- improve the living conditions of physically displaced households;
- design and implement in a timely manner culturally sensitive and economically sustainable income restoration measures;
- divide measures to support physical relocation and re-establishment. Identify and provide special assistance to people who are especially vulnerable to displacement impacts;
- carefully monitor and evaluate to ensure that resettlement measures are meeting the needs of affected people and to identify the need for and implement corrective measures will stop.

5.4.2 Observations

For the sake of brevity, the following comments are selective and tend to focus on areas of weaker performance rather than on the many positive aspects of the PNG LNG resettlement program.

5.4.2.1 Progress in Defining Physical and Economic Displacement

The following Table 2 provides updated Project estimates of Phase 1 (2010-2014) physical and economic displacement based on survey and census work up until May 2010. Bracketed figures indicate estimates provided in the October 2009 RPF.

Table 2: Updated Project Estimate of Phase 1 Physical and Economic Displacement

Project Facility	Description	Area (ha)	Estimated Physically Displaced Households (No.)	Estimated Economically Displaced Households (No.)	Total Displaced Households (No.)
Komo airstrip		517	24 (24)	14 (6)	38 (30)
Facilities	Including: HGCP Kopi facilities Juni training facility	386	60 (63)	0 (8)	60 (71)
Pipelines	Pipeline and spine lines based on 1000 m corridor	1,254	30 (50)	18 (TBD)	48 (50)
Well pads	Hides well pads: A, B, C, D, E and G	96	TBD (TBD)	TBD (TBD)	(TBD)
Roads	Based on 50 m corridor	522	228 (253)	167 (TBD)	395 (253)
Quarry	Approximately 30 quarries including buffers	898	37 (55)	44 (TBD)	81 (55)
Landfill	Hides and Gobe	57	31 (15)	75 (TBD)	106 (15)
HDD	Tagri, Mubi, Wah and Kikori	31	TBD (5)	TBD (TBD)	TBD (5)
Camps	Based on 20 possible options provided to contractors	230	30 (TBD)	22 (TBD)	52 (TBD)
Total			**480 (465)**	**420 (TBD)**	**900**

Notes:
1. Data provided by the EHL Resettlement Team, May 2010.
2. Bracketed figures indicate RPF October 2009 estimates.
3. May 2010 estimate excludes any economic displacement in the Omati River basin fishery or LNG site/ downstream fishery.
4. The table also excludes Komo airstrip absentee owners. The Absentee Committee reported that the number of verified absentee families now stood at 192 (versus 164 at the time the Komo airstrip RAP was completed).

Estimates in the table will continue to be refined as detailed census and surveys are completed and as detailed engineering routing studies and designs are refined. The table will be updated prior to each IESC review. May 2010 estimates show that overall physical displacement numbers remain close to those presented in the RPF. The extent of economic displacement impacts are becoming more clearly understood as surveys are completed.

5.4.2.2 Progress with RAP Preparation and Implementation

The Resettlement team has been hampered by logistic difficulties and is behind the schedule for RAP preparation indicated in Table 7 of the RPF. To date, only 2 out of the 11 RAPs that were to have been completed by May 2010 have reached the IESC.[6] Reasons given by the Resettlement team for the delays include:

- limited availability of camp beds for the Resettlement team;
- delays caused by the BSA negotiations – both due the beds occupied by BSA negotiators during License Area negotiation period, and by the Resettlement team having to suspend its field activities while negotiations were underway;

[6] *The Komo Airstrip RAP was reviewed and approved by the Lenders in November 2009. The HGCP RAP was submitted to the IESC on May 22nd, 2010.*

- localised security concerns in February 2010 that lead to suspension of field activities;
- delays in compensation delivery;
- logistical difficulties in delivery of food rations and building materials (both part of resettlers' compensation entitlements);
- resettlement staff and management team turnover.

During the delays and periods when the resettlement team was not in the field, speculative housing was constructed along the airstrip access road. This led to a need for further negotiation and delays. The Huli clans in the Hides area, that have previous experience of negotiating compensation for the gas to electricity project, have also proved to be persistent and tough negotiators. The clans in the Hides area have held out for a more extensive compensation package which has meant agreements have taken longer to sign than planned. Additional measures offered to the Hides people had to be retrospectively added to the compensation packages provided to the Komo airstrip resettlers.

The Resettlement team numbered 33 persons in May 2010 and will be increased to 50 persons by the end of July 2010 to address the much larger resettlement tasks posed by the HGCP and Heavy Haul Road components. SELCA needs to be mindful that the emphasis in mobilizing additional personnel should be on attracting personnel with well-developed skills and relevant experience. Scaling up the team with in-experienced people will not necessarily contribute to faster land access, and could in fact have the opposite impact. The *Huli* are skilled negotiators and will quickly capitalize on any team weakness or inconsistency.

RAP preparation and issuance to the Lenders for their review and approval is well behind the timing indicated in the RPF tables 6 and 7. This is noted as a Level 1 non-conformance. The Project needs to issue the IESC with a schedule of best estimates for the revised timing of RAP preparation (update of RPF Tables 6 and 7) through an MOC.

5.4.2.3 Land Access and Resettlement Process Issues

The IESC noted several land access process concerns:

- the RAP is being treated as a record of a completed resettlement process, not an action plan for how resettlement will be undertaken – as a result RAP completion, RAP submission for Lenders' approval and RAP local disclosure are not occurring early enough in the resettlement process;
- in the case of HGCP, resettlement agreements have been signed and compensation has been paid prior to Lender approval and local disclosure of the applicable RAP - this a non-conformance and directly contravenes EHL undertakings to the Lenders that land would not be accessed prior to RAP completion;
- sites (or at least parts of sites) are being occupied by the Project prior to the completion of physical relocation of people.

The sequence and duration of tasks from initial notification of displaced families up until land access is clearly defined in Table 6 of the RPF. This sequence has not been followed by the Resettlement team in the case of HGCP.

As a measure to expedite resettlement and to avoid the risk of later reoccupation, the IESC recommends that the Project consider offering a one-off lump sum incentive payment to a family that clears its own house within an agreed timeframe. If the house is not cleared in a timely manner, the family would forego the additional incentive.

Recommendations:

1) Consider offering a one-off lump sum incentive payment to a family clears its own house within an agreed timeframe.

5.4.2.4 Valuation of Trees and Crops

A Komo Airstrip Independent Compensation Rates Study[7] was transmitted to the Lenders Inter Creditor Agent on the 22 April 2010, fulfilling the requirement of Item #11 on the Milestones Schedule.

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[7] *The study report was entitled: "Compensation Rates for Plants in the Hides-Angove-Komo Area". It was prepared by Dr. Michael Bourke. Dr. Michael Bourke is an Adjunct Senior Fellow with the Research School of Pacific and Asian*

While undertaken over a limited period, the compensation rates study presents comprehensive information on current economic plant and tree values in the Hides-Angore-Komo area of the PNG LNG project. The study makes recommendations on adjustments of compensation rates against the PNG Valuer General (VG) Schedule of Rates for trees and plants, January 2008. It establishes that the compensation rates for most species should be increased above those suggested in VG Schedule of Rates, although rates for some crops could be reduced.

To date, the Project has paid compensation for annual and perennial trees and crops based on the PNG VG Schedule of Rates, January 2008. The independent compensation rates study indicates that the VG rates, while dated January 2008, were in fact drawn up in about 2005. The study notes that current VG rates have not been adjusted for inflation since 2005. Inflation in the intervening period would account for an increase of about 25 percent.

The compensation rates study makes it clear that in basing compensation on the VG 2008 Schedule of Rates, for most types of plants, the Project is paying below full replacement value. This is non-compliant with the requirements of IFC PS5 and the resettlement principles established in the RPF. Accordingly, the Project must review all compensation payments made to date and, where warranted, make top-up payments to achieve full replacement value based on the results of the Komo Airstrip Independent Compensation Rates Study. All future compensation payments must be made at full replacement value. This is a fundamental tenet of the IFC PS5 and it must be fully complied with.

If the Project is likely to impact on trees and crops at lower altitudes than the Highlands area covered by the present compensation rates study, then it is strongly recommended that the independent compensation rates study be extended to cover these areas prior to finalization of related RAPs. Retrospective payment of top-up compensation is a messy process and best avoided by paying compliant rates from the out-set.

An added benefit of the Independent Compensation Rates Study is that it provides baseline data on Nogoli, Tari and Komo market prices for a comprehensive range of edible fruit and nuts, garden plants and other economic plants as of February 2010. A recognized impact of major projects is escalation of food prices in local markets due to the increased demands created by population influx, presence of outside workers and by the relatively higher spending power of these groups. Social monitoring should include replicate sampling of market prices at regular intervals to monitor for any project induced price escalation. Such monitoring will need to include sampling of markets outside of the Project area of influence for comparative purposes.

Recommendations:

1) Ensure that all future RAPs and compensation agreements, or equivalent compensation packages, are based on the 'full replacement' rates recommended in the independent compensation rates study.

2) Extend the independent compensation rates study to cover Lowland areas ahead of lowland RAP preparation and compensation negotiations.

5.4.2.5 Ensuring Post-Relocation Access to Facilities and Essential Services – Community Plans

The IFC PS5 Guidance Note provides direction on what constitutes adequate replacement housing:

"Adequate housing should allow access to employment options, markets, and basic infrastructure and services, such as… health care, and education." (para.G6).

The Komo airstrip resettlement has highlighted a challenge in terms of maintaining reasonable access to services and social infrastructure such as schools, markets, medical points, churches and business opportunities where individual families self-relocate and where the relocation site options available to them are significantly more distant from services than their original dwellings. The Komo airstrip, once fenced, will leave some resettled families with more than a 2-3 hour walk to reach community facilities such as schools, markets and churches. This compares to a 1-2 hour walk prior to resettlement. This is an issue that needs to be addressed retrospectively in the case of Komo airstrip and as an integral part of resettlement planning for future RAPs.

Studies at Australian National University (ANU). With research and development experience in PNG since 1970, Dr. Bourke is a world-recognized expert on food production and human nutrition in PNG. He is co-editor of the recently published "Food and Agriculture in Papua New Guinea" (ANU E Press, 2009).

As part of resettlement planning and RAP preparation, the Resettlement team needs to include an additional step in their resettlement process that involves participatory planning to reach agreement on a simple (post resettlement) community plan to agree:

- siting of key community facilities so that they remain relatively central to post resettlement dwelling locations;
- locations and alignments of roads or tracks to improve accessibility where resettlers have to move into more remote locations for replacement housing and agricultural land;
- other measures such as may be desirable to improve community health, safety or security (e.g. to reduce community interaction with project traffic, to manage risks associated with in-migration or reduce exposure to other Project impacts or risks).

Such community plans should be agreed with communities and documented in the RAPs. Such a process should be undertaken retrospectively for the Komo airstrip. For the HGCP area, the community planning process might also seek to rationalize the location of facilities from a community safety perspective. For example, for traffic safety reasons it might be desirable to plan for an alternative market/ stalls location away from the main entrance to the plant. It may also be desirable to site the school in a location central to dwellings and which minimizes children's interaction with busy roads. Such planning would also be consistent with the objectives of the Community Impacts Management Plan.

5.4.2.6 Cumulative Impacts

A risk of planning resettlement on a facility by facility basis is that cumulative impacts on land and land availability can easily be overlooked. The HGCP area, characterized by relatively dense development of houses and gardens and a concentration of Project facilities, may be an area of particular risk in this regard. Some clans have historically lost land for Oil Search development (e.g. for the original development of Well Pad A) and may have less residual land for resettlement than at first appears. PNG LNG impacts will include:

- development of the HGCP and associated noise and safety buffers;
- gas pipeline installation;
- expansion of Well Pad A and implementation of associated safety buffers (as well as future well pad development);
- construction of the Heavy Haul Road;
- development of various quarries and associated access roads;
- development of a solid waste facility.

Land impacts result from both direct land-take and the fragmentation of remaining land. When this development is laid over clan territories, it may become evident that some clans are more seriously affected than others. With the Project agricultural specialist, the IESC determined that approximately 0.45 ha of garden area (including fallow) is required for each five-person household. The IESC recommends that the Resettlement team undertake a rapid appraisal of available land in the wider HGCP area & determine the likelihood of shortage for any given clan taking into account the project's cumulative land impacts. Such an appraisal might involve some or all of the following steps:

- prepare a consolidated map of the project footprint and all related safety/environmental buffers (e.g. the requirement for a safety buffer around Well Pad A was raised on site, but does not appear on Project layout plans) in the vicinity of HGCP i.e. identify all areas that will be excluded from residential and/or garden/agricultural use;
- identify remaining lands (at a rapid appraisal level) available to each clan that are suitable for garden/agricultural use;
- provide an indication of the house/garden land requirement (broken down by clan) to accommodate all families to be resettled as a result of the facilities listed above;
- assess supply of reasonably accessible, suitable garden/ agricultural land against demand for land created by project resettlement:

– if shortages are apparent, (i) undertake a multidisciplinary review to explore all possible technical and management measures to minimize displacement (e.g. possibility of permitting continued gardening use with HGCP buffers; or, finding an alternative solid waste site that does not involve resettlement); and, (ii) look at measures such as provision of new roads to allow access to alternative.

Recommendations:

1) Undertake a rapid appraisal of accessible and suitable garden/ agricultural land in the vicinity of HGCP taking into account the project footprint and all associated environmental/ safety buffers and determine the likelihood of any clan experiencing shortages. If warranted, develop strategies to address shortages.

5.4.2.7 Avoiding Multiple Resettlement

Causing families to relocate more than once can potentially increase the risks of impoverishment and community disarticulation. Although the resettlement is completed in an area where previous resettlement took place as part of other projects, PNG LNG should consider this in their resettlement planning to maximize "security of tenure" for replacement housing. Through lack of demarcation of the Komo airstrip boundaries, some airstrip-displaced families inadvertently started constructing replacement houses still within the airstrip land. This was an un-necessary waste of family labor and resources. It also seems probable that some HGCP-affected households that have recently resettled in the vicinity of Well Pad A are likely to have to be resettled again once Well Pad A safety and environmental buffers are defined. Whatever the cause, EHL needs to introduce measures to avoid causing repeat resettlement including providing clearer information to displaced families about where future facilities and infrastructure will be located.

Recommendations:

1) Prepare and, as part of resettlement consultation, disclose consolidated plans that show all Project components and their buffers so that resettlers can have a complete understanding of areas where they can and cannot resettle.

2) Review all replacement house locations selected by resettled families to ensure that they lie outside of the Project footprint and buffers.

3) Physically survey Project sites, place boundary markers and clear boundaries as early as possible to reduce the likelihood of inadvertent resettlement within project sites.

5.4.2.8 Banking/ Compensation Disbursement

Delays in delivering compensation, in some cases by as much as 2-3 months, were identified by the Resettlement Team as one of the reasons causing delays in resettler families vacating their land and dwellings. Prolonged delays in making payments after agreements are signed can also erode the trust of resettlers. The IESC is aware that disbursement of large compensation amounts in a context of weak law enforcement poses significant security challenges for both the Project and compensation recipients. Nonetheless, this is a challenge that needs to be overcome before the more intensive period of compensation disbursement commences with resettlement of the HGCP and Heavy Haul Road components. Facilitating local access to banks would be beneficial to both the Project and compensation recipients. It is suggested that the Project might consider:

– identifying global project in-field banking needs (payroll, Lanco payments, compensation disbursement, land rental payments, etc);

– tendering banking services from amongst reliable national banks, to include establishing branches along the Project route (potentially within Project camps for security) and to obtain competitive transaction fees.

It should be noted that transaction costs (including banking fees) on compensation are payable by the Project. On other Projects, banking partners have also played a role in educating compensation recipients on how to operate banking accounts and on options for investing or managing compensation sums.

Recommendation:

1) Identify global project in-field banking needs (payroll, Lanco payments, compensation disbursement, land rental payments, etc) and consider tendering banking services from amongst reliable national banks, to include establishing branches along the Project route (potentially within Project camps for security) and to obtain competitive transaction fees.

5.4.2.9 Compensation Advisers

The deployment of compensation advisers for the Komo airstrip resettlement as specified in Komo airstrip RAP had not occurred by the time of the IESC May review. This was reportedly due to a shortage of field accommodation. The IESC considers that the compensation advisers have an important role in terms of the following:

- encouraging and educating resettlers to use bank accounts for the safekeeping of their compensation monies;
- to provide resettlers with strategies for investing their compensation with possible reduced risk of compensation being dissipated on un-productive uses;
- to reduce the risk of compensation beneficiaries being duped by fraudulent investment schemes that frequently spring up in the wake of resettlement projects.

Provision of investment advice may be beneficial in helping families to use their compensation more wisely. The Operator should mobilize capacity to deliver compensation advice in accordance with the RPF and Komo airstrip RAP as soon as practicable. For all future RAP implementation, the compensation advisers should be actively involved in providing advice before, during and after compensation payments and as part of livelihood restoration.

Recommendation:

1) Mobilize compensation advisers to providing advice before, during and after compensation payments and as part of livelihood restoration in accordance with the RPF and component RAPs.

5.4.2.10 Resettlement Outside of Lender Approved RAPs

The IESC was made aware of two instances where a resettlement agreement was entered into or was in the process of being finalized without there being a covering RAP in place:

- 15 households relocated from the Komo airstrip access road;
- 4 households to be relocated from the Kopi waterfront.

While there were circumstances that may have obscured the Project's resettlement obligations, the Project actions (entering into resettlement agreements with spontaneous settlers in the case of the access road) have resulted in it becoming the de facto resettlement manager.

IESC assesses the Komo access road resettlement as a Level 1 non-conformance – resettlement without a covering RAP. The Kopi situation has the potential to become a non-conformance if EHL provides funds for compensation and executes resettlement agreements with households before completing a RAP and receiving lender approval. .

Recommendations:

1) Establish clear principles consistent with IFC PS5 and the Project RPF for when RAPs need to prepared in ad hoc resettlement cases i.e. where EHL enters into a resettlement agreement or where EHL funds compensation or becomes actively engaged in resettlement negotiations not covered by the RAPs as defined in the RPF.
2) Provide refresher training to L&CA officers and relevant project management personnel on Project Environmental and Social Requirements resettlement obligations.

5.5 RESETTLEMENT INDEPENDENT ADVOCATE

5.5.1 Project Strategy

The Operator has retained the Environmental Law Centre to act an independent advocate on behalf of displaced people and to ensure displaced people are fully informed about the resettlement process as well as their rights and obligations.

5.5.2 Observations

The role of the Environmental Law Centre provides important assurance to the Lenders (and other external stakeholders) as to the Project's resettlement performance, its observance of the rights of landowners and its compliance with PNG legislation.

As part of its reporting, the Environmental Law Centre (ELC) makes many important and specific recommendations to the Resettlement team relating to both the circumstances of specific families and to ways in which the resettlement process could be improved or made more responsive to local conditions. To date, the Resettlement team has not responded to many of these recommendations. As part of its assurance processes, the Resettlement team should record and feed back to the ELC its responses to their recommendations. This would in turn enable ELC to communicate fully back to the landowners whose interests it represents.

The Environmental Law Centre has raised a number of important concerns with the IESC that need to be the subject of further dialogue between the Project and the Centre. The IESC notes that one of ELC's advocates working on the Project is a former Chief Commissioner of the Land Titles Commission whose views should be heeded. These concerns included the following:

- ELC emphasized the importance of forming Incorporated Land Groups (ILGs) as a precursor to establishing Lancos and ahead of the distribution of land rental payments. The formation of ILGs was described as key step in determining who were real landowners and who could legitimately be eligible to share land rental payments. ELC noted that this was an important safeguard to ensure against the Project being seen to sponsor 'bogus' landowners, many of whom have already infiltrated Lanco organizations;
- as an adjunct to the above point, ELC strongly advocated that land rental payments should be directed to individual accounts and not made through Lancos;
- ELC questioned whether EHL had kept abreast and aligned its processes with Government land reforms in areas of land administration, land registration and incorporation, and land dispute resolution. ELC considered that EHL should be demonstrating leadership in these areas;
- ELC drew attention to a number of situations that were rightfully the responsibility of the Government (e.g. reparations and allocation of replacement land for landowners displaced by the Komo war, customary land dispute resolution) and advocated that EHL should be actively lobbying for the government to provide local capacity to address land administrative issues;
- ELC drew attention to a number of problematic areas in the resettlement process:
  - need for a more culturally appropriate definition of 'household' and the need to recognize that there were situations where a household might have reasonable entitlement to more than one house structure e.g. where a family includes multiple wives not all of whom live under one roof or where a son or daughter resides in a separate men's house or a woman's house, or where a son has reached adulthood and would not customarily reside under his father's roof, etc.,
  - copies of contracts should be available in local languages,
  - the need for agreements to sometimes have provision for signing by multiple wives,
  - desirability of having lists of crops and crop values divided amongst the members of the family according to each person's worked garden area.

5.5.3 Recommendations

1) Where the Environmental Law Centre makes a specific recommendation in its monitoring reports, the Project should feed back to ELC its response in writing.

2) Make available copies of Project resettlement agreements in local languages (such as Huli) so that non-English readers are engaged and understand what they are signing.

3) Initiate a dialogue with ELC regarding issues (1)-(5) above and, if warranted, identify actions to address the issues raised.

5.6 LIVELIHOOD RESTORATION

5.6.1 Project Strategy

The livelihood restoration strategy is described in the RPF and component specific RAPs. Key elements of the strategy include:

- delivery of weekly food rations or cash equivalent to ensure household food sufficiency for a nominal 6-month period while food gardens are re-established;
- agricultural extension services, a tool package and supply of pathogen-free sweet potatoes to facilitate re-establishment of food gardens and food sufficiency;
- technical assistance to help resettlers to develop cash earning activities and enterprises;
- provision of Compensation Advisor to assist and advise on compensation investment and business options.

5.6.2 Observations

The IESC endorses the Project's generally conservative approach to livelihood restoration with its initial emphasis on re-establishment of food gardens with the introduction of potentially higher yielding, pathogen-free sweet potatoes.

In the time available during the first review, the IESC was unable to visit and interview first-hand the Komo airstrip resettlers who are presently in the process of establishing new gardens. The IESC was reliant on the assessments of Dr. Michael Bourke (see footnote 7) who has been retained by the Project to advise on agricultural livelihood restoration. In an initial assessment undertaken in March 2010, Dr. Bourke assessed that roughly half of the Komo airstrip resettler families had developed sufficient garden area to be food self-sufficient with possibly some small surplus by October 2010. This indicated a slightly longer garden establishment period (8-9 months) than the 6-month duration of food rations. At the time of the May 2010 IESC visit, Dr. Bourke was midway through a second review of the Komo airstrip resettlers. Dr. Bourke noted that some initially lagging households had made good progress and was confident that the number of households making satisfactory progress with garden development had improved since his March review. Progress with livelihood restoration will receive greater focus in the next IESC visit.

The food rations being delivered by the Project at present provide 3,000 calories/person/day for both adults and children. Many households were found to have over-reported the number of household members and so were receiving very generous quantities of rations. Some rations were reportedly finding their way into local markets. In future, given the very substantial logistical challenges involved in delivering rations, the resettlement team may want to more carefully verify household membership for ration allocation purposes. Given Dr. Bourke's findings that the period for a family to achieve full food delivery is likely to be 8-9 months, the Project might consider reducing the ration from 3,000 calories/person/day to 2,100 calories/person/day with the period of delivery extended to say 8 months.

The risks of using food rations as an interim livelihood measure are well known. While essential to meet household dietary needs until replacement gardens reach full production, food rations can also serve as a dis-incentive for families to focus on restoring their production. The Project must regularly reinforce to each family the date when rations delivery will cease and encourage them to develop the necessary garden area to achieve full food sufficiency. Unless there is an unequivocal case of hardship, the Project must resist any tendency to extend the period of rations delivery.

The immediate challenges for the livelihood restoration team are (i) to increase staff resources and logistical capacity to be ready for the much larger livelihood restoration requirements of the HGCP and Heavy Haul Road resettlements; and, (ii) to expand livelihood restoration activities to promote some cash cropping and non-agricultural livelihood opportunities. The Resettlement team had a clear appreciation of these challenges.

While late starting, overall progress in delivering livelihood restoration activities was now assessed as satisfactory.

5.6.3 Recommendations

1) Consider adjusting food rations to provide reduced calories per day (say 2,100 calories/adult/day versus the current 3,000 calories/adult/day) over a longer period (8 months versus the present 6 months) to correspond to the observed period it will take a motivated family to fully develop replacement food gardens.

5.7 COMMUNITY IMPACTS MANAGEMENT

5.7.1 Project Strategy

Project commitments related to community impacts management are contained in the Community Impacts Management Plan and the Community Health and Safety Management Plan. Some key provisions of these plans are as follows:

- *"where practicable minimize routing construction traffic through villages, past schools camps close to project sites";*
- *"Limit pedestrian interaction with construction vehicles, etc)…";*
- *"Collaboration with local communities and responsible authorities…to improve signage, visibility and overall safety of roads, particularly along stretches located near schools or other locations where children may be present";*
- *"Collaboration with local communities on education about traffic and pedestrian safety (e.g. school education campaigns)";*
- *"Employing safe traffic control measures, including road signs and flag persons to warn of dangerous conditions."*

5.7.2 Observations

At the Juni and Well Pad A worksites, the IESC observed potentially hazardous situations where contractor measures to comply with the Community Impacts Management Plan measures did not appear adequate. Some observed situations included:

- a small child playing inside a perimeter barrier and running through the works area while heavy vehicles were being loaded and transporting materials as part of earthworks operations (Juni);
- insufficient measures to separate heavy vehicles from pedestrians and bystanders (Juni).

Fencing of the camp adjacent to Well Pad A was observed to have curtailed pedestrian access to adjacent dwellings. Elderly people were observed to be traversing a steep and slippery slope to bypass the fenced perimeter. Where the Project or its Contractors sever or impair community access, there is an obligation to provide safe, alternative access.

5.7.3 Recommendations

1) Make 'identification of potential for communities to be exposed to hazards' and identification of related mitigation measures part of pre-construction surveys.

2) Strengthen contractor compliance with the requirement to perform worksite hazards assessments for community hazards and develop worksite management procedures, wherever necessary (as per ID 22.004).

3) Strengthen contractor compliance with the requirement to effectively exclude community members (including children) from construction and material storage sites, and where exclusion is not possible or in periods prior to erection of comprehensive fencing, utilize spotters or security patrols to ensure compliance in sensitive locations (as per Mitigation 22.006).

4) Consider constructing dedicated community walkways at certain sites to separate traffic and pedestrians.

5) Where appropriate, designate on-site spotters to interface with communities and ensure adequate distance between foot traffic and heavy vehicles movements.

6) Provide safe pedestrian access around the perimeter of the camp adjacent to Well Pad A.

5.8 COMMUNITY SECURITY

5.8.1 Project Strategy

The Project's security strategy insofar as it pertains to project social performance is described in the Company Community Health Safety and Security Management Plan. The Operator also has a Project Security Management Plan, although the latter document is outside the scope of the IESC review. Key tenets of the Project security strategy include the following:[8]

- the philosophy underpinning Project security is 'community partnerships';
- security works closely with SELCA which is responsible for frontline community liaison and interaction;
- the Project is committed to adherence to the Voluntary Principles of Security and Human Rights (ExxonMobil is a signatory);
- there are no armed private security personnel on the PNG LNG Project and there are no plans for such deployment;
- if any armed support is deemed necessary, such support will be provided by the PNG government either through the police or, in exceptional circumstances, through the military;
- EPC Contractors are responsible for providing their own security at their particular sites of responsibility in accordance with Exxon Mobil standards and under the guidance of the Exxon Mobil security team;
- EPC Contractors may not directly communicate with the Royal Papua New Guinea Constabulary (RPNGC).

5.8.2 Observations

5.8.2.1 General

Prior to the first IESC visit, several Lenders raised concerns about project security arrangements and raised the possible need for a security specialist to participate in the first IESC review. Lenders' concerns arose from international media reports about violent incidents occurring in the Southern Highlands and in the vicinity of the PNG LNG plant site. As an outcome of the first review, the IESC is satisfied that EHL's security arrangements and relationships with the RPNGC accord with the requirements of paragraphs 13, 14 and 15 of PS 4. On the basis of its first review findings, the IESC considers that it will not be necessary to deploy a security specialist on the next IESC site visit. This situation will be reviewed with each subsequent visit and the Lenders will be informed if changing security circumstances point to a need for a security specialist to participate.

EHL has executed a Memorandum of Understanding (MoU) with the RPNGC. The MoU sets out the following:

- expectations for training and compliance with the Voluntary Principles for Security and Human Rights;
- expectations for response, reporting and investigation of any allegations of human rights abuses;
- types of assistance that can be provided by EHL (food, lodging, fuel, vehicles, travel) and types of assistance that are prohibited (provision of weapons, ammunition).

The RPNGC mobile squads deployed in the Project area have received training on the Voluntary Principles provided by Red Cross International. This training was verified by EHL. Similarly, provisions in contracts with private security providers require that all personnel are fully trained regarding the Voluntary Principles and that all personnel abide by these at all times.

Clear responsibilities have been defined for security incident management, including responses for allegation of Human Rights abuses.

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8 *Based on presentation to IESC by ExxonMobil's Graeme Sayce and Jimmy Vigil, 7 May 2010.*

Following unrest in Southern Highlands Province in February 2010, the RPNGC deployed three mobile squads to the province to cover project affected areas. These police do not work for the project and are under the command of the RPNGC. While in Southern Highlands Province, the IESC questioned the various community members that it met with about their reaction to the deployment of the RPNGC mobile squads. Respondents were very positive and reported that the deployment had contributed to a marked improvement in their personal security and the general peacefulness of their communities. Comments made to the IESC included:

- *"We can safely go to the market and not have to worry about being assaulted or having our wares stolen or thrown on the ground by drunken youths. We are very grateful for the presence of the police."*
- *"We no longer go around worrying that our houses will be broken into or that we will be beaten up. The youth is much better behaved."*

After 3 months, a relatively small intervention on the part of the RPNGC had resulted in a very significant improvement in local law and order, particularly around Hides and Komo. The Project indicated that the police presence had also resulted in project work being able to proceed unhindered.

EHL noted that it had just completed a reviewed of its security staff numbers and concluded it had initially underestimated requirements. It is presently preparing an MOC to significantly increase security staff numbers.

5.8.2.2 Boera and Porebada Incident

In response to Lender queries, the IESC requested a briefing on the conflict between Boera and Porebada villages that resulted in 5 deaths in January 2010. As noted previously, the IESC was unable to visit the villages in question due to a road blockage. Key points arising from the briefing were as follows:

- there is a history of conflict between the two villages, Boera and Porebada, with previous clashes in 1973 and 1993;
- an underlying cause of conflict related to the Boera villagers perceiving themselves as the customary owners of the area, with the Porebada being relative latecomers and allowed to settle as 'guests' of Boera;
- the Porebada village population and footprint have expanded rapidly and the Boera villagers perceive that the Porebada population has encroached outside of the land originally allocated to it;
- these underlying land tensions have been exacerbated by the recent maneuvering of two influential local politicians seeking to further their own political and commercial interests by making competing ownership claims over land crossed by the road between Port Moresby and the PNG LNG terminal;
- on 31 January 2010, triggered by a relatively minor infraction over road side gardens on the disputed land, a mob of 100 or more Boera villagers attacked Porebada resulting in the violent deaths of five people;
- fearing retribution following the deaths, Boera people fled their village and remained away for some days during which time a Boera dwelling belonging to a Boera former politicians was torched by Porebada youths;
- there is still residual tension – several perpetrators from Boera are in custody awaiting trial but no villagers from Porebada have been arrested for arson;
- following the incident, the Porebada people made an ambit claim for compensation of 700,000 kina and 50 pigs, a claim which may have been given some credence by the government during conciliatory meetings post-the incident;
- at the time of the IESC review, the ambit claim for compensation had been escalated to 2 million kina and 100 pigs and been used an excuse for a blockage of the Port Moresby – PNG LNG terminal road. EHL was awaiting government intervention to resolve the claim.

EHL had taken a number of pro-active and re-active measures in response to the incident:

- prior to the incident, EHL had entered into a Memorandum of Agreement with some 80 leaders from the communities surrounding the LNG project whereby they gave their consent for EHL to undertake construction work on the Port Moresby – LNG Plant road;

- following the incident, EHL suspended work on the disputed road section for 30 days as a gesture of respect for those killed;
- EHL has promoted a 'One Team – LNG Family' campaign on the LNG plant site whereby villagers from Boera and Porebada are given a choice as to whether they work on the site or not, but a decision to work means a commitment to leaving antagonism outside the gate.

According to EHL, the 'One Team – LNG Family' concept is working well and the Project is in fact providing a neutral setting where villagers are able to bury their differences. Continuing training and meetings regarding the establishment of the LABA Lanco is another project facilitated forum whereby the two sides are cooperating and gradually moving back to business as usual.

While the Boera-Porebada incident occurred within the climate of heightened expectation arising from the approval and mobilization of the PNG LNG project, the causes of the incident were unrelated to the Project. The IESC considers that EHL's responses to the incident were appropriate and sensitive to a situation that for a few days was highly volatile. The LABA meetings and the 'One Team – LNG Family' provide constructive settings for the villagers to reconcile and rebuild relations.

Clan conflicts about land and opportunist manipulation by local, influential persons seeking to further their own ends are a feature of the PNG political landscape. The PNG LNG project is an obvious target for those seeking to gain attention. The lead up to the 2012 election is likely to see an escalation of incidents involving these elements. In this case, EHL has demonstrated it has the local knowledge and experience to avoid being drawn into local feuds and politicking. Going forward, EHL is likely to encounter numerous occasions where it is reliant on appropriate government intervention. It is hoped that in future the government is more proactive and can intervene before there is loss of life.

5.8.3 Recommendations

None arising from the first IESC review.

5.9 PROJECT INDUCED IN-MIGRATION

5.9.1 Project Strategy

During Due Diligence, the Project committed to undertake a project induced in-migration risk assessment. A draft study report had been completed at the time of the IESC review. A final report will be available in June 2010. The final report will be used as the basis for developing an in-migration management plan or plans.

5.9.2 Observations

The IESC was generally comfortable with the in-migration study method and preliminary findings to the extent that these were presented. The study is, however, being carried out later than is ideal, particularly with respect to the villages in the vicinity of the LNG terminal where substantial in-migration has already occurred. A key risk period for in-migration is now when key facilities sites have been identified but where there is limited project presence on the ground and when there has been limited engagement with communities to forewarn them of in-migration risks. From an IESC perspective, the key challenge going forward is to complete the in-migration assessment as expeditiously as possible so that the necessary in-migration management plan or plans can be prepared and implemented proactively rather than after the event.

Based on mitigations that proved highly effective for the Tangguh LNG project in Papua, Indonesia, consideration should be given to the following:

- community awareness raising of the risks associated with uncontrolled in-migration and training regarding approaches that communities can use to reduce its incidence and adverse affects;
- strategic partnerships with bilateral and multilateral agencies (e.g. AusAid, USAid, UNDP) who can undertake local and regional government capacity building in land use planning and management.

5.9.3 Recommendations

1) Expedite completion of the project induced in-migration study so that relevant management plans can be prepared and rolled out ahead of main contractor field mobilization.

5.10 PROCUREMENT AND SUPPLY MANAGEMENT

5.10.1 Project Strategy

The Project strategy is described in the Procurement and Supply Management Plan. The plan states that division of responsibility between EHL and its contractors (and its subcontractors) is either stated in the Procurement and Supply Management Plan or will be defined in Contractor Implementation Plans to be prepared by the contractors. Objectives with respect to procurement and supply are stated as follows:

- maximize project procurement from local suppliers and economic benefits for local businesses;
- improved capacity and skills of local business to capture business opportunities associated with the project both locally and nationally;
- ensure that project environmental and social standards and commitments are adequately communicated by the contractor to its sub contractors and suppliers and included in their contractual arrangements.

5.10.2 Observations

5.10.2.1 Local Procurement and Business Development

EHL signed a 5-year agreement with the Institute of Banking & Business Management (IBBM) Corporate Training, a long established PNG private centre training institution, for the establishment and management of an Enterprise Centre. The Enterprise Center will act as an independent institution and will facilitate communication between national suppliers, contractors and sub-contractors and the Project by:

- maintaining a PNG Supplier Database;
- facilitating access to Project information;
- communicating business opportunities.

The Enterprise Centre will also run seminars and develop business training plans to build the capacity of national companies. Part of its role will also be to undertake business assessments and gap analyses and to provide advisory services where improvement is required.

At the time of the IESC visit, the Enterprise Centre had 9 professional staff and coordinators. It had facilitated over 700 local business registrations. Workshops had been run to introduce PNG businesses to the Project EPC Contractors. A series of trainings had been provided to the directors of Lancos on such subjects as director roles and responsibilities, conduct of Board meetings and business basics. The IESC was impressed by the experience and enthusiasm of the Centre staff and by the broad reach of their activities in the early months of operation. The Enterprise Centre has the potential to be an invaluable resource for fostering local business development and realizing local content objectives. Construction of new premises for the Enterprise Centre in Port Moresby had commenced.

5.10.2.2 Training and Worker Development

EHL has commenced construction of the key training facilities, the operation of which will be taken over by EPC contractors within six months of their mobilization:

- POM Tech - LNG Plant Contractor;
- Juni Hides - Gas Plant Contractor.

Earthworks were observed to well underway at Juni. Renovations and new construction at POM Tech was well advanced. On the job training in driving, building trades and catering has commenced at POM Tech.

5.10.2.3 Lancos

An important component of EHL's local business development strategy is the mentoring of Lancos, the area/locale based business ventures through which EHL will source local contracts and labor and through

which benefits will flow to local communities. EHL has undertaken a number of activities with a view to preparing the Lancos to work with its EPC contractors:

- undertaken a gap analysis of Lanco governance, operational capability and business infrastructure;
- assisted with formation of a new Lanco (LABA) to represent the 4 LNG terminal villages and with consolidating or forming alliances between other existing Lancos within the Project area;
- formed 2 umbrella Lancos (HGDC and the LABA) to coordinate and spread business opportunities amongst the pre-existing 80 or 90 local Lancos;
- engaged Bechtel to address gaps, develop operational capacity and provide training and mentoring to develop sustainable Lanco businesses.

The formation of umbrella Lancos was deemed necessary to rationalize the interaction of the 80-90 local Lancos with the EPC contractors. Another important function of the umbrella Lancos is to spread benefits widely, otherwise a small number of advantageously located Lancos may receive the majority of work and others would miss out altogether.

Bechtel personnel will be embedded within the umbrella Lanco organizations to facilitate their development and operational readiness. To date LABA has about 200 people working on the Project and HGDC about 400 people. In time, the goal is to develop the umbrella Lancos until they become national level companies with perhaps 2-2,500 employees.

EHL, its contractors and the project affected communities have a lot riding on the Lanco framework. The framework is not without its risks. Some of the challenges facing the Project in working with the Lancos will include:

- overcoming a legacy of poor governance in some Lancos;
- gaining acceptance and overcoming suspicion by the existing Lancos of the umbrella Lancos;
- infiltration of some Lancos by influential people who are not actual landowners and who do not necessarily represent landowners' best interests;
- 'Wantok' recruitment processes that are not necessarily consistent with EHL's merit-based selection for training and recruitment;
- overcoming marginalization of women;
- unrealistic expectations about EHL construction duration and the commercial opportunities that will be forthcoming – there are reported, unrealistic investments in large equipment occurring, the costs of which are unlikely to be recoverable on the strength of Project opportunities;
- managing the claims of newly formed Lancos that will emerge from time to time and challenge for a piece of the action;
- promoting compliance with EHL's Labor and Working Conditions Management Plan and other elements of the Project ESMP;
- maintaining parity between Lanco employment terms and conditions and those of other EPC workers.

The IESC met with one of the local Lancos (KUJV), a director of the umbrella Lanco (HGDC) and spoke with other Lanco employees incidentally during the course of their trip. A few points emerged:

- there was quite widespread frustration amongst the local Lancos about the lack of organization on the part of the umbrella group HGDC - frustration focused particularly on the lack of employment contracts setting out clearly hours, rates of pay and entitlements, and uncertainty about the duration of employment;
- the Lancos were very concerned about parity with outside workers with respect to accommodation and three meals a day – they felt hard done by in that they received only lunch and no accommodation;
- by its own admission, KUJV acknowledged that women were marginalized in the Lanco recruitment process;
- IESC received anecdotal information that at least one of the Lancos was paying rates for equipment operators well below the band rates agreed between EHL and the umbrella Lanco – Lanco workers were receiving 3-5 kina/hr versus 15 kina/hour for a CCJV worker.

5.10.3 Recommendations

1) Give close consideration to promoting formation of Incorporated Land Groups (where they do not exist) as a means for identifying legitimate landowners and Lanco shareholders and screening bogus members.
2) Educate and empower Lanco shareholders as a force for improved governance so that they can effectively scrutinize the actions of their Lanco Boards and seek change where they are dissatisfied.
3) Sponsor rigorous independent auditing, reporting and disclosure of the umbrella Lanco accounts.
4) Develop a program of 'positive discrimination' to promote employment opportunities specifically targeting women.
5) Establish a monitoring framework to ensure that Lancos are fully integrated into the Project ESMP system, that they comply with the Project Labor and Worker standards and agreed hourly band rates.
6) Ensure that Lanco workers have access to an employee grievance mechanism.

5.11 COMMUNITY SUPPORT STRATEGY

5.11.1 Project Strategy

Project commitments related to community development support are described in the Community Support Strategy (CSS).

The overriding objective of the CSS is stated as to promote the development of conditions conducive to enhancing the livelihoods of PNG communities, thereby fostering the development and maintenance of stable operating conditions for the Project. From a compliance perspective, the objective is to meet local regular to requirements and IFC PS7. Associated requirements for the project are expressed as follows:

- engage in effective, transparent and culturally appropriate community consultation;
- build trust between the Project, community members and other stakeholders;
- manage community expectations;
- develop appropriate capacity with community development skills and experience;
- mobilize core competencies to support the facilitation of community development support;
- set measurable goals and progress reporting;
- forge strategic partnerships;
- maximize sustainability to extend impacts beyond the project involvement.

5.11.2 Observations

IESC was briefed on progress with development of the Community Support Strategy. A thorough data gathering process involving field work, extensive consultation and engagement with a wide range of multilateral, bilateral and civil society groups and has been undertaken. After initial analysis, three components have been identified for detailed development. These are summarized in Table 3.

Table 3: Community Development Support Plan Components

	Component	Objectives
Component 1	Community Capacity Building and Social Development	- Strengthen community resilience to withstand project related shocks. - Build capacity to identify and address social development priorities.
Component 2	Livelihood and Economic	- Assist households in developing robust livelihood strategies. - Stimulate investment and economic opportunities in the Project area.

	Development	- Assist community groups and entrepreneurs to start businesses.
Component 3	Strengthened Systems	- Strengthen systems to deliver sustainable gas revenue benefits to communities.

An outcome of the community support strategy planning process is to be a Community Support Strategy Action Plan (CSSAP) which is a deliverable under Item #19 of the Milestones Schedule. According to the Milestones Schedule, the CSSAP is due to be submitted in mid June 2010. The Operator advises that the CSSAP will not be complete until August 2010. An MOC should be prepared to cover the late submission. Also under Item #19 of the Milestones Schedule, a Summary Community Support Strategy was to have been publicly disclosed. EHL had previously advised that this would take place in February-March 2010. This has not occurred.

5.11.3 Recommendations

1) Disclose the Summary Community Support Strategy as committed under Item #19 of the Milestones Schedule.
2) Initiate MOC procedure to cover the late delivery of the Community Support Strategy Action Plan.

5.12 LABOR AND WORKER CONDITIONS

5.12.1 Project Strategy

Project commitments are defined in the Labor and Worker Conditions Management Plan. Key objectives of the strategy are as follows:

- maximize work opportunities of PNG citizens during construction of the Project;
- recruit workers in accordance with the geographic priorities determined by the Project and particularly give first priority to the employment to PNG citizens originating from within Lanco areas;
- implement an equitable and transparent recruitment process;
- provide fair terms and conditions of employment and comply with relevant laws enhance PNG citizens skills base through training provided during employment.

5.12.2 Observations

The focus of the first IESC visit was on Project progress towards developing Contractor Implementation Plans. Some observations on labor issues related to Lancos are provided in Section 5.10.2.3. Comments on camp conditions are provided in Section 5.13.2.

SELCA was overseeing preparation of EPC contractor Labor and Worker Conditions CIPs. Training had been conducted with each contractor and first draft plans of varying quality were received in March-April 2010. Target completion date for the final CIPs is June 2010, ahead of the earliest EPC 3 contractor mobilization in July 2010. SELCA's ongoing activities include:

- overseeing finalization of CIPs;
- increasing field presence;
- continuing capacity building of contractors;
- refining reporting requirements;
- developing key indicators and a monitoring program.

5.12.3 Recommendations

None arising from the first IESC review.

5.13 CAMP MANAGEMENT

5.13.1 Project Strategy

The Project's commitments for camp management are contained in the Camp Management Plan and the Labor and Worker Conditions Plan (both included appendices to the ESMP). Esso Highlands Limited follows a 'Closed Camp' Policy, which is defined in the Camp Management Plan as follows: "*It is the Project's policy to have closed camps this means public will not be allowed to enter the camp (unless authorized by Company) and workers staying at the camp will be restricted to the camp area at the end of shifts. The closed camp 'policy' is applicable for all workers, including those who live in the nearby area (unless authorized by the Company)*[1] [footnote: *Company may provide exceptions to closed camp policy for some camps such as pioneer and fly camps where it will be difficult to implement a closed camp policy. Prior agreement from the Company is required for exception to the closed camp policy*]." The primary objectives of the Camp Management Plan are to (i) avoid or reduce negative impacts on the community and maintain constructive relationships between local communities and workers' camps; (ii) establish standards on worker welfare and living conditions at the camps that provide a healthy, safe and comfortable environment. The Labor and Working Conditions Management Plan also contains some mitigation measures on the living conditions of the camps (e.g., Mitigation Measures 23.020 and 23.021).

5.13.2 Observations

The Project is in the initial stages of constructing their main camp sites. The HGCP will be the central location of the Project with three camp sites located within it (i.e., HGCP UI Camp, HGCP EPC4 Camp and HGCP Drilling Camp), with an additional camp located immediately outside the site on Well Pad A. Other main camp sites to be used during construction will be Nogoli Camp (existing OSL camp in the process of being expanded), Tagari Main Camp, Kobalu Camp (existing OSL camp), Komo Main Camp, Homa Camp (proposed), Moro Camp (existing OSL camp) and Moro Camp B (already constructed), Ridge Camp (OSL existing camp), IDT10 Camp (near Kutubu Central Processing Facility), Gobe Airfield Camp, Gobe GFE Camp, Kantobo Camp, Kopi Camp (existing OSL Camp) and Kopi Scraper Station Camp. Transit camps will also include Hides Ridge Drilling Camp, Dagia Camp, Kantobo Camp, Kaiam Camp. Most of these camps are considered 'temporary camps' built for the purposes of Project construction. Temporary camps could house several thousand people for up to three years. 'Fly camps' will also be constructed for much shorter time periods along the ROW during pipeline construction.

During IESC's first site visit, the following camps were visited: Nogoli Camp, Well Pad A Camp (under construction), Gobe GFE Camp (under construction), Moro B Camp and Kopi Camp. Most of sleepers are pre-fabricated units provided by Red Sea, although some are provided by other contractors. The design of EHL camps will generally follow standard industry practice. The Project is also heavily dependent on OSL camps while their own camps are being constructed. It is also unclear to what extent they will continue to use these camps during project construction.

Based on in-field observations, IESC raised three primary concerns: (i) the discrepancy between the quality of male and female accommodations in OSL camps that are being used by EHL[9], (ii) the inordinate controls on women's behavior, which are implemented for safety purposes, in both OSL and EHL camps, and (iii) a reduction in the minimum spacing requirements in EHL camps from 4.6 to 3.5 m^2 per person.

The IESC observed a number of discrepancies in the standards between the accommodation for men and women in the OSL camps. Examples are numerous, and include inadequate ventilation, inadequate number of wash basins, uncleanliness (mold/mildew) and unequal provision of services. Notably, in one camp, women are required to do their own laundry, whilst men have laundry services provided. Only the women's quarters are not provided with air-conditioning.

Another issue of importance is the safety requirements for women in both OSL and EHL camps. In the Highlands, women have unfortunately been victims to violent sexual assaults (both inside and outside camps). These assaults are no fault of the Project, but are a product of existing cultural conditions. The Project has rightly attempted to help ensure women's safety by providing additional security measures within their camps, such as digital combination locks on bathroom doors and locked sub-units for women's only. Women are also encouraged not to attract attention to themselves, to lock their doors at all times, to dress with loose clothes and to cover their windows. Whilst these efforts are understandable, the solution

9 *Note that the IESC was informed after the site visit that the Project was already planning to upgrade these facilities.*

to improving the safety and security for women is directed at modifying the women's behavior, rather than pressing requirements on men. The Project should increase the emphasis on the modification of men's behavior to achieve a more balanced approach. The IESC considers that the current situation falls short of Mitigation Measure 24.027 of the Camps Management Plan, which states that, "*No reduction in standards shall be allowed because of worker's race, gender or nationality*."

One important focus of EHL induction training should be that men, of any nationality or ethnicity, are expected to treat women, whether of superior or inferior job titles, with equal respect as they would their male colleagues. Men should be instructed that women, especially those from Western countries, might indeed dress differently, and it is the responsibility of the man to act with good conduct in these circumstances. Men should be instructed that maintaining good conduct towards women is on par with all other EHL safety and security requirements. On-going refresher training should be provided, and special penalties should be put in place for sexual harassment or similar misconduct. Women should also be especially encouraged to report such grievances through the existing workers' grievance mechanisms. These recommendations are in alignment with PS2, "*To promote the fair treatment, non-discrimination and equal opportunity of workers*".

The IESC is concerned that the number of beds available to women within both EHL and OSL camps may be a factor in restricting women's participation in the field. Esso Highlands Limited should seek to ensure that bed availability is not an impediment to women's full participation in the Project workforce. The Project should also consider improvements to the design of women's quarters. Security restrictions should not compromise ventilation, and windows in women's quarters should allow sunlight to pass through equal to that of men's. The level of light and openness of women's quarters should wherever possible be equal to the self-standing male units.

Another issue was the reduction of camp spacing requirements from 4.6 m^2 per person. The IESC was informed after the site visit that this reduction would be applied to pioneer camps only and not to construction camps. A pioneer camp is defined as a camp established in order to develop a temporary construction camp and typically exist for about 6 months. The Project appears to have fully researched this issue and has conducted health assessments to determine if such a reduction would create a health hazard. Apparently, all available information to date indicates that it would not. For the purposes of this report, we note that the *Workers' Accommodation: Processes and Standards*, good practice guidelines produced by the IFC and European Bank of Reconstruction and Development (EBRD), recommend 4.0 to 5.5 m^2 of space per person. During the visit to EHL camps, we also highlighted the importance of maintaining the one-meter spacing between beds and ensuring the coverage of all walkways from sleeper units to ablution facilities.

5.13.3 Recommendations

1) Enlist a resource with training on gender issues to (i) conduct a project-wide review of women's accommodations for EHL staff and contractors both in EHL and OSL camps, and (ii) augment induction training, which would include refresher training, with special provisions on good conduct towards women.
2) Include special penalties for sexual harassment and misconduct toward women and encourage women to report any acts of misconduct.
3) Ensure an adequate number of beds are available for women in all camps that EHL is using, and include this aspect as part of the project-wide review.
4) Provide MOC for proposed reduction in spacing from 4.6 m^2 per person for pioneer camps.

5.14 STAKEHOLDER ENGAGEMENT AND CONSULTATION

5.14.1 Project Strategy

Project commitments with respect to stakeholder engagement are contained in the Company Stakeholder Engagement Plan and the Community Engagement Management Plan. The Project's stakeholder engagement goals as expressed in that plan are as follows:

Achieving the Project objectives while respecting the needs and issues of stakeholders as they relate to potential project impacts;

Developing and maintaining constructive relationship with stakeholders, striving for mutual understanding, respect and collaboration;

Establishing and maintaining coordinated, internal processes for stakeholder engagement and issues management.

The stakeholder engagement goals above are based on a guided by the following principles:

Providing clear, factual and accurate information in an open and transparent manner on an ongoing basis to stakeholders through free, prior and informed consultation;

Providing sufficient opportunity to stakeholders to raise issues, to make suggestions and to voice their concerns and expectations with regard to the Project;

Providing stakeholders with feedback on how their contributions were considered;

Building capacity amongst stakeholders so as to enhance their ability to interpret the information provided to them;

Treating all stakeholders with respect, and ensuring that all company personnel and contractors that have contact with stakeholders do the same;

Responding to grievances and requests for permission in a timely manner;

Building constructive relationships with identified key and influential stakeholders through personal contact.

5.14.2 Observations

Stakeholder engagement with project affected communities has to date focused entirely on the Highlands Highway. Communities affected by C1 and C2 works in other locations have not been consulted or engaged by the Stakeholder Engagement team or Contractor Community Affairs teams as envisaged by the Community Engagement Plan. They have not received basic information on community safety issues, employment, in-migration or avenues for making a complaint. This is a level 2 non-conformance.

The IESC met with a group of people adjacent to the Komo airstrip, some of whom were resettlers but others of whom were community members that lived adjacent to the airstrip site. It was very clear from discussions that many of these people were starved for very basic information about the Project and its possible impacts on their lives.

There needs to be greater clarity on the division of responsibilities between the Stakeholder Engagement team, the L&CA team and Contactor Communities Affairs teams. The Stakeholder Engagement Coordinator presented a team structure and strategy that appears to be a very significant departure from Figure 3 of the Community Engagement Management Plan. The Community Engagement Management Plan places the primary responsibility for community level engagement on L&CA and Contractor Community Affairs teams. Under the current Community Engagement Management Plan, one would expect the Stakeholder Engagement team to be focusing on (1) providing training, tools and presentation materials for L&CA personnel; and, (2) training to EPC contractors and review of their CIPs for community engagement.It is recognised that the project is at an early stage and that many resources are still being mobilized. The shortage of L&CA staff limits their capacity to take on board full-time stakeholder engagement and disclosure activities and at the same time manage the day to day issues in the field. This shortage in capacity needs to be addressed prior to full contractor mobilization so that commitments contained in the Community Engagement Management Plan can be delivered in a timely manner. The Project plans to train a committed consultation and disclosure team for integration into the L&CA Team.

If there is to be any departure from the strategy committed in the Community Engagement Management Plan, a MOC must be prepared and shared with the Lenders. The IESC is very concerned that grass roots community engagement happens effectively and well ahead of the EPC contractors' mobilization and that EPC Contractors have robust and well trained Community Affairs teams in place ahead of mobilization. This will be a focus of the next IESC review.

5.14.3 Recommendations

1) If the contract is to be extended, establish Contractor's Community Affairs teams for C2 to comply with the Community Engagement Management Plan.

2) Clarify the division of community engagement responsibilities between the Stakeholder Engagement team, the L&CA team and Contactor Communities Affairs teams.

3) If there is to be any departure from the strategy committed in the Community Engagement Management Plan, prepare an MOC and submit for Lender review.

5.15 GRIEVANCE MANAGEMENT

5.15.1 Project Strategy

The Project's third party grievance procedure is described in Section 10 of the Stakeholder Engagement Plan. Grievance numbers form part of the KPIs for the following management plans:

- Community Impacts Management Plan;
- Community Infrastructure Management Plan;
- Camp Management Plan.

Lender performance standards for grievance management are defined in IFC PS1, paras. 23 and 26: IFC PS4, para. 13; IFC PS5, para. 10: and IFC PS7, para. 9.

5.15.2 Observations

The IESC observed that the Project had active works occurring in widespread and multiple locations and yet large sections of the construction affected population had not been advised of avenues for making a complaint. No formal grievance management systems associated with the current construction contracts (C1 and C2) were in place. The IESC assesses this as a Level 2 non-conformance.

EHL had received some complaints which had been addressed on an 'ad hoc' basis. Records were provided of some 31 complaints received relating to damage allegedly caused during the towing of the 'floatel' barge through the delta waterways to Kopi and by the operations of a ferry operating between Kikori and the Kopi camp. The complaints related to loss of canoes (25 cases) and loss of various trees and crops (23 cases) due to the wake of the vessel and due to bank erosion. Some complainants allegedly lost both canoes and trees. EHL had some difficulty verifying losses, and considered some losses were exaggerated, but settled claims with cash compensation.

The IESC also heard that complaints had been received and responded to regarding dust in the vicinity of the Port Moresby Construction Training Facility.

The "Resettlement Action Plan Information Booklet" outlines a grievance process, but does not describe specific avenues for making a complaint.

The IESC noted that the Project is in the process of finalizing a comprehensive, project-wide grievance management system. A 'Grievance Procedure Manual' was reported to be 80 percent complete. Training has been commenced with project field staff.

The IESC considers that effective grievance management is probably the single most important project social risk management tool. On the next review, the IESC will pay particular attention to ensuring that a project-wide grievance procedure is fully resourced and functioning effectively. In the meantime, there is an urgent need for (i) interim grievance management and tracking system/s to be put in place to cover existing active works areas; and, (ii) for information about how to lodge a complaint to be disseminated amongst resettlement and construction affected communities. In future, this should be a standard part of community preparation prior to construction commencement.

5.15.3 Recommendations

1) Implement interim grievance management and tracking arrangements to cover all active works areas.

2) Organize for information about avenues for lodging a grievance to be disseminated in all construction affected communities.

5.16 ROLE OF GOVERNMENT

5.16.1 Observations

The IESC recognizes that the Project's Government Interface team is presently focusing on issues critical to construction mobilization such as visa processing and meeting customs formalities. The IESC would, however, like to see the Operator's External Affairs and Government Interface teams continue to engage with the PNG Government, civil society and strategic bilateral and multilateral organizations to advocate greater attention towards strengthening government capacity in a range of strategic areas including the following:

- sovereign wealth fund/ initiatives to improve national level governance, gas revenues management and transparency;
- local and provincial government capacity building for planning, budgeting, gas revenue management and services delivery (including delivery of Umbrella BSA [UBSA] and License Area BSA [LBSA] commitments);
- assistance to establish a robust and transparent administration for the soon-to-be established Hela Province;
- advocating government presence and capacity in the Project area to address:
  - customary land disputes,
  - reparations/replacement land for those displaced by the Komo clan war,
  - negotiate/enforce EHL's right of access under the Oil and Gas Act should the need arise,
  - facilitate land registration and incorporation.

In many instances, there are bilateral or multilateral development agencies actively running programs to strengthen government capacity or private sector capacity in sectors of relevance to the Project. The Project could potentially pursue partnerships with such agencies to extend their programs into Project areas.

The pending formation of Hela Province is possibly an opportunity to bring some improved administrative capacity to the northern part of the Project area. Conversely, if there is a protracted transfer of administration from Southern Highlands Province, there could be a gap in government services that could adversely affect many aspects of PNG LNG's operations. For this reason, there may be benefit in EHL actively engaging with the Government on this issue. Inevitably such initiatives take some time to gain impetus. It is not too soon to be canvassing on this issue.

5.16.2 Recommendations

1) Liaise and build relationships with potentially strategic third parties including bilateral agencies (e.g. AusAid, USAid, JBIC) and multilateral agencies (e.g. UNDP, World Bank, IFC) that may be able to assist with government and private sector capacity building.

5.17 OTHER ISSUES

5.17.1 Observations

5.17.1.1 Gender Issues

Women's opportunities to effectively participate in the Project on an equal level as that of men's appeared to be hampered in a number of ways. Section 5.1.3 on Camp Management addressed the issue of camp standards, which is relevant to all women in project camps, expatriate or local. Another issue of relevance was EHL's current recruitment and training process. Whilst Mitigation 23.026 of the Labor and Working Conditions Management Plan does recognize that women and minority groups may be discriminated against in the recruitment process and during employment, and includes a contractor requirement to "establish an Equal Employment Opportunity Policy. This policy is subject to Company review and agreement.", such an approach may be inadequate given cultural conditions. Outside of its camps, the Project occurs in a wider Melanesian cultural context that espouses very different ideologies about gender-based division of labor and women's roles to those commonly adopted by a multinational corporation such as the Project Operator. The Project needs to recognize that 'Equal Opportunity' as might be sufficient in

many Western countries, is essentially irrelevant if the playing fields between men and women are radically uneven, as they are in PNG.

In order to ensure women's participation as part of local content, the Project should endorse an affirmative action or "positive discrimination" policy. Special efforts must be taken to ensure that women are able to participate. Women should also not be marginalized to "traditional" labor roles, such as laundry and housekeeping. It is worth emphasizing that a number of multinational mining companies have been very effective at recruiting women in filling what normally would be considered traditional male roles such as truck drivers and operators of heavy equipment. In some of cases, women have proved to be more reliable than men in such positions. Therefore, it is not only for "good will" that the private sector should consider affirmative action strategies. Such efforts may also result in improved efficiency.

Any such policy adopted by the Project should also be a requirement of its contractors, including Lancos. In one meeting that the IESC held with a Lanco, it was openly recognized that women are indeed marginalized and discriminated against during in their recruitment process. The Project should therefore consider an on-going approach to help boost women's standing in the Project that would include special training sessions during the induction program and on-going training on the importance of women's participation. Gender discrimination should be considered to be equally as intolerable as racial discrimination would be.

Specific measures to enhance the level of participation of women in the Project workforce might include some of the following:

- appointment of an affirmative action or gender specialist to raise awareness, develop training, engage with national pro-women's groups and ensure that gender awareness is mainstreamed in EHL's operations;
- development of some lessons learned from OSL Community Affairs initiatives directed at women's development;
- engagement with women and women's groups in the Project area to gain an understanding of women's interests, concerns and preferences for participation in Project opportunities;
- advocacy and training of women to take directorships in lancos;
- project training and recruitment opportunities specifically targeting women;
- use of alternative avenues (to lancos) for selecting women trainees and recruits such as local women's groups, associations, or women focused NGOs (e.g. Kutubu Women's Association, Women in Development);
- training and enterprise programs that expand women's opportunities from within traditional families – fostering of women's groups/collectives, micro-credit, women's entrepreneurship programs, training programs in cash agriculture, family planning, leadership, family hygiene and so on.

5.17.1.2 Memorandum of Understanding with Delta Clans

Through a respected local intermediary, the Operator has commenced dialogue with the seven ethnic groups residing in the Omati delta. The dialogue is directed towards reaching agreement on a MoU ('the Waterways MoU') with the seven ethnic groups. Under the terms of the MoU (yet to be finalized at the time of the IESC visit), the Operator will support an environmental and fisheries livelihood development program as mitigation for impacts caused by its use of the delta waterways for barging between the Gulf of Papua and the Kopi landfall. The need for the MoU became apparent after complaints arising from the towing of the 'floatel' accommodation barge through the delta to Kopi. The 'floatel' used waterways away from the Omati River where the LNG pipeline is routed. Of the 7 potential beneficiary ethnic groups under the MoU, 2 are LBSA beneficiaries. The other 5 have customary lands removed from the Project and so are not LBSA beneficiaries and will not receive royalties.

In addition to the livelihoods development program, the Operator is moving to pay rental for those areas of waterways which it occupies for berthing purposes.

While the Operator should have anticipated customary owner interest in its use of the waterways and sought their consent, the IESC considers that the MoU process and sustainable livelihoods development program is an appropriate albeit belated response. The Operator must ensure that community engagement

activities, community HSE and roll out of the grievance process takes place in accordance with Project social and environmental management plans. In particular, consideration should be given to developing a delta wide project vessel movement protocol taking into account the Hydrobiology recommendations for the Deep Star ferry, namely:

- vessel speed restrictions tied to specific river conditions (river and bank morphology, proximity to communities);
- slowing of vessels immediately upon spotting canoes;
- restricting vessel movements during school commuting hours;
- baseline studies of river bank stability and erosion;
- a MOC needs to be prepared to cover the Floatel installation and related logistic arrangements. This activity and its impacts were not covered by the Project ESIA.

5.17.1.3 Circumstances of Goare and Aid'io Villages

During discussions with delta communities as part of development of the Waterways MoU, EHL was made aware that 2 villagers at the mouth of the Omati River, Goare and Aid'io, had apparently been excluded from the UBSA. The two communities fall within the 5 km Project corridor defined in the Oil and Gas Act but they do not fall within any designated license area. EHL research indicates the villages may have been erroneously categorized as living on 'open water' rather than 'shallow water'. A 'shallow water' categorization implies that the communities are significantly reliant on their waterways as a livelihood resource. This may be grounds for their inclusion under the UBSA. It is in EHL's interest that these communities not be left aggrieved by their circumstances.

The IESC endorses any action EHL can undertake to bring the circumstances of Goare and Aid'io to the DPE's attention.

5.17.2 Recommendations

1) Consider the adoption of an EHL affirmative action or positive discrimination policy for women.
2) Enlist a resource with specialization in affirmative action and gender issues to raise awareness, develop training, and evaluate recruitment strategies for women in project construction and operations.
3) Prepare a retrospective MOC to cover the transport and operation of the floatel and its impacts on waterways communities.
4) Ensure that commitments and actions contained in the Community Health and Safety and Community Impact Management Plans are extended to all waterways and delta communities that are exposed to Project vessel movements through the appropriate Contractor.
5) Based on lessons from the Deep Star review, consider the need to undertake baseline studies and develop mitigation plans to cover all regular Project vessel movements within the delta area.
6) Proactively raise the circumstances of Goare and Aid'io villages and their apparent omission from benefit sharing arrangements with the DPE.

6 HEALTH AND SAFETY

The PNG LNG Project has a well developed program to manage both occupational health and safety of workers, as well as a community health and safety program. The Health Group focuses on both worker and community health issues, whereas the Safety Group focuses primarily on occupational safety of workers. Community Safety is managed primarily through the SELCA organization. Project health and safety commitments towards the local communities are part of the ESMP as defined in the Community Health and Safety Management Plan, Company Community Health, Safety and Security Management Plan, and the Community Impact Management Plan. Other requirements for health and safety are contained in documents outside the scope of the ESMP. Three of these documents, the Project Safety Plan, Project Health Plan, and the Journey and Traffic Management Procedure were therefore specified in the LESR to be relevant to demonstrate compliance with Lender Group requirements. In terms of community safety, Project traffic has proven to be the most significant adverse impact to communities in many other projects similar to PNG LNG and for that reason was targeted for inclusion within the umbrella of the LESR.

6.1 COMMUNITY AND WORKER HEALTH

6.1.1 Project Strategy

Project health commitments are defined in the Community Health and Safety Management Plan (to be implemented via Contractor Implementation Plans) and the Company Community Health, Safety and Security Management Plan and the Community Impact Management Plan (to be implemented via Contractor Implementation Plans). Health planning specifically for worker health is defined in the Project Health Plan. The over-riding objective is to avoid or reduce risks to and impacts on community health during the project life cycle from both routine and non routine circumstances.

6.1.2 Observations

The Project Health program is organized into both occupational health as specified in a Project Health Plan and into community health within the requirements of the Community Health & Safety Management Plan. These plans are well developed and appropriate for a Project of the scope of PNG LNG. The Community Health Impact Mitigation Plan (CHIMP) was developed March-April 2009 and is currently being implemented. The CHIMP identifies several initiatives to mitigate potential community health problems, including:

- enhance health services within the communities “Bring Health to the Communities”;
- enhance STI / HIV program efforts within the project area;
- provide support for community based vaccination, latrine and waste sanitation / management programs.

Prioritization and Implementation Plans for mitigations strategies started Q3 2009 and have continued. Procedures to identify and mitigate against malaria are also being implemented. With a budget of USD 40 million to be spent over the next five years, the Community Health program has the potential to not only mitigate Project risks, but also to deliver significant long term benefits to the PNG health system. The multifaceted program has been conceived with several carefully selected national partners including the PNG Institute of Medical Research and the School of Medical Health Sciences (University of PNG) as well as NGOs (including PSI, BAHA, ADRA, SalvaBon Army, ECPNG, AT Projects, FHI and Susu mama) who are delivering TB, HIV/AIDS, sanitation and hygiene, and health education services to high risk rural populations. Given the particular risks of HIV/AIDs and STI transmission by transport workers, the IESC was pleased to observe that program coverage includes the Highlands Highway.

In terms of worker health, the Project health program is very aggressive in terms of having full-time medical staff from International SOS and with the implementation of a comprehensive malaria mitigation program implemented by Mosquito Zone. Local health issues include tuberculosis, which is a national priority in PNG with about 33 percent of population suffering latent TB infection, and the Project has embarked on comprehensive screening and awareness programs. One of the most challenging aspects of occupational health has been foot problems when PNG workers begin to wear protective footwear and severe problems of foot fungus, infections and blisters begin to appear.

6.1.3 Recommendations

None arising from the first IESC review.

6.2 COMMUNITY AND WORKER SAFETY

6.2.1 Project Strategy

Safety is embedded in all aspects of EHL's operations with worker safety requirements defined in the Project Safety Plan. This Plan describes appropriate work procedures with the following main objectives:

- defines safety objectives, desired behaviors, and desired performance targets;
- defines strategic approach for managing the safety discipline according to the established Project Execution Plans and Contracting Strategies;
- describes key safety processes and safety improvement initiatives to be implemented by the Project Teams (e.g. safety leadership, site safety categorization, leading indicators, safety governance model, incident management);
- describes safety staffing plans for the Project Teams; and
- defines macro safety roles and responsibilities for members of Project Teams, and describes macro interfaces between the Project Teams, EHL, EMDC Functions, and Contractors.

The overall worker safety requirements and safeguards are comprehensive and consistent with a Project of the scope of PNG LNG.

Community safety is defined in terms of community awareness programs, as well as work protocols designed to minimize potential community impacts. Procedures are defined in the Community Health and Safety Management Plan and the Community Health, Safety and Security Management Plan in terms of defining procedures for community interaction in terms such as community awareness programs. In terms of defining Project procedures to protect the public is the Journey and Traffic Management Procedure, which defines the procedures for managing truck traffic that has the potential for being one of the most serious potential community impacts if not appropriately managed.

6.2.2 Observations

Different organizations within EHL have responsibility for various aspects of worker and community safety. The Safety Group is directly responsible for occupational worker safety and maintains accident statistics that demonstrate good Project performance. As of this site visit there had been only one Lost Time Incident (LTI) experienced by the Project. This was due to an infection that developed from a puncture wound when a botanist got thorns in her hand when she fell while conducting field work.

Awareness training at local communities is undertaken by SELCA, and one of the main objectives is awareness of the dangers of vehicular traffic and walking too close to operating equipment, conducted to a large degree in schools. Community safety is also an important part of traffic management. The IESC was pleased to learn that truck traffic from Lae will be organized in controlled convoys both coming from and going to Lae.

Although the Project did provided evidence of community awareness training and the procedures required to be followed for securing a work are from public encroachment, the IESC did encounter cases where it appeared that more controls were needed. Specifically, local residents including children were seen to encroach on the work area where heavy equipment was being operated and equipment and trucks were operating along a local road with considerable pedestrian traffic and no obvious traffic or pedestrian control (see also Section 5.7.2).

6.2.3 Recommendation

1) Make sure all work sites with surrounding communities have controls in place to minimize worker/equipment community interaction (same as recommendation in Section 5.7.3).

7 CULTURAL HERITAGE

7.1 PROJECT STRATEGY

Cultural heritage refers to tangible forms of cultural heritage, such as tangible property and sites having archaeological (prehistoric), paleontological, historical, cultural, artistic, and religious values, as well as unique natural environmental features that embody cultural values, such as sacred groves. Intangible forms of culture, such as cultural knowledge, innovations and practices of communities embodying traditional lifestyles, are also included. The PNG LNG Project has a well developed program to manage cultural heritage as defined in the CHMP that includes both Chance Finds and Salvage protocols.

The CHMP contains the following objectives:

- avoid known cultural heritage sites (including both archaeological sites and oral tradition sites) where necessary and practicable;
- where avoidance is not possible, manage cultural heritage sites in consultation with PNG Government and landowners.

The CHMP requires pre-clearance surveys to identify cultural heritage (archaeological and oral tradition) sites and includes a requirement for community consultation regarding the management of cultural heritage sites and preparation of any protocols required for ongoing consultation with community representatives. The CHMP also requires the monitoring of performance of cultural heritage activities and maintaining records that pre-clearance surveys were undertaken and site-specific cultural heritage plans were developed; participation in the cultural awareness workshop and training program; consultation with relevant stakeholders; grievances; site inspections to restricted areas; engagement of appropriate cultural heritage professionals; and documentation of actions taken to manage chance finds. The Chance Finds Protocol portion of the CHMP has now been provided along with a Salvage Plan designed to provide guidance for reporting and excavating finds.

7.2 OBSERVATIONS

Cultural heritage is particularly important in PNG, as it is one of the most culturally rich and diverse countries in the world, wherein about 90 percent of the approximate six million people speak over 800 distinct languages, and live in their respective social structures in their cultural communities and generally rely on their environment to ensure their livelihood. The Project is demonstrating respect for this heritage.

Cultural heritage surveys are being conducted consistent with the CHMP. Internationally recognized procedures have been followed through the efforts of experts who are experienced with the cultural heritage of PNG. Affected communities who use, or have used within living memory, the cultural heritage for longstanding cultural purposes have been consulted to identify cultural heritage of importance. The Project is actively conducting pre-construction surveys, where archaeologists are involved with the environmental, social and topographic/engineering teams to characterize land in advance of construction. To date 77 cultural heritage pre-construction surveys have been conducted at proposed construction sites for roads, bridges, quarries, camps and facilities and 25 additional cultural heritage pre-construction surveys are in progress. This work has also included approximately 80 km of Upstream Pipeline Route Confirmation surveying under the direction of EHL. This responsibility is now shifting to SpieCapag, but it is understood that the same archaeologists will be retained to continue the work they started.

A positive aspect of the ongoing work is that the Chance Finds Protocol has already been effectively implemented – this was confirmed with interviews with equipment operators at the Juni Training Center construction site, one of whom identified a stone mortar and stopped work activity to report the find and bring in specialists. The site was soon cleared, but the worker had found an artifact subsequently identified as being about 7,000 years old.

Archaeological sites identified during the EIS stage of the have now been effectively excavated at the main sites at the PNG Plant and the HGCP site. Salvage at the LNG Plant site commenced 28 September 2009 and involved surface collection and excavation of two main disturbance areas, the Bypass Road Corridor and an area within the LNG Facilities Site Security Fence. 150 sites were salvaged comprising 228 pits and 25 surface collections were obtained and the material is currently being analyzed in Australia. By February 2010, 118,400 kg of material had been excavated from the LNG Plant site. At Hides, the archaeological program commenced on February 1, 2010 and involved surface collection, excavations & oral tradition interviews. Excavations encompassed approximately 40 test pits and 4 larger open excavations. Oral

history components and surface collection was completed for 26 sites and the work involved seven expatriate archaeologists, four PNG National archaeologists and twelve local labor assistants. The overall archaeological program has involved the relevant national or local regulatory agencies and EHL reports that the overall effort has involved the entire archaeological workforce of PNG supplemented with by professional archaeologists from around the world. This effort has undoubtedly represented a major capacity building exercise for the PNG archaeological profession.

Ultimately, the material collected will be curated at the National Museum in PNG. Esso Highlands Limited has indicated their commitment to follow up with the curation effort and also to make sure that the information interpreted from this work will be appropriately disseminated.

7.3 RECOMMENDATIONS

None arising from the first IESC review.

APPENDIX A
IESC 1st MONITORING VISIT – TRIP SUMMARY AND DOCUMENTS PROVIDED

TRIP SUMMARY

May 5:

IESC Environmental Team - EHL Offices in Brisbane:

Presentations on:

- Construction update;
- Safety, Health, Environment & Regulatory Organisation;
- Status of Milestone Schedule;
- Status of ESMP;
- Status of Preconstruction Survey Program;
- Status of Upstream Pipeline Route Confirmation Survey;
- Status of Quarantine Management;
- Status of all other survey and baseline work;
- Status of Cultural Heritage Program;
- Associated Facilities;
- Status of verification and monitoring, non conformances and incidents;
- Status of Field verification program;
- Waste Management;
- Integrated Weeds Management;
- Induced Access Management.

May 6:

IESC Environmental Team - EHL Offices in Brisbane:

Presentations on:

- Biodiversity Strategy workshop;
- Safety Management;
- Workforce Health management;
- Highlands Highway Logistics and Journey management.

IESC Social Specialist - EHL Offices in Port Moresby:

Presentations on:

- National Content;
- Enterprise Centre & Local Business Development;
- SELCA Introduction;
- Lancos;
- L&CA Overview;
- Grievance Management;
- Social Programs Progress Report & Update;
- Fisheries;
- Project Induced In-Migration;

- Supply Chain Social Impacts;
- Community Health.

May 7:

IESC Environmental Team – Travel from Brisbane to Port Moresby:

- Inductions;
- Join social presentations.

IESC Social Specialist - EHL Offices in Port Moresby:

Presentations on:

- Resettlement;
- Contractor Management Progress;
- Construction Camp Management;
- Stakeholder Engagement;
- Community Development Support Update;
- External Affairs & Social Programs Interface;
- Government Interface & Social Programs,
- Security.

May 8:

IESC Environmental & Social Team – Travel from Port Moresby to Highlands:

- Visit to Nugoli Camp and overview of C1 Construction Activities;
- Visit to Juni Training Centre Site.

May 9:

IESC Environmental & Social Team – Highlands:

- Visit to Wellpad A and CCJV Camp;
- Visit to HGCP site location;
- Visit to the future Landfill Site Location.

May 10:

IESC Environmental & Social Team – Highlands:

- Overview of EPC5B activities;
- Visit to Komo Area;
- Visit to Pioneer camp;
- Drive along Heavy Haul Road;
- Visit to Komo Tuguba development Corporate Ltd.;
- Visit at Kobalu Camp and helicopter Refuelling base.

May 11:

IESC Environmental & Social Team – Transfer from Nogoli to Mendi:

- Drive along the Highlands Highway to Bridge Locations ME16, ME15, and ME 14;
- Visit to CCJV Tamadigi Temporary site;
- Visit to CCJV Oyarip Camp at Mendi;
- Transfer to Ambua and meeting with Highlands Highway Stakeholder Engagement Team.

May 12:

IESC Environmental & Social Team – Transfer to Gobe and drive to Kopi:

- Transfer to Gobe, site orientation, update on ongoing activities, specific safety talk;
- Visit to Gobe 2000, Gobe 7000, and QA32 quarries;
- Visit to CCJV Construction Camp;
- Drive from Gobe to Mubi and look at stream protection and management of cultural heritage sites along the road;
- Visit to Kikori river crossing.

***May 13**:*

IESC Environmental & Social Team – Transfer from Kopi to Moro:

- Kopi base: site orientation and visit of the site: ongoing construction activities, quarries, pinnacles, laydown area, by pass road, Floatel, wharfs;
- Visit to CCJV camp;
- Visit to Omati Delta area;
- Transit to Moro.

***May 14**:*

IESC Environmental & Social Team – Transfer from Moro to Port Moresby:

- POMTech: presentations, site visit, overview of ongoing construction activities and programs;
- Presentations on C2 LNG Plant site construction activities.

***May 15**:*

IESC Environmental & Social Team – EHL Office in Port Moresby:

- Meetings with L&CA and SELCA;
- Outstanding Issues.

***May 16**:*

IESC Environmental & Social Team – EHL Office in Port Moresby:

- Close out preparation.

***May 17**:*

IESC Environmental & Social Team – EHL Office in Port Moresby:

- Close out Meeting at EHL office;
- Travel to Brisbane.

***May 18**:*

IESC Environmental & Social Team – EHL Office in Brisbane:

- Close out Meeting at EHL office;
- the IESC departed from Brisbane.

DOCUMENTATION RECEIVED

Pre-mission documents:

- *Biodiversity Strategy*, prepared by Francis Crome and Coffey Environments Australia Pty Ltd ABN65140765902;
- *Monthly Progress Report* – February 2010;
- *Northern and Southern upstream area overview*, maps scale 1:300.000.

On-site documents:

- *Southern Supply Route Camp Implementation Plan* – Doc. No. 08185-CON-PL-G-0002,

- *Highlands Highway Supply Route Camp Implementation Plan – Doc. No. 08185 – CON-PL-G-0003;*
- *Hides & Wellpad a Camp Implementation Plan – Doc. No. 08185 – CON-PL-G-0004;*
- *Appendix 20: Camp Management Plan - Doc. No. PGGP -. EH – SPENV – 000018-024;*
- *Temporaly Constyruction Camp Standards – Doc. No. PGHU-EH-SSPDS-000002;*
- *Implementation of Project Social Management Plans - May 2010;*
- *Environmental Control Procedure for Hazardous Materials Management, Spill Prevention and Spill Response – Doc. No. PGHU-CJ-SPZZZ-000010;*
- *Upstream Infrastructure Project IESC Visit, prepared by Glenn Darnley – Stuart - May 2010;*
- *Infrastructure (CCJV) Quarries and Borrowpit Register – file exce;,*
- *Cultural Heritage: Chance Finds Report – Juni Trainig Facility Contruction, April 2010;*
- *IESC monitoring – Visit #1 C2 LNG Plant Site Early Works, 14 May 2010, ppt presentation;*
- *IESC monitoring – Visit #1 POM CTF Site , 14 May 2010, ppt presentation;*
- *Photos of C2 Plant Site Early Works, 14 May 2010, ppt presentation;*
- *Preliminary Assessment of Baruni Landfill, Mango Hill (Quarry 1), Aurutu Pit (Quarry 2) and Waigani Wastewater Treatment Ponds, Port Moresby, Papua New Guinea", report by Isaac Jipsy,*
- *Memorandum "Methods Protocol for the Salvage Program within the Hides Gas Conditioning Plant Site"by Coffey Natural System, Dec 2009;*
- *Drilling interface with HWMA, ppt presentation;*
- *PNG LNG Hides: Waste Management Process flow diagram – confidential;*
- *Project Overview EPC5B, Komo Airfield - ppt presentation May 2010;*
- *Management of Change Plan – Execution Phase - Doc. No. PGGP-EH-BPMOC-00000;,*
- *Risk Screening rev. 1 (Management of Change Plan) – Attachment B.*
- *Maps:*
  - Cultural heritage survey area at the LNG Facilities site,
  - Cultural heritage sites for salvage at the LNG Facilities site,
  - General arrangement Bulk Earthworks HGCP site,
  - HGCP Area Cultural Heritage Sites,
  - Highlands Highway – Bridge location and Profile Maps from 1 to 4,
  - Kopi Shore Base overview,
  - Hides landfill site – Revised Geotechnical location,
  - Logistic Routes overview,
  - Pipeliners & flyers,
  - Pre construction Surveys,
  - Upstream onshore pipeline and infrastructure map with camp details,
  - Project overview;
- CCJV Kopi Quarries, Pre-Construction Survey Results and Mitigation Measures, doc. No.PGLN-EN-SRZZZ-950053;
- Komo Airport and Access Roads, Pre Construction Survey Results and Mitigation Measures Report, doc. No.PGHU-EH-SRZZZ-420001:
  - Attachment 1 Komo Airport Ecological Assessment,
  - Attachment 2 Komo Airport Weed Assessment,
  - Attachment 3 Komo Airport Noise Study,
  - Attachment 4 Komo Airport Water Quality Study,
  - Komo Airport and Access Roads, Pre-Construction Survey Results and Mitigation Measures Report,

  - Komo cultural heritage Results,
  - Komo figures;
- LNG Facilities-Weeds, Pre-Construction Survey Results and Mitigation Measures, Doc. No.PGLN-EN-SRZZZ-950074;
- LNG Facilities, Pre-Construction Survey Results and Mitigation Measures, Doc. No. PGLN-EN-SRZZZ-950065;
- CCJV KOPI Shore Base, Pre-Construction Survey Results and Mitigation Measures, Doc. No. PGLN-EN-SRZZZ-950054;
- CCJV Moro Parker Camp, Pre-Construction Survey Results and Mitigation Measures, Doc. No. PGLN-EN-SRZZZ-950059;
- CCJV Kobalu Camp, Pre-Construction Survey Results and Mitigation Measures, Doc. No. PGLN-EN-SRZZZ-950057;
- CCJV Juni Training Facility, Pre-Construction Survey Results and Mitigation Measures, Doc. No. PGLN-EN-SRZZZ-950058;
- CCJV Gobe Construction Camp, Pre-Construction Survey Results and Mitigation Measures, Doc. No. PGLN-EN-SRZZZ-950060;
- CCJV Mendi Construction Camp, Pre-Construction Survey Results and Mitigation Measures, Doc. No.PGLN-EN-SRZZZ-950061;
- CCJV Gobe to Mubi River Road, Pre-Construction Survey Results and Mitigation Measures, Doc. No. PGLN-EN-SRZZZ-950076;
- CCJV Hides Wellpad A Camp,Pre-Construction Survey Results and Mitigation Measures, Doc. No. PGLN-EN-SRZZZ-950077;
- CCJV Kutubu CPF Bypass Road, Pre-Construction Survey Results and Mitigation Measures, Doc. No. PGLN-EN-SRZZZ-950078;
- CCJV Kikori River Bridge & Road Deviation -South of the River, Pre-Construction Survey, .Results and Mitigation Measures, Doc. No. PGHU-EN-SRZZZ-490002;
- CCJV Kantobo, Pre-Construction Survey Results and Mitigation Measures, Doc. No.PGHU-EN-SRZZZ-490001;
- CCJV Kikori River Bridge & Road Deviation -South of the River, Pre-Construction Survey Results and Mitigation Measures, Doc. No.PGHU-EN-SRZZZ-490002;
- CCJV Kikori River Quarry QA32, Pre-Construction Survey Results and Mitigation Measures, Doc. No.PGHU-EN-SRZZZ-490003;
- CCJV Kikori River Quarry QA33, Pre-Construction Survey Results and Mitigation Measures, Doc. No. PGHU-EN-SRZZZ-490004;
- EHL HGCP to Komo Airport Heavy Haul Road Pre-Construction Survey Results and Mitigation Measures, Doc. No.PGHU-EN-SRZZZ-490006;
- CCJV Bridge MR01, Pre-Construction Survey Results and Mitigation Measures, Doc. No.PGLN-EN-SRZZZ-950064;
- CCJV Kantobo, Pre-Construction Survey Results and Mitigation Measures, Doc. No.PGHU-EN-SRZZZ-490001;
- CCJV Bridge MR04, Pre-Construction Survey Results and Mitigation Measures, Doc. No.PGLN-EN-SRZZZ-950063;
- CCJV Bridge ME15, Pre-Construction Survey Results and Mitigation Measures, Doc. No.PGHU-EN-SRZZZ-490009;
- Kikori river bridge – north of Kikori river Archaeology & cultural landscape survey, Kaiam 1 village, Kikori gulf Province, February 2010;
- CCJV Kikori River Bridge & Road Deviation -North of Kikori River, Pre-Construction Survey Results and Mitigation Measures, Doc. No.PGHU-EN-SRZZZ-490008;
- CCJV Bridge ME14, Pre-Construction Survey Results and Mitigation Measures, Doc. No. PGHU-EN-SRZZZ-490007 - Annex 1 - Location of bridge ME14;

- EPC1 Upstream Telecommunications Sites, Pre-Construction Survey Results and Mitigation Measures, Doc. No. PGHU-EN-SRZZZ-000040;
- Hides Gas Conditioning Plant Site, Pre-Construction Survey Results and Mitigation Measures, Doc. No.PGHU-EN-SRZZZ-400002;
- CCJV IDT10 Camp, Pre-Construction Survey Results and Mitigation Measures, Doc. No.PGHU-EN-SRZZZ-510001;
- Spill Prevention & Awareness, March 2010;
- IESC Monitoring visit - .ppt presentations of the 5 May 2010;
- IESC Monitoring visit - .ppt presentations of the 6 May 2010;
- Monthly progress Report, March 2010 – confidential;
- Description of Incident or Non conformance, excel table;
- Lukautim Tumora. Nau. General Site Environmental Awareness, .ppt presentation;
- Training material & Toolbox Talks – .ppt presentations;
- Quarterly Environmental and Social Report, First quarter 2010;
- CSS-IP Update/ Progress: Fisheries, .ppt presentation;
- CSS-IP Update/ Progress: Project Induced In-Migration Study, .ppt presentation;
- Community support, .ppt presentation;
- Implementation of Project Social Management Plans, .ppt presentation;
- Workforce Health Management Lender Consultant Visit, .ppt presentation;
- PNG National Content, ppt presentation;
- Compensation Rates for Plants in the Hides–Angore-Komo area;
- Stakeholder Engagement – Lender Review – Q1+, .ppt presentation;
- PNG LNG Resettlement Overview, .ppt presentation.

Post-mission documents:

- *Results from* Flotel *water monitoring data* – from ALS Laboratory Group;
- Cultural Heritage _ biodiversity, excel table;
- Upstream Cultural Heritage, excel table;
- Waste record Gobe, excel table;
- Waste record Kopi, excel table;
- Waste record Mendi, excel table;
- Community Health Management Program Execution Update, May 2010;
- Eastern Long-Beaked Echidna Management Guidelines, Doc. NoPGHU-EH-SPZZZ-000003;
- LNG Facilities – Acquatic Fauna Wet Season Sampling, Doc No. PGLN-EN-SRZZZ-900009;
- Updated Project Estimate of Phase 1 Physical and Economic Displacement;
- Site Specific Spill Prevention & Response Procedure – Kopi, Doc. No.PGHU-CJ-SPSAF-600001 and attachments.