



Reactive Working Near C.I. Sump



Start of Jetty Construction - LNG Plant



Mubi River Bridge Complete - Last Link in Southern Access Route

DRAFT REPORT OF THE:

INDEPENDENT ENVIRONMENTAL & SOCIAL CONSULTANT

ENVIRONMENTAL & SOCIAL COMPLIANCE MONITORING

PAPUA NEW GUINEA LNG PROJECT

Site Visit: July - August 2011

Prepared for

Export-Import Bank of the United States

Export Finance and Insurance Corporation

Japan Bank for International Cooperation

Società Italiana di Assicurazione dei Crediti all'Esportazione

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ACRONYMS

Borealis	The Project's Information Management Platform
BSA	Benefits Sharing Agreement
CBI	Chicago Bridge and Iron
CBIC	Chicago Bridge and Iron & Clough JV (EPC4)
CCI	Contractor Compliance and Interface team
CJJV	Chiyoda JGC JV (EPC3)
CCJV	Clough Curtain Brothers JV (C1)
CEA	Cumulative Effects Analysis
CHMP	Cultural Heritage Management Plan
CSS	Community Support Strategy
CIP	Contractor Implementation Plan
CLS	Core Labor Standards or "Enabling Rights"
CRP	Communal Resource Plan
CSS	Community Support Strategy
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
EBRD	European Bank for Reconstruction and Development
EHL	Esso Highlands Limited
EIS	Environmental Impact Statement
EMDC	ExxonMobil Development Company
EMPC	ExxonMobil Production Company
EMP	Environmental Management Plan
ELC	Environmental Law Centre
EPC	Engineering – Procurement - Construction
ESIA	Environmental and Social Impact Assessment
ESMP	Environment and Social Management Plan
ESMS	Environmental and Social Management System
FOC	Fiber Optic Cable
GFE	Gobe Field Engineering
HGCP	Hides Gas Conditioning Plant
HH	Highlands Highway
HWMA	Hides Waste Management Area
iHDSS	Integrated Health and Demographic Surveillance System
IBBM	Institute of Banking and Business Management
IESC	Independent Environmental and Social Consultant
IFC	International Finance Corporation
ILG	Incorporated Land Groups
ILO	International Labor Organization
ILO 1998 Declaration	ILO Declaration on Fundamental Principles and Rights at Work (1998)
ILS	International Labor Standards
IMR	Papua New Guinea Institute of Medical Research
IR	Industrial Relations
IWSF	Interim Waste Storage Facility
KPI	Key Performance Indicator
L&CA	Land and Community Affairs
LBBSA	License-Based Benefit Sharing Agreement
LBSA	License Area Benefits Sharing Agreement
MCJV	McConnell Dowell CC Group JV (EPC5B)

MCH	Maternal and Child Health
MOC	Management of Change
MOF	Marine Offloading Facility
MOH	Medical & Occupational Health
MoU	Memorandum of Understanding
MSDS	Material Safety Data Sheet
MTPA	Million Tons per Annum
MWMA	Mobile Waste Management Areas
NAQIA	National Agriculture Quarantine and Inspection Authority
NCD	National Capital District
NCDC	National Capital District Commission
NGO	Non-Governmental Organization
OCN	Other Country National
OSL	Oil Search Limited
NLB	Northern Logistics Base
Para.	Paragraph
PNG LNG	Papua New Guinea Liquefied Natural Gas Project
PS	Performance Standard
Q	Quarter
QMP	Quarantine Management Program
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
TSHD	Trailing Suction Hopper Dredger
UBSA	Umbrella Benefits Sharing Agreement
VG	Valuer General
WAA	Waste Accumulation Area
WMA	Wildlife Management Area
WWF	World Wildlife Fund
WWTP	Wastewater Treatment Plant

EXECUTIVE SUMMARY AND CONCLUSIONS

This report represents the fourth 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 Corporation) on behalf of Export Credit Agencies (ECAs) and commercial banks providing Project financing (Lenders). The purpose of this visit has been to monitor conformance with Project environmental and social commitments made during actual Project development. An additional dimension to the scope of this field visit has been to include a more comprehensive review of labor management than has been previously undertaken. This visit was conducted from July 20 – August 4 in Papua New Guinea (PNG).

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 provides 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 are 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, the main EPC contractors were all working in the field. EPC2 contractor Saipem responsible for the offshore pipeline has just started with work to prepare the Caution Bay Landfall and expects to start dredging/ trenching and civil construction at landfall in Q4 2011 and pipelay in Q1 2012.

Major social or environmental incidents have not taken place since the IESC March 2011 field visit. The IESC continues to positively observe the experience and dedication of environmental and social staff in the field, including the staff of the main EPC Contractors. This positive observation needs to be considered as the backdrop to all of our sector-specific findings.

Organization and Staffing

The Environmental and Social (E&S) organizations within EHL are fully established and have continued to expand since the last IESC visit in March. The environmental side of the E&S organization is fully functional with occasional gaps associated with only normal turnover, position changes, or with logistical problems and has the appropriate organization to function as planned. The social component (L&CA) of the ESMS organization continues to be experiencing a high turnover of managers, technical specialists and general staff. Many L&CA staff positions remain unfilled. The IESC is concerned at changes in leadership and the turnover of key technical specialists as the construction workforce starts to increase and as the demands for securing and maintaining land access, mitigating work stoppages and developing a social license to operate escalate. The IESC considers that the absence of stable management and of a fully resourced L&CA team represents an area of risk for the effective operation of the ESMS. In addition at this stage, both the environmental and social organizations need to continue their efforts to increase national content.

EHL sets performance expectations for its contractors through contracting terms and conditions and management plans. The contractors are responsible to meet these standards in carrying out their work. Prime EPC Contractors are required to hold sub-contractors to equivalent standards. This approach applies equally for environmental, social and labor/industrial relations (IR) issues. EHL does not have centralized functions mirroring all contract conditions, but uses home-office support as needed. However, IESC noted that EHL's centralized dealings with environmental and social issues are substantially more developed and

worked out than with labor/IR. Centralized and informed strategizing in terms of dealing with the multitude of labor and IR issues at a Project-wide level (labor unrest, strikes, work stoppages, etc.) could be improved and should not depend on home-office support given the speed of developments and local specificities of events.

Environmental and Social Management System

As noted in the IESC trip report for the March 2011 visit, the Environment and Social Management System (ESMS) for the Project was complete except that final versions of some of the plans associated with the ESMP were not publicly disclosed. These plans were finalized at the time of this visit and made public on August 24, 2011.

One requirement of the LESR is the establishment of a Management of Change (MOC) process whereby significant changes to the Project are reported to the Lenders. The process is working within the procedures defined in the LESR and Level II MOCs are being reported to the Lenders in Quarterly Reports. We have reviewed the MOC classifications since March 2011 and find they are reasonably assigned. The most significant MOC is currently the installation of fiber optic cable (FOC) in the offshore area parallel to the offshore pipeline and the IESC was presented an EIA for this additional work as a basis for our eventual Certification. Before certification, IESC expects to be able to review Communal Resource Plans (CRPs), which are still being developed to address impacts of pipeline construction on subsistence fishing communities near the Omati River, and pipeline and jetty construction at the LNG Plant site, as the scope of these plans is expected to accommodate activities associated with the FOC.

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. EHL finalized a "Procedure for the Categorization and Management of Third Party Facilities & Services" at the time of the IESC field visit that is consistent with the requirements outlined in the LESR. This is a major accomplishment, but the overall situation is a continued non-conformance until it is fully rolled out in the field. A particular issue is with respect to the use of third-party quarries, but other third-party activities and facilities also need to be included, such as Lanco camps and other infrastructure.

As a tool to implement the ESMS for the Project, EHL has initiated a Social and Environmental Information Management System (IMS) to manage the processes and datasets required to mitigate and manage the social and environmental impacts of the Project. This computer- and web-based system is provides a tracking framework for the large amounts of data associated with social and environmental management. This IMS sees its greatest application for tracking of social indicators: grievances; stakeholder engagement; land access; community investments and engagements; resettlement data; and monitoring of performance parameters, including social non-conformances, which is a significant improvement since the last IESC field visit. The tracking of environmental performance is not as fully implemented within the IMS as are social indicators, but is fully covered on the basis of both EHL and Contractor monitoring as documented in Monthly Reports. IESC still recommends that all the environmental testing data be consolidated in a single database such that trends in performance can be tracked.

An observation made by the IESC during the March 2011 field visit was that improvements need to be made with respect to the siting of critical project facilities. The proposed Daware temporary construction camp needed by Spiecapag in the Moro area (Lake Kutubu) was cited as a facility where the site selection process should have been much more rigorous, with greater weight given to both environmental considerations and social setting. During this site visit the IESC received an update on the Daware Camp where a revised layout with a significant reduction in footprint was presented. Our basic observation is that with the reported reduction in the required camp footprint, development in this area is feasible. IESC expects that EHL will demonstrate a robust siting process incorporating both environmental and social considerations for the siting of any future facility requiring a significant land take.

Environmental Management – Waste and Wastewater

The Project has made progress in the implementation of waste management strategies and has transitioned from interim to long-term construction solutions in line with ESMP commitments. Reliance on third parties facilities has been discontinued except under emergency situations and the Project is now self-sufficient. At the LNG Plant site, the Project has achieved a major milestone with the inauguration of a

landfill cell such that a safe disposal option now exists for waste that is currently being stored. The construction of the Hides landfill is well underway with the completion of the first cells expected to be available in the fourth quarter of 2011. A temporary waste storage/management area is being constructed at the Hides facility for storage of EPC4 waste. Another positive observation is that the individual EPC Contractors are effectively tracking their waste generation and disposal practices.

Good quality incinerators are now for the most part in place to manage the non-hazardous waste generated at camp sites, as well as limited amounts of medical waste. Across the Project there is a wide range of incinerator types that have different operating procedures and the EPC Contractors appear to have different means to control the performance of their incinerators. From what observed in the field, the IESC found it difficult to verify that all of the incinerators are being operated to manufacturers' specifications and recommends that incinerator operations and performance are documented as required by the Air Emission Management Plan.

One of the challenges for waste management in PNG is recycling. Different EPC Contractors have identified different opportunities, but options are limited. In some cases, the amounts of potentially recyclable waste generated by an individual EPC Contractor is too small for a recycler to be interested in accepting the waste. In such cases, it might be worthwhile for EHL to evaluate if recycling options might be available if similar waste streams from a group of EPC Contractors were to be combined to make for a larger waste stream.

Wastewater treatment plants are now in place throughout the Project and they are generally well operated. Wastewater is not disposed in municipal facilities, but is managed within the Project. There is some inconsistency in terms of the degree to which the different Contractors manage and monitor wastewater treatment plants, but significant problems were not observed. One observation is that compliance monitoring at laboratories does not allow for corrective actions to take place should a problem be revealed. Accordingly, field test kits, observed to be used at some sites, should be extended throughout the Project to provide controls to treatment plant operations.

Environmental Management – Hazardous Materials

As the demand for fuels and lubricants to supply the construction equipment is constantly increasing, a key requirement for the Project is to monitor that the procedures and management plans developed by each Contractor are consistent with the Hazardous Materials Management plan and the Journey & Traffic Management procedure developed by EHL and that site-specific recommendations are developed. A Project-wide risk assessment is now complete for both Upstream and Downstream components of the Project and specific activities targeted for controls to be implemented.

In terms of ability to respond to spill events, all EPC Contractors have spill response plans and equipment in place and site-specific spill risk assessments have been completed. On-going risk assessments include EPC5A (Omati section) and EPC5B (Highlands Highway section). Active EPC Contractors have Tier II Spill Response Arrangements in place and Tier III arrangements are in place through EHL. Overall, from what was observed in the field, hazardous materials continue to be well managed.

Ecological Management and Biodiversity

On June 10, 2011 EHL achieved a major milestone towards its development of its Biodiversity Strategy, by partnering with Conservation International (CI). CI is currently advising EHL as part of the development of a Biodiversity Offset Delivery Plan, to be in line with current best practices in biodiversity management. It is EHL's intent that biodiversity offset projects will be delivered by partnering arrangements between local PNG NGO and under the supervision of CI, with each being designed to build on and combine the strengths of each individual NGO.

The current plan is for the offset program to be geared towards conservation, with additional projects as necessary (e.g. invasive species), and will target conservation areas in and around the Upstream Project area. The conservation areas could support a Kikori-wide program such as UNESCO World Heritage listing as advocated by the PNG Department of Environment and Conservation (DEC) and the World Wildlife Fund (WWF).

Footprint minimization is a goal of the Project to reduce environmental impact, but has not always been achieved. The Daware Camp footprint has been reduced to prevent impact to sensitive Pandanus swamp and Spiecapag has shown excellent field practices to reduce the footprint associated with the pipeline ROW. Nevertheless, it appears that the footprint for Spiecapag's Kaiam Camp was unnecessarily large,

because it was thought the site needed to be cleared to incorporate a pipe laydown yard. The biggest concern for potential environmental impact relates to sidecasting, especially in the sensitive area of Hides Ridge. If competent limestone is not encountered along the Hides Ridge Access such that the impacts of sidecasting are minimized and liquefiable clays continue to be encountered, the environmental impacts in this sensitive area will exceed what was anticipated in the EIS and not equate to acceptable practice. We strongly recommend that EHL develop some contingency plans should this become an issue as work proceeds up the Ridge.

Invasive species and weeds management continue to be very well executed, and the Project has provided good evidence of the effectiveness of their Quarantine Management Program. Within the Project work area, decontamination points to prevent transmission of invasive species and/or disease into sensitive areas within the Project work areas are located at the beginning of the Hides Wellpad Access Road and at the transition from lowlands to highlands at Mubi River North. The Hides Wellpad Access Road decontamination station was not well operated, but this situation had been identified by EHL and actions initiated to appropriately operate this station. The Mubi River North decontamination area was found to be well-operated.

During this site visit, the IESC was not accompanied by the specialist in freshwater and marine ecological management, but was provided information via presentations and a conference call. Studies of the Omati River with respect to the upcoming dredging activity have been completed. Some aspects of the study are reasonably well documented: identifying potentially affected villages; determining the main species or species groups harvested, at least on a qualitative basis; measuring physical characteristics including river flow and sediment load, riverbed sediment transfer, chemical properties of sediment, etc.; and conducting physical modeling. In spite of this effort there is still one significant limitation to EHL's environmental characterizations of the Omati River, as it is not practical to estimate potential impact to key fisheries resources based on available baseline data. The current situation where impacts from dredging are still uncertain is unlikely to be resolved prior to the scheduled start of dredging in October 2011. IESC recognizes that it is no longer practical to establish adequate baseline conditions, although EHL is strongly encouraged to continue monitoring to the degree practical. Monitoring needs to continue through the dredging – trenching process. The Project's monitoring provision to have LCA personnel from the Kopi field base accommodated on the support barges moored in the Omati River is a good start. In Caution Bay, positive aspects of the ongoing work are the same as in the Omati Delta, adding that the characterization of characterizing seagrass, coral, and especially mangrove resources appears to have been well done. Nevertheless, the improved mapping suggests potential impacts to coral reef systems from Caution Bay trench backfilling that warrants close post-construction monitoring.

Procurement and Supply

Much of EHL's commitment to improve local business is reflected in the use of Lancos that supply labor and services to the different EPC Contractors. The success of approach is reflected in the national workforce currently working on the Project. As of July/ August 2011, PNG workers made up >71% percent of the total Project workforce, which percentage wise is a slight decline compared to Q1, but the PNG national workforce in Q2 2011 still exceeds EHL's original (pre-construction) projection of slightly over 4,000 with a substantial 6,645 (9% of which are women) out of a total workforce of 9,319. An issue with respect to procurement and supply is still extending Project stewardship to organizations and facilities primarily dedicated to serving the Project. In terms of labor, the basic observation is that there are some significant deficiencies with respect to issues of Industrial Relations (IR) management and basic worker rights, i.e. the ILO core labor standards.

Land Access

Procedures for land access have been improved and are functioning more effectively. Contractor land access requests are being routed through the EHL Project Management team with EHL taking leadership in all land access negotiations. EHL has developed a 'site selection procedure' and 'site selection decision matrix and ranking tool'. The IESC was generally satisfied with the site selection procedure. It recommends, however, that the site selection decision matrix include a criterion based on customary owner acceptance of the proposed use of any site. This is consistent with demonstrating 'free prior informed consultation' as required by IFC Performance Standard 7, and that access to the site will be achieved without duress to accord with the PNG *Fairness of Transaction Act* (1993).

Resettlement

Physical resettlement was estimated by the Resettlement Team Manager to be about 70 percent complete. EHL has made a decision not to utilize Well Pad A in the foreseeable future. This decision avoids the need to relocate about 100 households to create a buffer around the well pad. The projected number of families to be physically relocated currently stands at about 400, somewhat below the RFP estimate of 465 households. The number of economically displaced households is projected at about 2,700, more than 1,100 higher than the estimate at the time of the last review in March 2011. This increase is substantially due to minor compensation recipients – those that receive small payments for trees or small sections of garden affected by the Project.

Since the beginning of 2011, the resettlement team lost 60 days due to blockages, security shutdowns and weather, equivalent to about 30 percent of its potential working time. These delays notwithstanding, delivery of housing packages and construction of access roads around the Komo airstrip and HGCP site are unreasonably slow. Two level II non-conformances have been raised in this regard. Better progress has been achieved in constructing water haus to provide resettlers with access to water.

After an intensive effort to get up to date with RAP preparation, approvals and disclosure in the lead-up to the March IESC review, the Project has again fallen behind in its document processing. There seems to be excessive delays for internal review and approvals between IESC review and commenting, and documents being finalized and posted on the PNG LNG website. To date, only five of the eleven RAPs reviewed and approved by the IESC have been posted on the Project website.

Because resettlement officers without legal training have been making ad hoc changes to resettlement agreement templates to meet individual household requests without EHL legal review (an ELC observation), the IESC recommends that there be an audit of all land and resettlement agreements entered into to date to identify all variations from templates and potential non-compliances with PNG law, the IFC Performance Standards, and entitlements as defined in the Resettlement Policy Framework. Appointment of a resettlement contracts administrator to be responsible for land and resettlement contracts review and compliance tracking is recommended.

Due to the montmorillonite clays and their liquid properties, the Hides quarry road earthworks have extended well beyond the area defined and compensated for under the Hides Quarry Road and HQ 1-3 RAP. A level II non-conformance has been recorded and corrective actions agreed. Having observed the highly mobile soils along the Hides quarry road, and the extent to which earthworks have spread, the IESC would be very concerned if a similar situation were to eventuate along the Hides heavy haul road where equivalent earthworks would place at risk a large number of houses, gardens and water resources not presently identified as affected by the Heavy Haul Road RAP. Unless the Project can come up with a strategy for vastly improved soils management for the heavy haul road (and it is difficult to envisage what such a strategy might consist of), the IESC strongly recommends that EHL look at an alternative route.

Livelihood Restoration

Agricultural livelihood open days held at EHL's demonstration nursery have attracted large attendances with enthusiastic uptake of plant materials including pathogen-free sweet potatoes and other local tried and tested superior vegetable varieties. Overall, agricultural assistance programs for resettlers are performing well, although in Hides and Komo, many resettlers are living on rations or are preoccupied with Lanco employment and business opportunities rather than new garden establishment. As the construction workforce will be demobilized in the latter half of 2012/early 2013, the Project must be prepared to provide further technical assistance to encourage these people to reestablish their gardens. Recent livelihood restoration monitoring indicates that the average garden area established by Hides resettlers 9-12 months after relocation is 305 m² per adult equivalent. This is well below the 600 m² per adult equivalent desirable for food sufficiency. At this stage, it is unclear whether the shortfall in garden development is due to a shortage of land or a preoccupation with wages employment, or some combination of these factors.

Community Impacts Management

The improved community safety performance first noted during the March 2011 review was observed to have continued. Interviewed villagers, including children, were generally well aware of the community safety outreach programs being run by the L&CA organization. EPC contractor measures including traffic control personnel, spotters and barriers to protect local communities were generally well in place. Traffic control was also observed to be effectively implemented by MCJV in the Komo area. Excellent controls

were in place around jetty works in Caution Bay. Although significant effort has been directed towards community safety, there are still some major gaps, in particular associated with providing pedestrian footpaths that would circumvent Project workplaces. The lack of pedestrian footpaths has resulted in community frustration to the point that they have sometimes cut openings in Project fences (e.g., Komo air field).

Community Security

EHL provided the IESC with a copy of EHL's MOU with the RPNGC. EHL recognizes that it is the role of the State of Papua New Guinea to determine if they chose to publicly discuss their security programs and commitments. As such EHL indicates that the MOU can be shared with the Lenders on the basis that the document is provided in confidence under the provisions of the financing agreements. EHL management confirmed that comprehensive discussions had been held with the new Police Commissioner, regarding law and order and including the EHL-RPNGC MOU. Those discussions meet the requirement of IFC PS 4 to "...encourage the relevant public authorities to disclose the security arrangements for the client's facilities to the public..." (para. 14).

The Security team reported that there had been one significant incident since the March 2011 field visit culminating with the Nogoli-Komo road being dug up by local youths and a three-day shutdown of nearby EHL work sites. The road was re-opened on 21 June 2011.

Community Support Strategy

The IESC has reviewed and approved the following plans that make up the Community Support Strategy:

- Community Support Strategy Action Plan (PGGP-EH-SPSEL-0000020) Rev E August 2011;
- Community Development Support Plan (PGGP-EH-SPENV-000018-029) Rev 2 November 2010.

Completion of these documents satisfies Items 19 (a) and (b) of the E&S Milestones Schedule. EHL is in the process of preparing a summary of the Community Support Strategy in appropriate form and language for disclosure to local people to meet the requirement of Item 19 (c). Once EHL has met this requirement, all E&S Milestones Schedule commitments will have been completed. The delay in finalizing the Community Support Strategy Action Plan (CDSAP) has not delayed the commencement, delivery and, in some cases, completion of community development support programs. The CDS team presented information to the IESC showing accomplishments across a range of activities and geographic areas.

Stakeholder Engagement and Consultation

The stakeholder engagement program was observed to have greatly improved its targeting, effectiveness and reach. Interviews with community members revealed much higher community awareness of project activities and safety requirements than in previous IESC reviews. The stakeholder engagement team has recognized a need for improved recording, tracking and analysis of stakeholder engagement activities, issues and feedback received. A particular challenge during the next three or four months will be adequately communicating safety messages and other information about compensation arrangements and grievance avenues to communities in the vicinity of dredging works in the Omati waterway. The villages in this area are very isolated, accessible only by boat and are outside of mobile phone coverage.

Grievance Management

A centralized grievance management tracking system is now established and providing reports. Worker and camp grievances are also being recorded and tracked. The reports reveal some anomalies that need to be ironed out. Effort now needs to shift to fully operationalizing the system. All project personnel with exposure to communities and the public need to understand what a complaint is and what their responsibilities are for recording and reporting one. Within project affected communities, understanding of avenues for making a complaint remains patchy. The availability of the grievance system and avenues for making a complaint need to be repeatedly reinforced as part of ongoing community engagement.

Labor and Worker Conditions

This field visit represents the first time the IESC has reviewed labor and worker conditions in detail. The fundamental conclusion is that EHL needs to have staff specialized in industrial labor relations and human resources management who can undertake a full review of the labor practices of the EPC Contractors and their main sub-contractors. Except for a pilot Workers Council for PNG workers unique to EPC3, there is limited evidence of structural, organized and proactive worker-management dialogue at the Contractor or

sub-contractor level, nor are there any collective bargaining mechanisms in place. And whereas Lancos perform to some extent the role that would otherwise be performed by trade unions, most Lancos to varying degrees lack experience in human resources management and industrial relations. Lancos therefore more often than not play a counterproductive role in managing work place relations. Consequently, PNG workers who in most cases go through a first-time exposure to paid labor and work place issues, sometimes take matters into their own hands.

Also, an overall lack of awareness, understanding and data is apparent at the level of the EPC Contractors and their subcontractors regarding recruitment practices of Other Country National (OCN) by the intermediate recruitment agencies in the countries of origin. This issue will be more fully explored during the next site visit. Another issue is that existing demobilizing arrangements at contractor level may prove inadequate to prevent unrest when large contingencies of PNG workers are facing demobilization, regardless of all expectation management measures taken.

Gender

PNG presents a very challenging environment for managing gender relations. Improvements were noted in terms of camp conditions such that previous non-conformances have been rescinded, but significant issues remain. Women seem to be facing two major gender-specific issues, one being the lack of avenues for getting their issues and grievances addressed, neither at camp level, nor at Lanco level. Within the PNG cultural context and more specifically the Huli cultural context most Lancos are run almost entirely by men. Consequently, women feel that those (Huli) men at Lancos simply dismiss women with their complaints. The other major issue is “women’s-control-over-income”. In the Huli cultural context women face incredible pressure to hand in their earnings due to (male) community demands. Women interviewed all expressed the desire to have access to bank accounts. EHL is working with the World Bank to develop a potential capacity building partnership focused on women’s livelihoods in the project impact area. This would include financial education. An update on recent initiatives in this regard will be provided to the IESC in November.

Camp Management

Camp management is an important component of the PNG LNG Project. In previous IESC field trips, camps were found to be overcrowded and non-conformances were assigned on the basis of the process of reducing the planned personal space of workers in camps. During this field visit, this subject was reviewed in detail. During this field trip IESC observed that overall camp standards are high. Areas with overcrowding have been resolved or are about to be resolved with new construction in the Upstream area. EHL provided IESC with two risk assessment reports substantiating their decision for personal space reduction at EPC3 and in the Upstream Area. Both reports have been reviewed and solutions at EPC3 were physically observed during field visit. IESC considers justification for reduced space to be acceptable, and the previous non-conformances have been rescinded. EHL will need to rigidly implement, monitor and evaluate all risk mitigation measures proposed in the risk assessment reports.

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.

Worker Health: Occupational health continues to be a major focus, in particular with respect to malaria control measures after an increase in serious malaria cases in the first quarter of 2011. This trend continued to increase during the second quarter with 15 cases recorded and an additional ten serious malaria cases recorded in dependents of Project workers. As a result of this, occupational health control programs continue focus emphasis on control of communicable disease risks associated with project work in PNG. Health professionals associated with Company and Contractors have recently updated malaria program assessments to verify project personnel are aware of malaria risks, appropriate bite prevention (repellent and long sleeves, long trousers) and chemoprophylaxis medicine are used. During this field visit, the IESC team members were also requested to participate in random checks for the use of chemoprophylaxis medicine, so we can confirm directly that a comprehensive monitoring program is in place. Another communicable disease affecting project personnel is Tuberculosis (TB). TB cases during the first half of 2011 were associated with PNG citizens (where there is approximately a 35% indigenous infection rate within the PNG national population), followed by expatriates from Asian countries. The project has

demonstrated a high level of TB surveillance and awareness programs to assure TB Control programs are fully implemented.

A health issue the IESC suggests to further investigate is the increase in obesity among PNG workers and all long term obesity-related health risks, including diabetes. This increase is due primarily to a rapid and sudden exposure of PNG workers to Western diet and the abundant availability of food in the camps.

Worker Safety: continues to be a primary focus of EHL and the EPC contractors. Safety statistics presented by EHL show a continuing decrease in the Total Recordable Incident Rate (TRIR), down to 0.55 from the 0.67 from the March 2011 field visit, but the Project also recorded two fatalities, both associated with tree felling. Excellent use of PPE was observed at work sites controlled by main EPC Contractors, but inconsistently encountered at Project sites controlled by third parties or subcontractors.

Community Health: the community health program has evolved into an Integrated Health and Demographic Surveillance System (iHDSS) that covers the topics of health delivery services, communicable diseases, STIs and HIV/AIDS, and non-communicable diseases implemented through NGOs. A major accomplishment since March 2011 is that the completion of the first baseline census of over 10,000 people in the four villages near the LNG plant site and the census in the Asaro Valley control site is nearly complete. This process is expected to allow for the quantification of any changes in local health conditions over the course of the Project in the area of the LNG plant. The Health team is now starting to begin the census fieldwork in the Hides area with the Karkar control site census expected to start in September 2011. The program also offers clinical service at the LNG Plant villages and the overall status of the community health program is that it is ongoing and the components involving rapid implementation are happening now.

Community Safety: Community Safety outreach programs in the Hides - Komo area are managed primarily through the L&CA organization and the individual EPC contractors utilize field staff, including traffic control personnel and spotters to protect the local community. Although conditions are improved over what was encountered at the beginning of construction, there are still some community safety issues to be resolved. In spite of fencing and control measures, locals continue to access Highlands sites (Komo – HGCP area) and the main issue reported by locals is that they do not have means to cross the main construction sites. This continues to be the most serious community safety issue. Traffic control continues to be effectively implemented by MCJV in the Komo area and spotters were observed to effectively control pedestrian traffic around the Wellpad access road.

Cultural Heritage Management

Cultural heritage continues to be well managed. Ongoing archaeological activities at the time of the site visit continue to be related mainly to pre-construction surveys and the management of chance finds, but some salvage activities have also taken place along the Pipeline ROW. The preconstruction surveys are currently focused along the Pipeline ROW and with infrastructure construction including Hides quarry locations, spoil disposal sites, the Hides truck laydown, the access road to the Tokaju Camp, and the Mubi quarry.

Salvage work undertaken at the LNG Plant site has now been analyzed and reports completed. The findings demonstrate the presence of long and continuous archaeological sequences that indicate that the ancestors of the Koita lived across this region as far back as 4200 years ago. Previously no sites older than 2000 years had been found in the Port Moresby area. Artifacts from salvage work in the HGCP area were transported to Port Moresby in late April 2011 and inspected by PNG Museum, with analysis to follow after export permit is obtained.

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 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-conformances" within the context of the CTA. The IESC believes that a "material non-conformance" within the context of the CTA would need to be a Lender decision, but for the purposes of this report a potential "material non-conformance" would be a Level III non-conformance or repeated Level III non-conformances as defined in the Section 2 Issues Table. It is emphasized that a Level III non-conformance is not necessarily equivalent to a "material non-conformance" and that extensive discussions among EHL, Lenders and the IESC would need to take place before any "material non-conformance" is identified.

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. Some representatives of the regional Government were also interviewed during this trip.

¹ IESC Team members in the field: Giovanni Battista De Franchi (Team Leader – Environmental Specialist), Robert Barclay (Social Development Specialist), William J. Johnson (Earth Scientist/Cultural Heritage Specialist) and Amber Frugte (Labor Specialist). IESC Team members not in the field: Lori Anna Conzo (Biodiversity and Natural Resource Management Specialist) and Mark Pedersen (Aquatic/Marine 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 significant component of the marine facilities component is the jetty to be constructed as a trestle on pile foundations;
- *Upstream 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;
- *Upstream Facilities and Onshore Pipeline* 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 still at an early stage and is broken down into infrastructure and early works contractors and the startup of the main 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; Highlands Highway upgrades; HGCP access road and site preparation; Hides well pads and access roads; construction of the Hides Waste Management Area (HWMA); and associated work camps.

The Kopi Shore Base was turned over to Spiecapag (EPC5A) during Q4 2010 associated with the delivery of the first linepipe for the onshore pipeline.

The Southern Supply Route was completed with the inauguration of the Mubi River bridge in June 2011. CCJV was nearly fully demobilized from Gobe at the time of the field visit and also during the field visit an agreement was reached with Spiecapag for them to take over the existing camp, a process now underway.

The Northern Logistics Route (Highlands Highway) consisted of road repair/maintenance and was projected to include the construction of 21 new bridges. After extensive community disruptions, EHL concluded that the schedule for improvements along the Highlands Highway was not sustainable and the Project decided to reduce CCJV's scope and engage PNG government agencies to complete the bridge replacement program. CCJV completed their reduced scope of work in February 2011. Additional activity could take place at the request of EHL for routine maintenance.

Earthworks at the HGCP site have started. Cut material continues to be disposed in sinkholes along the Wellpad Access Road, as it is not suitable material for fill, and fill material continues to be trucked in from the quarries. The revised schedule (termed Rebaseline Schedule) is still being defined by EHL with CCJV to set meaningful construction milestones.

The Hides Wellpad Access Road has been constructed as far as Wellpad B.

Groundbreaking began on March 7, 2011 for the Hides Waste Management Area and the landfill is expected to be operational by Q4 2011.

With respect to camp construction, the EPC4 camp site locations were ready for EPC4 occupancy at the time of the field visit and the last remaining camp to be constructed (C1 Main Camp) was being occupied by CCJV with 350 beds available;

- *Red Sea Housing*: Red Sea Housing provided support for the development of upstream infrastructure by means of the construction Kobalu, Gobe and Moro Parker Camps (completed) and the Juni Construction Training Facility (CTF), also completed and turned over to EHL. The Juni CTF is currently expected to be turned over to the EPC4 Contractor in Q4 2011. Current work undertaken by Red Sea Housing is the construction of the main construction camp for the LNG Plant (EPC3);
- *C2 – LNG Plant Early Works (Parsons and Curtain Brothers)*: Work undertaken for the PNG early works is now complete;

- *EPC 1 – Telecommunications (TransTel Engineering)*: occupation primarily of sites already used by Oil Search for communications towers. This construction effort started Q1 2010 and is close to the 90% completion level;
- *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 current execution plan forecasts the pre-trenching and natural backfilling of the pipeline to KP52 and post-trench from KP 52 to 75 (KP 52 to 75 is considered Gulf of Papua) 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. This plan accounts for the use of the 3m draught Castoro 10, a larger pipe-lay vessel than anticipated in the EIS. Additional dredging is required to create a floatation channel for the Castoro 10 in the Omati River as part of the execution plan. The total distance of the dredging operations is approximately 14 km and is estimated to take three to four months beginning in Q3 2011. The Jan De Nul Group has been contracted to execute this dredging and proposes to mobilize their trailing suction hopper dredgers (TSHDs) “Sebastiano Caboto” and “Galilei,” both equipped with a side boom that will dispose the dredged material to the side of the trench. The backhoe dredger (BHD) “Jerommeke” is proposed to be used to dredge harder sections and remove obstacles as required. Engineering for the offshore pipeline is reported to be at the 90% Design Review stage. Linepipe manufacturing and coating is underway with 338 km manufactured and 297 km of linepipe coated and stored at a coating yard. Site activity at the landfalls has started and pipelay is expected to start on schedule Q1 2012. A Management of Change whereby the scope of EPC2 would be expanded to install fiber optic cables in the offshore area parallel to the offshore pipeline has been presented to the IESC for review and Certification;
- *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. All major subcontractors have been awarded (site preparation works; camps; marine jetty; LNG Tanks; buildings, etc.). Engineering is completed at the 90% model review for utilities stage. Significant progress is being made and construction is reported to be on schedule. The first concrete was poured for the LNG tank foundations in July 2011 and the first steel erection at the LNG plant itself was started in July 2011. Jetty construction has started with the driving of permanent jetty piles, both working from the shore and also from offshore barges, and the cantilever bridge jetty construction has started. The EPC3 Pioneer camp is being occupied, as well as the EPC3 Leighton camp. The main EPC3 construction camp is being constructed with more than 1,000 beds already available;
- *EPC4 – Upstream Facilities including Hides Gas Conditioning Plant (HGCP) and Well Pads (CBI Clough JV - CBIC)*: 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 well pads. As noted above, C1 handover to EPC 4 is behind schedule and EHL and CBI Clough JV are working together to define a revised construction outlook for the HGCP, but it is expected that pile driving for the plant foundations will begin in Q4 2011. From an engineering standpoint the design is at the 90% model review stage and all critical mechanical equipment and buildings have been ordered. The fly camp is complete and the pioneer camp is also complete and occupied. At the time of the visit, EPC4 was in the process of taking over the main construction camp site from CCJV;
- *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 Spine 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. Heavy rains and flooding have hampered progress, but pipeline construction is approximately 25% complete in the section from Omati to

Kopi and work has started in the section from Kopi to Kutubu. Over 320 km of linepipe has been delivered to the Kopi shore base and all of the linepipe has been manufactured. Pre-construction surveys are now about 80% complete for the entire ROW. Currently, Spiecapag occupies Camp 1 (Kopi Scraper Station) and Camp 2 (Kaiaam). At the time of the field visit, an agreement was reached to occupy the existing Gobe Camp previously occupied by CCJV and earthworks had started to expand the camp and prepare a pipe laydown area;

- *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. This project is associated with two separate routes to be utilized for transportation into the Komo airport. A heavy haul road from the Komo airport to the HGCP site involves 21 km of new road and two new bridges (44 m and 116 m spans). A second access is for construction logistics and requires the upgrading of 20 km of existing road and the upgrading of three bridges. The two routes join together at Tagari Junction, located approximately 10 km northwest of the end of the new runway. The main camp has been commissioned and 440 beds are now available on site, including Pioneer and Essar camps. An improved specification for airfield earthworks has been finalized and bulk earthworks are ongoing. Heavy haul road construction has started, but progress has been limited due to land access issues and limited supplies of suitable aggregate. Aggregate is being obtained from quarry QA1 and high quality aggregate is just starting to be obtained from Tamalia Quarry TB-1. Work continues to be behind schedule and EHL and MCJV are working together to define a revised baseline schedule;
- *Drilling - Nabors Drilling International Limited*: Currently the detailed well design and technical specifications for the drilling program are being finalized with an integrated execution being planned with the Project. The first of two drill rigs planned for the work (Rig 702) has been manufactured at the HongHua America construction yard in south Houston and is currently being mobilized to PNG with a target rig delivery of 3Q 2011 with drilling expected to start before the end of the year. The rig will be dismantled into 40-foot, 20-ton loads for travel by ship to Lae and then by truck along the Northern Logistics Route.

In terms of current workforce as of the end of June, EHL reports that 6,645 PNG nationals are currently employed on the Project, representing >71% of the total workforce now numbering 9,319. This total of PNG nationals is much above the original construction target of employing approximately 3,500 PNG nationals out of a total workforce of about 12,000 at peak (~30 percent). The EHL workforce within this total is reported to be 769, represented by about 50% PNG nationals. Females represent 9% of the total labor force. 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 fourth 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 the IESC and additional documents consistent with the trip schedule provided in Appendix A.

For the purpose of the more focused labor monitoring effort, specific for this mission, the IESC labor specialist closely collaborated with the EHL Contractor Compliance and Interface manager. In the field, members of his team, i.e. the EPC specific L&CA Compliance and Interface leads, also accompanied the mission. Relevant C1, EPC 3, 4, 5A and B staff provided information through presentations and talks with the IESC labor specialist. Finally, some initial group interviews were held with contractor workers, one with locally hired women and one with OCNs.

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 – Labor and Human Resources;

Section 7.0 – Health and Safety;

Section 8.0 – 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 raised during each site visit, 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, but not necessarily, 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.

N°	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
Environment and Social Management							
² M1.1	May '10	Jul-Aug '11	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.	I	E&S Milestones Schedule	Closed	The Community Support Strategy Action Plan and the Community Development Support Plan have been finalized and disclosed on the PNG LNG web page.
M1.3	May '10	Jul-Aug '11	Key documents have not been publicly disclosed.	I	LESR	Closed	Same as above.
M3.1	March '11	Jul-Aug '11	Environmental/social incidents and situations have occurred since the last IESC visit. Where root causes can be identified, these situations developed because ESMP procedures were not appropriately implemented	IESC Observation	ESMP in general	Closed	Serious environmental and social issues have not taken place since the March 2011 field visit. This is an issue that is reviewed each field visit.
M3.2	March '11	Jul-Aug '11	Environmental monitoring test data are not yet incorporated into the Company IMS such that it is easy to track and correct potential adverse environmental impacts.	IESC Observation	Environmental Standards; Waste Management Plan	Closed	Performance trends are being tracked within individual databases managed by EPC contractors. Having a Project-wide database might be a good idea, but is not necessary.
M3.3	March '11	Jul-Aug '11	Preliminary social indicators are being defined, but the tracking of social non-conformances is not yet incorporated within the Borealis IMS	IESC Observation	ESMP – Sections 6 and 7	Closed	Social non-conformances are being tracked in the IMS.
M3.4	March '11		Procedures for identifying third-party facilities and activities have been defined such that the Project can initiate stewardship. Stewardship has not yet started and needs to be initiated.	II	Various parts of the ESMP to comply with IFC Performance Standard 1, Paragraph 5	Open	EHL finalized a “Procedure for the Categorization and Management of Third Party Facilities & Services” at the time of the IESC field visit that is consistent with the requirements outlined in the LESR. This is a major accomplishment, but the overall situation is a continued non-conformance until it is fully rolled out in the field.

² In order to better track project progress and accomplishments, the issues identified during each site visit will be identified by a letter (M) and number (e.g. M1) that identifies the site visit (e.g.: M1 for the first visit, M2 for the second visit, etc.) followed by a digit that identifies the specific issue found (e.g. M2.4 refers to issue 4 found in visit 2).

N°	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
M3.5	March '11		Incidents of a serious nature are being inconsistently reported to the Lenders under the procedures defined in the LESR.	IESC Observation	LESR	Open	Reporting to Lenders has improved since the March 2011 field visit. Although the process appears to be working, the issue is kept as an open "observation" in the sense that it is still recommended that the LESR be revised to define what constitutes a reportable social incident.
M3.6	March '11	Jul-Aug '11	The physical siting of Project infrastructure does not appear to fully account for the significance of environmental and social impacts – example: the proposed Daware Camp/Laydown Area	IESC Observation	ESMP	Closed	This is a subject that will be reviewed with each IESC field visit.
M3.7	March '11	Jul-Aug '11	There is no evidence that EHL (and Contractor) are monitoring actions specified in the 'Management and Monitoring' tables of 'outside of the fence' SMPs are being undertaken.	II	Community Impacts Mgt Plan; Company Community Health Safety and Security Mgt Plan; Community Engagement Plan; Community Infrastructure Plan	Open	The IESC observed solid progress towards more effective monitoring and reporting of performance against the 'outside of the fence' SMPs. Because of the level of risk, the Level II non-conformance is maintained. More progress is required. There remain some gaps in coverage but the L&CA management team is moving to address these. See Section 5.2.2.3.
M4.1	Jul-Aug. '11		The social component (L&CA) of the ESMS organization continues to experience a very high turnover of managers, technical specialists and general staff. Many L&CA staff positions remain unfilled. The IESC considers that EHL's inability to provide stable management, fully resource the L&CA team and retain key specialists represents an area of risk for the effective operation of the ESMS.	II	Performance Standard 1, ESMP	Open	Provide stable leadership, effective human resource management and fully resource the L&CA team to enable it to meet the demands for securing and maintaining land access, mitigating work stoppages and developing a social license to operate as construction activities escalate.

N°	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
M4.2	Jul-Aug. '11		Central management responsibility for labor and industrial relations (IR) issues needs improvement within the Project organization. The Project could benefit from centralized and informed strategizing in terms of dealing with the multitude of labor and IR issues at a Project wide level - labor unrest, strikes, work stoppages etc.	IESC Observation	ESMP in general	Open	Make a senior management member responsible and accountable for labor and IR issues at a Project wide level. Recruit specialist staff or specialized third party assistance to strategize and manage labor and IR issues at a Project wide level. Conduct an internal review to ascertain if labor management is fully consistent with EHL's own commitments and expectations. Review labor practices at contractor level as not all contractors seem to have the same practices, resulting in project wide inconsistencies.
M4.3	Jul-Aug. '11		Labor and IR data are not monitored at a Project wide level and a tracking system within an Information Management System has not been designed.	IESC Observation	ESMP in general	Open	Indicators for labor have not been defined yet and are consequently not incorporated within the Project IMS or any other system.
Environmental Issues – Air Quality							
M2.2	Oct. '10		The air emission monitoring strategy and the new mitigation measures proposed by EHL in the Air Emissions Management Plan need to be fully reflected in the Contractors' plans and operating procedures.	IESC Observation	Air Emissions Management Plan	Open	See Section 4.3.2 – The fundamental concern is that the monitoring strategy proposed by the Project be reflected in the routine maintenance and monitoring performed in the field. IESC recommends that EHL work closely with the Contractors to ensure that their incinerators are properly operated and fulfill the monitoring requirements included in the Project Air Emissions Management Plan.
M3.8	March '11		The location of the incinerator at the Kobalu camp at a lower level with respect to the accommodation units, under certain wind blowing conditions could pose a health hazard for both camp residents and nearby villagers.	IESC Observation	Air Emissions Management Plan	Open	See Section 4.3.2 – Although the results of the modeling exercise confirmed there are no health impacts from the Kobalu unit, site-specific emissions modeling to assess against health-based criteria should be performed in advance to construction to avoid situations similar to those observed at Juni and Komo.
Environmental Issues – Erosion and Sediment Control							
M3.9	March '11	Jul-Aug. '11	Inadequate culvert sizing have resulted in an incident whereby runoff affected immediate surrounding mudflats of the Vaihua Ecosystem Complex.	I	Erosion and Sediment Control Mgt. Plan	Closed	Appropriate erosion and sediment control systems have been installed to prevent the occurrence of future incidents. Runoff is captured in sedimentation ponds

N°	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
Environmental Issues – Biodiversity and Ecological Management							
M2.4	Oct. '10		Senior EHL environmental staff should be in the position to critically review contractors' proposals for access roads, and a baseline of access roads should be established from which additional contractor requests are subject to evaluation.	IESC Observation	Performance Standard 6	Open	This subject was not reviewed in detail during this field trip, but the observation has been maintained.
M3.10	March '11		Reinstatement, erosion control and induced access control commitments along access roads in the 'interim period' after Spiecapag's initial reinstatement efforts (during construction phase) and before operations, when EHL will assume full responsibility, are not defined.	IESC Observation	Performance Standard 6	Open	This subject was not reviewed in detail during this field trip, but the observation has been maintained, as it is understood that the subject of access is one where the Project continues to have discussions on the long-term management strategy for access roads.
M3.11	March '11		An adequate fisheries baseline for both the Omati River and for Caution Bay still has not been established. The project committed to fisheries surveys on a quarterly basis, but results are far past due.	II	Performance Standards 1 and 6	Open	This non-conformance can be resolved with submission of survey reports that are currently past due and monitoring that demonstrates a lack of significant ecological impact through the dredging – trenching process.
M4.4	Jul-Aug. '11		Based on information provided in the Caution Bay Revised Pipeline Burial Modeling Report, it is not obvious that coral resources identified in subsequent marine surveys have been accounted for.	IESC Observation	Performance Standard 1	Open	Make sure that monitoring encompasses marine resources not identified in the Modeling Report
Social Issues – Land Access							
M3.12	March'11		Social and physical/economic displacement impacts are not being addressed in site selection studies and pre-construction surveys. Social impacts, health and safety risks are thus not being identified and requirement contained in SMPs (RPF, Community Impacts Management Plan; Company Community Health Safety and Security Management Plan; Community Engagement Management Plan; Community Infrastructure Management Plan) are not being met.	II	Performance Standards 1, 4 and 5	Open	Since the last review, EHL has developed a site selection procedure. The procedure has yet to be adopted on a project-wide basis. There is still a lack of clarity as to who is responsible for social assessment and screening for site selection. See Section 5.3.2.

N°	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
Social Issues – Resettlement							
M1.15	May '10	Jul-Aug. '11	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	Closed	A Komo Airstrip Access Road has been approved by the IESC. Disclosure on the PNG LNG website is pending. The IESC has confirmed that the fifteen families have been compensated in accordance with the RAP, and that the subject structures have been removed.
M3.13	March '11		EHL commenced work on the LNG plant jetty prior to having prepared and disclosed the LNG Site/Downstream Fisheries RAP (RFP, Table 7, Item 13).	II	RPF	Open	A draft Caution Bay CRP was received for IESC review after the July-August 2011 visit.
M1.16	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).	II	Performance Standards 1, 5 and 7	Open	A Huli translation of the standard agreement is now being used. Variations from the standard contract template are not being added to the Huli version. Contracts need to be translated into other languages as appropriate to comply with PS, para. 21.
M3.14	March '11		IFC PS 1 and PS 5 require that particular attention be paid to vulnerable people at each stage of the resettlement process. While vulnerable households are noted during RAP preparation, there is limited evidence of systematic monitoring or follow-up of their circumstances post-relocation.	I	Performance Standards 1 and 5	Open	Systematically follow-up and monitor the performance of vulnerable households as part of agricultural livelihood /garden establishment monitoring. Where cases of hardship are encountered, determine additional support requirements on a case by case basis. Limited action had been taken as of July-August '11. This is escalated to a Level 1 non-conformance.
M4.5	Jul-Aug. '11		12-18 months is not a fair and reasonable time frame for families to wait for replacement housing packages nor is consistent with timely delivery of compensation entitlements as required by IFC PS 5.	II	Performance Standard 5	Open	Without lapsing into a six-month planning cycle, prepare and implement an action plan to get housing package delivery back on track. See Section 5.4.2.1.
M4.6	Jul-Aug. '11		The IESC highlighted the need to install access roads around the Komo airstrip and HGCP sites to meet the IFC PS 5 requirement for 'adequate housing on the first IESC review mission. Sixteen months later, the construction of such roads has not been commenced.	II	Performance Standard 5	Open	Commence construction of replacement access roads. See Section 5.4.2.1.

N°	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
M4.7	Jul-Aug. '11		Due to the montmorillonite clays and their liquid properties, Hides quarry road earthworks have extended well beyond the area defined and compensated under the Hides Quarry Road and HQ 1-3 RAP. Additional land area and users have been affected.	II	Hides Quarry Road and HQ 1-3 RAP	Open	Prepare and disclose a RAP addendum to describe the unforeseen physical and economic displacement impacts. Keep landowners/users updated on likely timing for census and survey and compensation payment. Complete census, survey and compensation payment as soon as possible.
M4.8	Jul-Aug. '11		Resettlement officers are sometimes making ad hoc changes to template resettlement contracts without overview by a legal professional. Errors in law and inconsistencies with the RPF or RAPs may have occurred. Commitments made in resettlement agreements are not being systematically tracked.	IESC Observation	National law, IFC PS 5, RPF and RAPs.	Open	Conduct an audit of all land and resettlement agreements entered into to date to identify variations from templates and potential non-compliances with PNG law, the IFC Performance Standards, and entitlements as defined in the Resettlement Policy Framework – develop a corrective actions plan to address gaps. Appoint a resettlement contracts administrator or local external legal counsel to be responsible for contracts review and tracking compliance with contractual commitments.
Social Issues - Project Induced In-Migration							
M4.9	Jul-Aug. '11		Ad hoc observations presented by the Project to date do not satisfy the requirement of Commitment ID 23.027 for active assessment, via monitoring or other means, of in-migration. They also fall short of the measures advocated in the Project Induced In-Migration Management and Monitoring Plan.	II	ID 23.027	Open	Fully resource the PIIM team so that Commitment ID 23.027 can be complied with and the Project Induced In-Migration Management and Monitoring Plan can be implemented. Develop a work plan (schedule, budget, resources) for completing the PIIM action plans within a reasonable timeframe.

N°	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
Social Issues – Procurement and Supply							
M4.10	Jul-Aug. '11		The Project provides substantial effort to offer technical support to its supply chain and its (future) work force. Although these efforts include stringent occupational safety and health protocols, the Project could benefit from improvements in terms of monitoring and addressing the basic requirements of IFC	IESC Observation	Procurement and Supply Management Plan	Open	Integrate rapid risk assessment and monitoring on child and forced labor into the Project's supply chain.

N°	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
			Performance Standard 2 (such as worker-management relations, child and forced labor in the supply chain, etc.).				
M4.11	Jul-Aug. '11		From a point of view of extending the Project's environmental and social standards to (sub)contractors/suppliers, it appears that the capacity and skill building efforts of local business – including Lancos, do not include any reference to IR management or to basic worker rights, i.e. the ILO core labor standards as defined in IFC PS2.	IESC Observation	Procurement and Supply Management Plan	Open	Extend capacity and skill building efforts of local business – including Lancos, with materials on basic worker rights and IR management.
Social Issues – Security							
M3.17	March '11	Jul-Aug. '11	No attempt has been made to “...encourage the relevant public authorities to disclose the security arrangements for the client's facilities to the public...” as provided for in.	I	Performance Standard 4, para. 14	Closed	On its own undertaking, EHL raised the topic with the new Police Commissioner. See Section 5.8.2.3.
M3.18	March '11	Jul-Aug. '11	SMPs do not anticipate the risk of potential ‘pay back killings following community fatalities caused or perceived to have been caused by Project activities.	IESC Observation	Performance Standard 4	Closed	No further action required.
Labor and Human Resources - Labor and Worker Conditions							
M2.8	Oct. '10	Jul-Aug. '11	EHL, contractors and subcontractors should spell out the legal maximum number of working hours in workers' employment contracts.	IESC Observation	Performance Standard 2	Closed	Issue reworded in Section 6.1.
M4.12	Jul-Aug. '11		Except for a pilot Workers Council for PNG workers at EPC3, no structural, organized and proactive worker-management dialogue is in place at contractor or sub-contractor level, nor any collective bargaining mechanisms. Whereas Lancos seem to play the role of organized labor, they more often have a counterproductive role in managing work place relations.	IESC Observation	Labor and Workers Conditions Management Plan	Open	Accelerate HRM and IR capacity building at Lancos level. Evaluate PNG Workers Council at EPC 3, and discuss possible roll out with other Project contractors. Discuss possible roll out of Workers Councils for OCNS with Project contractors.
M4.13	Jul-Aug. '11		An overall lack of awareness, understanding and data is apparent at (sub)contractor level regarding OCN recruitment policies and practices of intermediate agencies in countries of origin.	IESC Observation	Labor and Workers Conditions Management	Open	Carry out a rapid risk assessment at (sub-) contractor level for OCN recruitment agencies in countries of origin in terms of their policies, practices and reputation.

N°	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
					Plan		Have Project contractors improve on and provide ongoing information on worker grievance mechanisms towards OCNs.
M4.14	Jul-Aug. '11		Existing demobilizing arrangements at contractor level may prove inadequate to prevent unrest when large contingencies of PNG workers are facing demobilization, regardless of all expectation management measures taken.	IESC Observation	Labor and Workers Conditions Management Plan	Open	Develop a project-wide demobilization strategy at Project level and roll out to Project contractors.
Labor and Human Resources – Camp Management							
M2.10	Oct. '10	Jul-Aug. '11	The Project's decision to reduce the minimum space per person to two different types of camp is a change of a Project standard, which should have triggered a Class I MOC. At the same time, reducing allowable personal space in camps where workers have to endure this condition for extended periods of time beyond what was anticipated is not consistent with Project intentions and standard construction camp conditions should apply to these workers.	II	LESR	Closed	See Section 6.3. During the July mission IESC observed that overall camp standards are high. Areas with overcrowding have been resolved or are about to be resolved with new construction in the Upstream area. During the July 2011 mission EHL provided IESC with two risk assessment reports substantiating their decision for personal space reduction at EPC3 and in the Upstream Area. IESC reviewed both reports and observed solutions at EPC3 during field visit. EHL will need to rigidly implement, monitor and evaluate all risk mitigation measures proposed in these risk assessment reports.
M2.12	Oct. '10	Jul-Aug. '11	A Camp Grievance/Complaint Mechanism is not in place at all camps.	I	Camp Management Plan	Closed	Grievance mechanism are generally in place, although not all workers have good access (women) or awareness (OCNs)
M2.13	Oct. '10	Jul-Aug. '11	On-site workers' training/induction is not in place at all camps.	I	Camp Management Plan	Closed	Training/induction programs are generally in place.
M4.15	Jul-Aug. '11		Although most of the other issues with women facilities and accommodation have been solved, and general grievance mechanisms are available, there is currently no outlet for women to express sensitive grievances that may be difficult to report to male staff. Another point of attention is communication on and accessibility to camp grievance mechanisms for OCNs. They are hardly aware of their existence and do not make use of it.	IESC Observation	Camp Management Plan	Open	Make women-only grievance mechanisms available at all camps through appointing a competent 'confidante' and properly communicating its existence (see Section 6.2). This is also a gender issue. Improve communication on and accessibility to camp grievance mechanisms for OCNs in relevant languages and cultural appropriate ways.

N°	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
Labor and Human Resources – Gender							
M3.15	March '11		Bed availability remains a problem for women in the Upstream Project Area.	I	Performance Standard 2	Closed	This situation has been satisfactorily resolved with new construction.
M3.16	March '11		The enclosures around women-only units do not provide the same level of light (and possibly air) with respect to non-enclosed sleeping quarters.	II	Camp Management Plan / Performance Standard 2	Closed	The only remaining issue (relatively minor) is to design a more rigid protocol for actually locking doors at women's camp quarters (the so-called enclosures) at night.
M4.16	Jul-Aug. '11		Women seem to be facing two major gender specific issues. One being the lack of avenues for getting their issues and grievances addressed, at both the camp level, and Lanco level. Within the PNG cultural context and more specifically the Huli cultural context most Lancos are run almost entirely by men. Consequently, women feel that those (Huli) men at Lancos simply dismiss women with their complaints. The other major issue is 'women's-control-over-income'. In the Huli cultural context women face incredible pressure to hand in their earnings due to (male) community demands. They all expressed the desire to have access to bank accounts.	IESC Observation	Labor and Workers Conditions Management Plan + Camp Management Plan	Open	Develop tailor-made HRM and IR strategy/solutions for PNG women workers' needs at Project level and roll out to Project contractors. Acceleration of (women's) access to micro finance (credit, savings and insurance).
Workers Health and Safety							
M4.17	Jul-Aug. '11		Safety impacts of excessive working hours/structural overtime, lack of adequate breaks and rotation schedules at the level of the Project's (sub) contractors are potential risks.	IESC Observation	Various Project Health and Safety Plans	Open	Improve on monitoring (excessive) overtime issues at (sub-)contractor level, mainly for OCNs.
M4.18	Jul-Aug. '11		A significant health issue is the rapid increase in diabetes and obesity - and all long term obesity-related health risks, among PNG workers. This increase is due to a rapid and sudden exposure of PNG workers to Western diet and the abundant availability of food in the camps.	IESC Observation	Various Project Health and Safety Plans	Open	Consult with a specialist in obesity issues in Melanesian cultures, to re-think the menus offered in camp canteens as well as the food packages issued to PNG workers by Lancos.

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 are 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.

The ESMP is currently applicable only to Phase I of the Project associated with construction and drilling. EHL 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 a functional, publicly-disclosed document that received an interim approval on September 22, 2010 by the PNG Department of Environmental Conservation (DEC). The version of the ESMP that is publicly available is Revision 2 that incorporates IESC comments to the first revision to the document. DEC has indicated their support for this second revision of the ESMP and EHL is waiting to receive written notification to this effect. At the time of the March field visit, the exceptions to the completion of the full ESMP were the finalization of the Community Support Strategy Action Plan and the Community Development Support Plan. These have now been finalized and posted on the PNG LNG web page.

As noted in the report for the March field visit, the IESC expects that at this stage the implementation of the ESMP will be based primarily on working procedures that capture the requirements of the Management Plans, but that there will be no additional modifications to the plans themselves. Should any changes be proposed to the basic plans, whether from receiving final DEC approval or from improvements deemed necessary on the basis of field experience, it is expected that EHL will review the changes with the IESC and invoke an MOC process as appropriate before publicly posting the changes as document revisions.

3.1.2.2 Development of Contractor Implementation Plans

The ESMP sets the minimum performance requirements 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), together constituting ESMPs. All EPC ESMPs Rev 0 are in place, with the following exceptions:

- the EPC2 Contractor, Saipem, has just started to mobilize and has Revision 0 EMPs for Environmental Monitoring, Acid Sulfate Soils, Waste Management and Spill Prevention. A specific plan for the Caution Bay Landfall has also been completed to Revision 0. Plans that have yet to be issued as Revision 0 are Reinstatement and Omati Landfall;
- the EPC5A Contractor for the Pipeline Construction (Spiecapag) has an approved ESMP; all EMPs are at Revision 0 or higher except Reinstatement and Induced Access; these have been prepared but are not at Revision 0 yet;
- the EHL is taking the lead on developing a PNG Drilling EMP (currently at Revision A with Revision 0 expected in early Q4/11). The Project ESMP will be referenced for its social content applicable to the Drilling Program.

The remaining Contractor ESMP completions relate to the environmental components of field activities. Except for drilling, the social components are complete. The overall environmental and social management system for the EPC Contractors is developed to the degree required for current activities. During the next field visit, it is expected that the IESC labor specialist will have further opportunity to review Contractor management of labor issues.

3.1.2.3 Monitoring and Evaluation Programs

Environmental and social monitoring and evaluation programs have been developed between EHL and the contractors. The mechanics of monitoring and evaluation are in the process of being significantly improved through a computerized Information Management System (IMS) integrated with the Project Geographic Information System (GIS) such that observations in the field can be tracked as to the exact locations where findings are made. The L&CA organization has fully integrated this new technology for their monitoring and evaluation programs and has expanded the scope of the IMS to include social non-conformances.

Environmental monitoring is not fully integrated within EHL's IMS, but is being tracked at the EPC Contractor level and reported to EHL via Monthly Reports. This process is generally working and during this field visit examples of Contractor monitoring were reviewed and found to be of good quality. IESC still recommends that the environmental monitoring data be incorporated within EHL's IMS, but we acknowledge that if this does not take place the process is still functional.

In terms of reporting, tracking of EPC Contractor environmental performance appears to be reasonably well developed within Monthly Reports. The Monthly Reports also contain monitoring and reporting from the social side, but the presentation are mainly condensed summaries of ongoing activities, with most of the actual data contained within the IMS. Indicators for labor have not been defined yet and are consequently not incorporated within the IMS or any other system.

3.1.2.4 Organization and Staffing

The EHL environmental team (formally designated as the Environmental and Regulatory organization) has maintained the same basic structure and size as encountered during the March field visit, except that some additional positions have been added that are yet to be filled. This organization is fully functional with occasional gaps associated with only normal turnover, position changes, or with logistical problems and has the appropriate organization to function as planned.

In general, the environmental organization within EHL is fully established and has continued to expand since the last IESC field visit in March. It is well organized such that it can perform its scope of work. The social component (L&CA) of the ESMS organization continues to experience a very high turnover of managers, technical specialists and general staff. Many L&CA staff positions remain unfilled. The IESC is concerned at changes in leadership and the turnover of key technical specialists as the construction workforce starts to increase and as the demands for securing and maintaining land access, mitigating work

stoppages and developing a social license to operate escalate. The IESC considers that the absence of stable management and a fully resourced L&CA team represents an area of risk for the effective operation of the ESMS. A Level II non-conformance has been raised. The IESC will be very concerned if corrective actions can not be implemented by the end of Q4 2011.

On a positive note, it was apparent that solid progress has been made in integrating L&CA field staff into Area Construction Managers' field teams. This has raised senior project management awareness of the challenges that the L&CA team faces. It has also contributed to better integration of land access, resettlement planning and stakeholder engagement with construction activities.

An additional organizational concern is the lack of coverage for the area of labor and industrial relations. The management of labor issues and industrial relations is hampered in two major ways:

- the only staff dealing with labor is the Contractor Compliance & Interface (CCI) team, which forms only a small section within the L&CA team. The CCI team is placed in the one-out-of-five LCA pillars that falls under the Compliance Manager. EHL has brought the team's capacity up to good practice, but apart from the CCI manager, who has an impressive background in labor and human resource management, the otherwise very capable and knowledgeable CCI team members lack adequate professional background to manage labor issues at the various EPC Contractors and their subcontractors;
- whereas EHL does have official HRM capacity, it does not have an individual or group responsible for following labor relations at the EPC Contractor level. This results in a situation where there is no official management responsibility or centralized approach at the project management team level for dealing with labor and industrial relations for contracted and sub-contracted labor.

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). As previously reported, to be able to track compliance with local regulations EHL has developed a Regulatory Framework Database, "RegFrame". Although we did not interview Government representative for confirmation, EHL reports that the Project is currently compliant with local regulatory requirements. Evidence for this positive interaction was provided through a wide variety of documentation including as related to the permitting process with DEC, security interactions, working with Government health programs, interactions with the National Museum for cultural and archaeological programs, etc.

With respect to labor, the main institution in PNG is the Department of Labor and Industrial Relations. This organization, together with the PNG Employers Federation and the PNG Trade Union Congress, signed their Decent Work Country Program³ (DWCP) on the 28th November 2008 for the years 2009-2012 and endorsed the following four priorities.

- Priority 1: Capacity building of tripartite partners;
- Priority 2: Completion and implementation of labor law reform and related legislation;
- Priority 3: Promotion of productive and decent employment, particularly for young men and women; and
- Priority 4: Human resource development through skills development.

These priorities have been reviewed in other parts of this report.

³ *Decent Work Country Programmes have been established as the main vehicle for delivery of ILO support to countries. The Decent Work agenda of the ILO consists of the following four pillars:*

Creating Jobs – an economy that generates opportunities for investment, entrepreneurship, skills development, job creation and sustainable livelihoods.

Guaranteeing rights at work – to obtain recognition and respect for the rights of workers. All workers, and in particular disadvantaged or poor workers, need representation, participation, and laws that work for their interests.

Extending social protection – to promote both inclusion and productivity by ensuring that women and men enjoy working conditions that are safe, allow adequate free time and rest, take into account family and social values, provide for adequate compensation in case of lost or reduced income and permit access to adequate healthcare.

Promoting social dialogue – Involving strong and independent workers' and employers' organizations is central to increasing productivity, avoiding disputes at work, and building cohesive societies.

3.1.2.6 Implementation of the ESMP – Siting of Project Facilities

An observation made by the IESC during the March 2011 field visit was that improvements need to be made with respect to the siting of critical project facilities. The proposed Daware temporary construction camp needed by Spiecapag in the Moro area (Lake Kutubu) was cited as a facility where the site selection process should have been much more rigorous, with greater weight given to both environmental considerations and social setting. During this site visit the IESC received an update on the Daware Camp where the overall process was presented in greater detail and updated from what was presented during the March field visit. The most significant change from what was available in March was that Spiecapag has revised the camp layout such that there is a significant reduction in footprint from what was originally presented. With the reduction in footprint, it is no longer necessary to directly impact Pandanus swamp forest, a “focal habitat” of the Biodiversity Strategy and the Ecological Management Plan where avoidance should be the priority. Our basic observation is that with the reported reduction in the required camp footprint, development in this area is feasible. IESC expects that EHL will demonstrate a robust siting process incorporating both environmental and social considerations for the siting of any future facility requiring a significant land take.

3.1.3 Recommendations

- 1) Both the environmental and social organizations have reached a stage of maturity such that the framework is set to allow for a much greater involvement of PNG nationals. At this stage, EHL should be starting to increase national content in these organizations.
- 2) Care should be taken to maintain water flow through the Daware site such that there is no alteration of water movement through the Pandanus swamp forest. This is a requirement of the Ecology Management Plan, Mitigation 115, “Reduce impacts on Pandanus swamp forest by designing facility sites to allow adequate surface flows”).
- 3) Define preliminary labor and industrial relations indicators and decide how tracking of sub-contractor labor non-conformances can be undertaken.⁴
- 4) Bring capable staffing into the Project to deal with labor and industrial relations at the (sub-) contractor level, e.g. either train CCI team members on labor and industrial relations or bring in new specialized staff if this would overwhelm their existing workload.
- 5) Provide a more pronounced and transparent position to staff dealing with labor and industrial relations, e.g. separate staff from LCA team, or have labor reflected in the title of the team.
- 6) Incorporate management responsibility for labor and industrial relations – possibly with technical assistance in this field at the corporate level⁵.
- 7) Explore opportunities for a Project-PNG government interface on labor and industrial relations.

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.

⁴ Not necessarily incorporated within the Project IMS, as this system was specially designed for community and land issues.

⁵ The ILO could support such an effort, through its network of specialists and consultants and through its regional office - the ILO Country Office for South Pacific Island Countries in Suva-Fiji.

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;
- 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

Specific aspects of the LESR where in previous reports the IESC has flagged the need for improvement relate to management of change; associated or related facilities and activities; public disclosure; and reporting of incidents to the Lenders. These topics are discussed in greater detail in the following sections.

3.2.2.1 Management of Change

The LESR has requirements for the Project to communicate changes to Lenders on the basis of significance. This process continues being implemented and the MOC classifications assigned since the March field visit appear to be appropriate. An MOC for changing the schedule associated with the Milestones Schedule No. 16 related to the development of conservation programs in the Kutubu Wildlife Management Area as part of the Offset Delivery Plan has been initiated. This MOC has not been assigned a classification, but we expect that it will be a Class I change. The rationale that this be a Class I change is the same as the reason we expected the February 2011 MOC associated with Items 15b and 15c of the Milestones Schedule (also still unclassified) to be Class I – fulfillment of these to items of the Milestones Schedule represents the main Project commitments to environmental management and also because IESC confirmation is required. In any case, the rescheduling of the Offset Delivery Plan is a change that has been previously discussed and agreed with the IESC.

EHL has also prepared a Class II MOC to amend accommodation space requirements for Pioneer Camps. A review of this MOC was conducted as part of this field visit and is discussed in Section 6.0. A decision to move the first production well from Wellpad A to Wellpad C is also reflected as a Class III MOC. Moving the first well away from Wellpad A follows a recommendation made by the IESC during the March field visit.

The most significant MOC is still upcoming and associated with the installation of fiber optic cable (FOC) in the offshore area parallel to the offshore pipeline. The IESC was presented an EIA for this additional work as a basis for our eventual Certification. Before certification, IESC expects to be able to review Communal Resource Plans (CRPs), which are still being developed to address impacts of pipeline construction on subsistence fishing communities near the Omati River, and pipeline and jetty construction at the LNG Plant site, as the scope of these plans is expected to accommodate activities associated with the FOC.

3.2.2.2 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. EHL finalized a “Procedure for the Categorization and Management of Third Party Facilities & Services” at the time of the IESC field visit that is consistent with the requirements outlined in the LESR. The flow chart to define what constitutes a stewardable facility is simplified from what has been previously reviewed by the IESC and now relates to ExxonMobil tiered safety classifications, but the overall result appears to be workable and consistent with the requirements of the LESR. This is a major accomplishment, but the

overall situation is a continued non-conformance until it is fully rolled out in the field. A particular issue is with respect to the use of third-party quarries. Quarry QA-1 in the Hides area was identified during the March 2011 field visit as requiring Project stewardship, but this has not started although during this field visit the quarry was still being used for Project purposes. The Kokore Hill Quarry used for providing the LNG Plant with aggregate was found during this visit to have effectively served as a Project quarry and should have received stewardship from the Project. Other third-party activities and facilities also need to be included, such as Lanco camps and other infrastructure.

3.2.2.3 Public Disclosure

One of the requirements of the LESR is for public disclosure of key Project documents. In addition to the EIS, which was disclosed on the PNG LNG web page prior to the IESC site visit in May 2010, and the National Content Plan that was also disclosed, several other documents have requirements for public disclosure:

- ESMP;
- Milestones Schedule;
- Biodiversity Strategy;
- Community Support Strategy with supporting documents: the Community Support Strategy Action Plan and the Community Development Support Plan;
- Resettlement Policy Framework;
- Komo Airfield Resettlement Action Plan.

At the time of the March field visit, the exceptions to the disclosure of the full ESMP and the above supporting documents were the Community Support Strategy Action Plan and the Community Development Support Plan. These have now been finalized and posted on the PNG LNG web page on August 24. Additional disclosures expected to be undertaken on an ongoing basis are site-specific RAPs in addition to the Komo Airfield RAP already disclosed. At the time of the preparation of this report additional RAPs have been publicly disclosed and at this stage EHL is considered to be in conformance with LESR disclosure requirements.

3.2.2.4 Incident Notification

One of the requirements of the LESR is for the Lenders to be notified of serious incidents:

- “Notice of any serious accident or incident (as defined in the Environmental and Social Management Plan) as a result of Project development, construction or operations that have a material adverse effect on the environment or worker health and safety or Project-affected community (CTA Section 12.2(b)(vi)(E)).”

The notification requirement is that the Intercreditor Agent be informed within three business days. Our observation is that the process is much improved from the situation encountered in March. We still see a problem in that the LESR does not define what constitutes a social incident, but recognize that EHL is endeavoring to notify the Lenders for incidents with a social component.

3.2.3 **Recommendation**

- 1) The LESR should be revised to define what constitutes a serious social incident (ongoing recommendation).
- 2) Define preliminary labor and industrial relations indicators and decide on how tracking of labor non-conformances can be undertaken⁶.
- 3) Bring capable staffing into the Project to deal with labor and industrial relations at the (sub-) contractor level, e.g. either train CCI team members on labor and industrial relations or bring in new specialized staff if this would overburden their existing work requirements.

⁶ Not necessarily incorporated within the Project IMS, as this system was specially designed for community/land and environmental issues.

3.3 MILESTONES SCHEDULE

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. At the time of the March 2011 field visit, the only overdue commitments were disclosure of the Community Support Strategy Action Plan and the Community Development Support Plan and integration of conservation programs in the Kutubu Wildlife Management Area into an offset delivery plan. The Community Support Strategy Action Plan and the Community Development Support Plan are now public documents and the requirements of the Milestones Schedule for disclosure have been fulfilled. As discussed in Section 3.2.2.1, an MOC for changing the schedule associated with the Milestones Schedule No. 16 related to the development of conservation programs in the Kutubu Wildlife Management Area as part of the Offset Delivery Plan has been initiated. This change has been previously discussed and agreed with the IESC.

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 associated with construction is 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 minimum general requirements for the management of waste and wastewater, including the identification of potential sources of impacts, the proposed mitigation and management options, monitoring requirements and responsibilities. These documents are also 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 is supplemented by a Waste Management Template, a detailed report that 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 throughout the Project.

As outlined in these documents, the main objective of the Project is to be self-sufficient regarding waste management processes, procedures and facilities and to dispose of wastes only at facilities approved by EHL, for which disposal (with or without prior treatment) is the only practical option. Waste management and treatment should be performed on-site: no disposal is planned to facilities not under the control of EHL (such disposal is to be handled on an exceptional basis and approved by EHL) and off-site re-use and recycling (to facilities not owned by EHL) will have to be accomplished in a controlled manner that benefits the applicable community. For the cases where the use of non-Project dedicated facilities to dispose Project wastes is required, the EHL needs to follow its internal waste management facilities review requirements before allowing the use of the site. A network of properly designed, drainage-controlled Waste Accumulation Areas (WAAs) is required to be established at all Project and Contractor locations for storage/treatment/disposal of wastes until the permanent facilities are available.

Overall, 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 Contractors' site-specific waste management plans. After the preliminary phases of construction, the Project intends to be fully self-sufficient regarding waste management processes, procedures and facilities unless suitable third-party facilities become available.

4.1.2 Observations

Following the recommendations and observations from the previous visits, the IESC acknowledges that the Project has made significant progresses in the management of waste and wastewater, especially at remote Project locations, and has transitioned from interim to long-term solutions in line with the commitments included in the ESMP.

From what was observed in the field, reliance on third-party facilities has been discontinued and limited to serving as backup when the Project's equipment is down or under emergency situations. All Project and EPC Contractor locations visited are provided with appropriate waste management areas, most with on-site incinerators and Waste Water Treatment Plants (WWTPs) consistent with the standards set for the construction phase by the ESMP and are self-sufficient for the treatment and disposal of the non-restricted waste and wastewater currently generated by the Project.

Following the full Project-wide waste management review undertaken in Q3/Q4 2010 (March 2011 site visit) where the main challenges in terms of waste generation, storage and final disposal were identified, a waste management coordinator has been appointed to focus on key waste management issues, track waste production and trends analysis, facilitate the communications between the different EPCs and help disseminate the best practice procedures performed at certain locations throughout the different EPC Contractors.

One of the main Project achievements since our last site visit in March is the progress observed at the Hides and LNG plant site landfills where construction have been ongoing. Both sites were visited during this

mission. At the Hides landfill, the site has been cleared and 99% of the bulk area of the first 250,000 m³ construction cell has been completed with availability of the cell expected by mid-October. French drain installation and construction of the leachate ponds were ongoing at the time of the visit, as well as the construction of a 20x20 meter pad covered with crushed limestone for temporary storage of EPC4 waste. Five groundwater monitoring wells have been installed with plans to engage the consulting company Coffey to do the monitoring.

At the LNG plant site, works at both the construction and operations non-hazardous waste landfills have significantly progressed since March. The first of the three cells designed to dispose of waste produced during the construction phase of the Project is complete and was handed over to CJJV on August 1st. According to the information provided in the field, this first cell will start operations in November. The site will be managed by a joint-venture between Ecocare, a PNG-based company, and Transpacific Australia. Construction of the other two cells and the operations waste landfill are well advanced geomembranes and leachate collection systems being installed. Five groundwater monitoring wells have been installed around the site.

The option to install a third Project landfill at Gobe, scheduled to be available by early 2012, is currently being reevaluated. Although design engineering continues, it is understood that Spiecapag is considering an alternative to the construction of this landfill by maximizing waste recycling practices and waste disposal through incineration, with residual wastes and ashes being deposited at other Project landfills. Assuming the Project can demonstrate that alternative options being evaluated allow for sufficient waste disposal and treatment capacity, the IESC welcomes this option as it will help avoid the problems typically associated with the management of these facilities and will reduce the Project footprint.

The progress in the construction of the two landfills and the installation of additional incinerators at various Project locations appear to guarantee sufficient capacity to manage all the waste currently being generated. Nevertheless, as already observed in our previous reports, waste forecasts need to be continuously monitored and waste produced versus waste storage/treatment capacity will require further validation as the Project develops, in particular as operational requirements are better defined. This evaluation should also account for the effectiveness of the waste management options currently implemented at Lanco camps to verify if they are in line with the requirements included in the ESMP and if any support is needed from the Project.

Recycling remains one of the biggest challenges for waste management in PNG. Different EPC Contractors have identified different opportunities, but options are limited. Nevertheless, the effort of the Project towards the identification of reliable waste service providers continued in this last quarter with the engagement of the PNG Enterprise Centre and the L&CA team. Nine PNG companies and three overseas companies (with PNG affiliates) have been assessed and agreements have been established with four of them considered suitable for the Project for scrap metals, batteries, paper and cardboard, ink and toner cartridges, waste oil and oily contaminated waters. In addition to finding qualified companies, another difficulty is that in some cases the amount of potentially recyclable waste generated by an individual EPC Contractor is too small for a recycler to be interested in accepting the waste.

During the mission, waste management facilities were visited at several Project facilities:

- *Moro B camp*: the camp, owned by EHL, has an on-site incinerator and a WWTP and is self-sufficient in terms of waste and wastewater management;
- *Juni Training Facility*: construction is complete with training reported to start in October 2011. At the moment the facility houses 50-70 EHL staff. Non-restricted wastes are disposed in the on-site incinerator operated by Allianz with health care waste burned separately. Oily wastes are temporarily containerized until the Hides Waste Management Area is available. Overall, waste segregation should be improved and incinerator operators trained to assure the plant is operated properly. A WWTP has been in operation since mid-December. Effluent from the on-site WWTP is being sent to SGS for testing monthly and field kits are reported to be used, but the tracking of results should be improved and better organized;
- *Tokaju camp*: a 50-bed camp used by CBI Clough JV's contractors for the construction of the tent camp at the HGCP. The limited amount of waste produced is sent either to Juni or Kobalu for incineration. As a back-up option waste is burned in incinerator drums. Wastewater is treated in an on-site WWTP whose effluents are regularly tested;

- *HGCP site*: there are two camps at this location: one tent camp to temporarily house EPC4 workers before the construction camp is available and one sheltered camp for C1 workers. Wastes from C1 camp are treated in two incinerators while those from the EPC4 camp are temporarily burned at three drums incinerators until two dedicated incinerators, whose installation was ongoing at the time of the visit, will be commissioned. EPC4 and C1 are working jointly to develop a waste processing facility in the area where the incinerators are currently located with staging and segregation areas. Wastewater is treated through MBR100 units and the effluent tested;
- *Kobalu*: The situation of this EHL camp is unchanged since the last visit. The facility houses about 110 people and is independent from a waste management point of view with an on-site incinerator and an operational WWTP;
- *Pioneer Camp at the Komo Airstrip*: the camp is fully operational with about 150 people housed and is independent from a waste management point of view with an on-site incinerator and a WWTP;
- *CCJV camp at Kantobo*: the camp has been mothballed since mid-June and is reportedly ready to be handed over to Spiecapag. The existing WWTP has been shut-down and the incinerator removed;
- *CCJV Camp at Gobe*: the camp, still managed by CCJV, is currently housing a limited number of people and at the time of the field visit was in the process of being handed over to Spiecapag. The overall situation of the camp is unchanged since March with waste treated at the on-site incinerator and an operational WWTP for effluent treatment;
- *Spiecapag main Camps 1 and 2*: the waste management practice observed at these camps, one in operation since mid-February and the second recently established, continues to be exemplary. Waste segregation is extensive at both facilities with non-restricted waste treated at the two camp incinerators and restricted waste sent to the Kopi main storage area until the Gobe landfill or another long-term solution is identified. Overall, the waste management approach developed by Spiecapag with two Mobile Waste Management Areas (MWMAs) that are fully equipped for a variety of waste segregation, treatment, storage and disposal options is effective and allows for Spiecapag to treat most of the waste associated with the pipeline construction;
- *C2 LNG Plant Site*: the main achievements since the March visit are the construction of the first cell of the engineered non-hazardous sanitary landfill expected to start receiving waste in September; the commissioning of a medical waste incinerator at the ISOS clinic, and the installation of a biodigester to create compost from food waste. Restricted waste continues to be stored at the Interim Waste Storage Facility (IWSF), which appears to be properly sized to accommodate restricted wastes from construction. Wood, paper, plastic and metals produced by CCJV and the other contractors working at the site are segregated and temporarily stored near the IWSF before these wastes are managed through local recyclers;
- *Northern Logistics Route*: the Northern Logistics Base (11 Mile) camp (under construction) and laydown yard near Lae operated by Agility was visited during this mission. The small amount of waste generated on-site continues to be stored on-site in containers within the Agility yard (and also including waste trucked from Hides) until the on-site incinerator is installed, an event that was about to take place. Wastewater continues to be treated in an on-site WWTP, but monitoring of this facility has not started. Agility does have a Waste Management Plan that includes procedures for monitoring the WWTP it expects to implement once the camp construction is complete. Part of the overall development is for there to be a dedicated waste management area that will include facilities for storage, incineration, and the WWTP.

Procedures for appropriate waste collection, segregation, storage, treatment and disposal are now in place at all the facilities visited with the individual EPC Contractors tracking their waste generation and disposal practices, although at some locations data have still to be properly organized and presented to reflect the good practice noted in the field. The individual EPC Contractors were all found to have effective means of waste tracking. An especially effective inventory management database has been developed by EPC4 that includes a waste tracking module.

The Project is now self-sufficient in terms of treatment of effluent with wastewater treatment plants in place at all Project locations. Although the plants are generally well operated, there is some inconsistency in terms of the degree to which the different Contractors manage and monitor wastewater treatment plants, but significant problems were not observed. Most of the camps have either a contractor or a dedicated

technician in charge to manage the WWTPs operation. One observation is that compliance monitoring at laboratories continues to be a challenge in terms of delivering the analytical results in a timely fashion (e.g. significant delays between sampling and results are still reported) and does not allow for corrective actions to take place should a problem be revealed. Accordingly, the use of field test kits to consistently monitor effluent from WWTPs, observed to be used at some sites, should be strengthened throughout the different contractors to provide controls to treatment plant operations. In the case of the Agility WWTP at Lae, monitoring needs to start.

Most of the Project camps and main construction sites are now provided with good quality incinerators used to treat non-hazardous wastes, as well as the limited amounts of health care waste generated at different Project locations.

The use of innovative waste treatment solutions continues at some Project locations. Examples include the tire shredder and the equipment to remove steel wire from shredded tires at the Spiecapag Main Camp 2 and the Biolux© Digester/Composter used to mechanically compost WWTP sludge, paper, and food waste now in operation at the LNG Plant site.

4.1.3 Recommendations

The project has now reached self-sufficiency to the point that reliance on third parties facilities has been discontinued except under emergency situations and the Project is now self-sufficient, but there is always room for improvement:

- 1) Continue the process of identifying new recycling/reuse options, especially for those specific waste categories whose production is expected to be significant as construction progresses (tires, pipeline plastic envelopes, end pipe cups, etc.). Assist and steward the Contractors so that they take advantage of EHL's efforts to identify suitable recyclers. Evaluate if collecting and combining similar waste streams from different EPC Contractors might make recycling more economically attractive for local companies.
- 2) Now that all Contractors have in place their own waste registers, consider consolidating the information in a single database to allow tracking all wastes produced throughout the Project locations.
- 3) Continue the due diligence process and risk assessments for third-parties facilities receiving Project wastes and provide stewardship/support to improve their performance, when needed.
- 4) At the construction sites where incinerators are installed, verify that the units are operated to reflect Company Rev.2 Air Emissions Management Plan requirements and following the directions included in the Waste Management Plan in terms of waste segregation and operational procedures.
- 5) Maximize the use of field test kits in addition to laboratory-based sampling and analysis to monitor WWTP effluent and allow taking corrective actions should a problem be revealed (repeat recommendation).
- 6) Share good practices and the innovative waste treatment solutions adopted by some of the Contractors between the different Project teams. This could also be in the form of an inter-Contractor workshop.

4.2 HAZARDOUS MATERIALS MANAGEMENT AND POLLUTION PREVENTION

4.2.1 Project Strategy

The Project strategy for the management of hazardous materials is defined in the Hazardous Materials Management Plan and in the Spill Prevention and Response Plan, both 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 and include the minimum requirements to be reflected in the CIPs in terms of mitigation and management measures as well as responsibilities, reporting and notification. The overall objective is to prevent uncontrolled releases of any hazardous material during transportation, handling, storage and use of hazardous materials. Spills have been classified according to the Tier I to III categorization depending upon the potential impact of the spill and the capability of the available resources to face the emergency. The plans require that fuel and chemicals are properly stored in designated areas provided with secondary containment (e.g. double-walled

tanks/lined containment bunds, drip trays) to prevent spills and enable containment of complete volume stored.

Site-specific Hazardous Materials Management Plans have to be developed by each Contractor covering specific risks associated with hazardous materials handling and identifying relevant mitigation and management measures. The provisions included in each plan in terms of risk assessment results, prevention and control measures established, and instructions on actions to be undertaken in the event of releases or spills have to be disseminated to potentially affected communities through awareness campaigns.

Because of the remote location and the significant amounts of materials mobilized throughout PNG, the Hazardous Materials 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 requirements for emergencies and hazardous material spill response.

The main hazardous materials used by the Project are fuel for vehicles and diesel generators, paints and other chemicals used throughout the different construction sites, supplied to the different Project locations by local contractors on as-needed-basis.

4.2.2 Observations

The demand for fuels and lubricants to supply construction equipment continues to increase across the Project. Given that the fuel supply is managed by each Contractor independently, a primary requirement is that the procedures and management plans developed by each Contractor are consistent with the Hazardous Materials Management plan and the Journey & Traffic Management procedure developed by EHL and site-specific recommendations are included in the plans.

Spill prevention performance is measured both as number of spills and also as number of spills in relation to man-hours worked (spill rate). Most of the spills recorded are associated with releases of hydraulic oil and fuel caused mainly by equipment defects or failures. During the period April – June 2011, a total of 109 incidents, of which 97 were hydrocarbon spills averaging eight liters per spill, representing 26 less than in the previous quarter. The largest hydrocarbon spill was about 800 liters of waste oil and there was one incident of a spill of about 950 liters of sodium hypochlorite, both of which were contained and did not enter the environment. A positive observation is although there has been an increase in work-hours, the spill rate trend continues to decrease, demonstrating EHL's commitment to preventing spills. The current target is to achieve, by the end of 2011, a 20% reduction of spills greater than 5 liters, since these represent the majority of all spill recorded. Human error as a factor in the spill incidents has dropped and EHL has embarked on a Contractor awareness campaign to continue to focus on spill reduction.

A Project-wide risk assessment is now complete for both Upstream and Downstream components of the Project and specific activities have been targeted for controls to be implemented. In terms of ability to respond to spill events, all EPC Contractors mobilized in the field have developed Spill Prevention and Response Plans approved by EHL and have reportedly completed individual site-specific spill risk assessments. Ongoing risk assessments include EPC5A (Omati section) and EPC5B (Highlands Highway section).

In terms of ability to respond to spill events, one improvement since the last site visit is that active EPC Contractors now have Tier II spill response arrangements in place. Tier III arrangements are in place between ExxonMobil and East Asia Response Limited (EARL), the oil spill response provider retained to respond to Tier III spills scenarios. Although in the event of a Tier 3 spill ExxonMobil will initiate response through this agreement, this does not relieve contractors of the responsibility to have their own Tier 3 arrangements in place.

Overall, from what was observed in the field, hazardous materials continue to be well managed throughout the Project. Spill kits and fire extinguishers were found to be available and properly located throughout the sites and hazardous material drums and containers were observed to be appropriately labeled.

4.2.3 Recommendations

- 1) Evaluate the option to locate mobile spill pollution response trailers throughout selected project locations to allow prompt intervention in sensitive areas.
- 2) Now that Tier II spill response arrangements have been established, evaluate the status of the measures in place at each Contractor and remedy identified gaps, if any.
- 3) Ensure fuel delivery contractors have their own plans in place consistent with the ESMP requirements and with enough capacity to handle minor/medium spills.
- 4) Continue the training of EHL field supervisors to routinely check the location of fire extinguishers and spill kits and verify that shelters/areas where hazardous materials are stored are provided with appropriate ventilation, especially at the new Project locations.
- 5) The main fuel storage area at the HGCP is still under construction. According to the information provided, water/oil separators are located at both discharge points of the fuel farm and double walled (self contained) transtanks are used to store the fuel. However, given the significant volumes of fuel expected to be stored and also in consideration that the location of the facility is on top of a hill, we recommend that a site-specific risk assessment be conducted to identify if additional measures to prevent spills are needed.

4.3 AIR QUALITY

4.3.1 Project Strategy

The Project strategy for the air quality monitoring 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, mitigation and management measures, 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 current stage of construction where extensive earthmoving is still ongoing, fugitive dust associated with excavations, vegetation/soil clearance, trenching, material hauling, dumping, site grading, and backfilling activities represent the main potential impact on air quality. Although temporary and limited to the time of construction and when conditions are dry enough, dust emissions might affect those areas in close proximity to the sites where there is on-going work and along routes frequently used by project trucks.

The general control measures to mitigate fugitive dust as outlined in the EIS and in the ESMP include the use of dust suppression techniques such as watering of the working areas and along 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 site construction materials containing fine particles (e.g. sand, aggregates, etc.) to/from the, 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, vegetation clearance, 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 equipment and through the 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 considering ad hoc emissions monitoring plans to detail emissions composition and monitoring criteria. Specific provisions in terms of management and operation criteria of incinerators have been addressed in the updated review of the Air Emissions Management Plan (Rev.2). 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 proper maintenance of construction equipment and incinerators 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 the heavy rain encountered during the visit, dust emissions were not considered an issue although the number of vehicles and equipment mobilized is now significant. Because of the locally wet conditions that keep the soil moist and naturally prevent dust formation, the need to implement dust control measures such as watering is limited. However, water sprinklers were observed at the LNG site and control of speed limits is well implemented throughout the Project. From the information provided, atmospheric air monitoring (sulfur dioxide and nitrogen dioxide) was conducted only by EPC3 at the LNG plant site in June with in situ instruments at three designated locations with results reportedly well below Project standards.

The use of protective masks at sites where dust is an issue continues to be adequate and from what observed during the visit, vehicles and equipment operating at the different Project locations are apparently in good condition.

One aspect that has been stressed by the IESC since the first visit relates to the performance of the incinerators and their monitoring to ensure their consistency with the ESMP. As construction progresses, additional incinerators have been and will be installed at most of the Project locations to manage the non-hazardous waste generated at camp sites, as well as limited amounts of medical waste. Air modeling conducted at 18 Project locations with US EPA recommended AERMOD & CALPUFF models has demonstrated that air emissions from incinerators that operate within manufacturers' specifications will not represent a health hazard. The need to verify that these units are properly operated is therefore a key aspect in the management and control of air emissions. Although most of the Contractors have developed their own site-specific air emissions management plans, there is a wide range of incinerator types across the Project that have different operating procedures and the EPC Contractors appear to have different means to control and monitor the performance of their incinerators. For example, results of EHL internal inspection at the Juni and Kobalu demonstrated some deficiencies in incinerator operations including a lack of records of temperature monitoring, inspections and maintenance, visual inspections of stack emissions and fuel consumption. Our observation is that it is difficult to verify that all of the incinerators are being operated to manufacturers' specifications and we recommend that incinerator operations and performance are documented as required by the Air Emission Management Plan. A possible approach might be to develop a Project-wide Standard Operating Procedure to optimize plant operations. A beneficial activity towards this goal could also be for EHL to initiate an inter-Contractor waste management workshop for incinerator operators, such that operating experiences at the different Contractor sites can be shared.

One possible issue with incinerator management identified during the March field visit was the location of units too close to accommodations. The incinerator position at the MCJV main camp at Komo has been redesigned and the unit has been moved further away from the accommodation units.

Greenhouse gas emissions have increased since the last visit as a consequence of the increased fuel consumption associated with the operation of both stationary and mobile equipment involved in the construction activities at the different Project locations. According to the information provided, 18,432 metric tons of carbon dioxide-equivalent⁷ were estimated to have been emitted in Q1 2011. The emissions associated with vegetation clearance have not yet calculated and will be estimated once the final footprint is available.

4.3.3 Recommendations

- 1) Ensure that stack emission monitoring (no black smoke or ash) and other operational parameters such as temperature, waste feed rate, fuel consumption, and equipment inspection & maintenance are maintained at all incinerators used by the Project.
- 2) The Project should routinely perform inspections and follow up on implementation of corrective actions identified to ensure that the incinerators are properly maintained and operated within manufacturers' specifications to make sure emissions are minimized.
- 3) The Project should continue the process of stewardship to Contractors incinerator operators to ensure incinerators are operated efficiently.

⁷ Estimated based on Contractor's diesel usage and calculated using the Australian Government's Department of Climate Change, National Greenhouse Accounts Factors, July 2010.

4.4 NOISE AND VIBRATIONS

4.4.1 Project Strategy

The strategy undertaken for the management of noise and vibrations has been developed and incorporated in a Noise and Vibration Management Plan (NVMP) that is Appendix 3 to the ESMP. This document basically follows Australian and New Zealand Environment Council guidelines for minimizing vibration and overpressure associated with blasting activities and follows IFC requirements for noise.

4.4.2 Observations

Noise being generated by the Project continues to be mainly within camps associated with the diesel generators and with earthmoving equipment and truck traffic associated with the construction activity. Blasting associated with quarries and with road upgrades is expanding such that the potential for community effects is increasing. The different EPC Contractors actively working in the field have been generally undertaking noise monitoring, consistent with their activities. MCJV reports daytime noise monitoring at their Pioneer and Main camps, although the values slightly exceed the daytime limit of 55 dBA. It is not practical to understand if the measurements were taken in living areas or at community receptor positions and nighttime values are not reported. CCJV does not report any monitoring results for Q2 2011, but indicates that noise-related community complaints have not been received. Spiecapag has not yet initiated community noise or vibration monitoring, because pipeline construction has not reached populated locations, but they have equipment in place to conduct the monitoring. CJJV at the LNG Plant reports that noise measurements have been made at the perimeter fence and they demonstrate compliance with Project standards. Community grievances associated with noise or vibrations have not been recorded since the March field visit.

Although significant problems were not encountered, the different EPC Contractors appear to be implementing noise and vibration monitoring to varying degrees. Where noise exceedances are being encountered, mitigating measures are not reported.

4.4.3 Recommendations

- 1) EHL should conduct a Project-wide review of how the individual EPC Contractors actually implement the Project Noise and Vibration Management Plan. In particular, we have observed that some active quarries are close to communities, but we did not see evidence of blast monitoring.
- 2) Reporting of noise and vibration monitoring needs to be presented in terms of where the measurements are being made with respect to receptors. It is not sufficient to say a measurement was made at a “camp” without specifying where in the camp – next to a diesel generator? or in a sleeping area? This should also be part of a Project-wide review.

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 requirements lead to extraction at a third-party facility or shares the site with a third-party. As discussed in Section 3.2.2.2, EHL has finalized a “Procedure for the Categorization and Management of Third Party Facilities & Services” at the time of the IESC field visit that is consistent with the requirements outlined in the LESR. This document contains a flow chart whereby a process is defined for identifying the third-party aggregate or rock 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

Construction at the HGCP site and the Komo airfield requires more aggregate that was originally anticipated and both CCJV and MCJV have had difficulties in identifying sufficient quantities of good-quality aggregate. MCJV has assumed full ownership of Quarry QA1 and it appears to be well operated and modifications are being made such that at whatever stage it is advanced, benches will remain such that the quarry is safe and potentially re-occupied should this be required in the future. MCJV is also now operating the Timalia River Quarry/Borrow Pit - designated TB1. The social problems associated with this quarry encountered during the March field visit have been resolved and the quarry had just started operation at the time of the current visit.

One of the observations from the March field visit was that Quarry QA2 (Tameya quarry serving CCJV for the C1 Contract), originally used as an aggregate source for the construction of HGCP facilities, was not left in a condition consistent with good stewardship. This situation has not changed and during this field visit it was noted that the quarry was still being used for project purposes, this time as a source of aggregate for a truck laydown yard to be operated by Agility. IESC continues to emphasize that this quarry requires stewardship, at least to make sure that it does not pose a risk to local residents. This situation where a quarry used by the Project did not have sufficient stewardship to assure community safety is already flagged as a non-conformance in Section 3.2.2.2. CCJV is also developing quarries along the Well Pad Access Road. Quarries HQ1, HQ3 and HQ4 are all producing aggregate. The quarries appear to be appropriately managed, but it is noted that all produce unusable mudstone that needs to be spoiled to a greater degree than was planned and all of the quarries have produced large amounts of spoil material that has needed to be disposed in sinkholes.

During this visit it was possible to visit the main quarry used for supplying aggregate for the preparation of working surfaces at the LNG Plant site (Kokore Hill Quarry). This third-party quarry was developed specifically for the Project and has provided approximately 1.5 million tons of aggregate since the start of construction. It is expected to close down within about two weeks of the current field visit and the owner is not expected to re-open the quarry for other applications. On the basis of the current "Procedure for the Categorization and Management of Third Party Facilities & Services" the IESC interprets that this quarry should have operated fully under the umbrella of the ESMP. At this stage the Project should at a minimum make sure that it is left in a safe condition and it is understood that this is taking place. EHL should also evaluate if the source of aggregate for the batch plant currently operating at the LNG Plant site should also operate under the umbrella of the ESMP if by far the bulk of the aggregate produced is dedicated to the Project.

A quarry operated by Spiecapag was visited at KP 276 along the ROW. Although this quarry should be fully stewardable under the ESMP, it was apparent that the final condition of this quarry was going to be a single highwall that is not consistent with good reclamation practice.

4.5.3 Recommendations

- 1) Stewardship of third party quarries needs to be fully implemented in accordance with EHL's "Procedure for the Categorization and Management of Third Party Facilities & Services." Quarry QA2 continues to require slope stabilization and the Kokore Hill Quarry should be left in a stable condition.
- 2) The final configuration of the KP 276 quarry should be reviewed with Spiecapag, as it was not obvious in the field how a good reclamation was going to be achieved.

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 Ecological Management Plan 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 plan 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

Erosion and sediment control are critical components of construction activities. At the time of the March 2011 field visit, the mudflow to the Tagari River along the path of the Akara Creek was the most significant issue. Efforts have been made to improve the Akara Creek drainage in terms of new culverts under roads and cleanup where this is practical, but for the most part any cleanup would be counterproductive. It is understood that Akara Creek monitoring has ceased due to access restriction by landowners, but what can be observed is that the area of the mudflow is starting to naturally vegetate, and stabilize.

Significant rain occurred at the time of the field visit, so the results of erosion control measures could be readily observed. Significant effort is being placed on controlling erosion and generally good success was encountered. Different EPC Contractors have different approaches, but during this visit good results were observed from MCJV's efforts at the Komo Airfield where they have a dedicated team of 25+ workers to install and maintain erosion control systems. Spiecapag is also expending considerable effort towards erosion and sediment control. Although there is always room for improvement, results were found to be generally positive in spite of heavy rains.

The biggest concern we have seen is with sidecasting along the Hides Wellpad Access Road. Sidecasting has produced mudflows that have traveled up to hundreds of meters away from the road into sinkholes. The footprint from this sidecasting is more than was anticipated from the EIS. It appears likely that as the road continues to progress up Hides Ridge that competent limestone will be encountered such that the impacts of sidecasting are minimized, but if liquefiable clays continue to be encountered, the environmental impacts in this sensitive area will be far beyond what was anticipated in the EIS. The type of impact seen to date cannot be considered to be acceptable practice along Hides Ridge.

At the LNG Facilities Site some significant improvements to the erosion and sediment control systems were observed. Construction of the large sedimentation ponds is complete and permanent control measures are in place to prevent incidents like occurred in early February 2011 when runoff entered the Vaihua Ecosystem Complex. Erosion and sediment control at the LNG Plant site is controlled.

4.6.3 Recommendation

- 1) We strongly recommend that EHL develop some contingency plans should sidecasting continue to produce mudflows as work proceeds up Hides Ridge. It is understood that sidecasting is an allowable construction technique, but the environmental impact beyond what was anticipated in the EIS will not be considered acceptable.

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 EHL's Project-wide Biodiversity Strategy document. Mitigation measures within 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 Management Plan and the Erosion and Sediment Control Management Plan, will be implemented by 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). In addition, EHL has also developed a Quarantine Management Program (QMP), which is a Project-wide document designed to

prevent the importation and spread of pests, plant pathogens or disease (including invasive species) via Project personnel and cargo.

Central to the Ecological Management Plan and the Weeds Management Plan is the pre-construction survey, which 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, sinkhole swamps less than 50-m deep, *Nothofagus* (beech) forest that requires special hygiene measures due to risk of dieback as caused by pathogens such as *Phytophthora cinnamomi*, etc. The pre-construction survey is carried out by EHL, except for EPC-5A (the ROW), where EHL's contractor, Spiecapag, is conducting the survey, and at Komo where MCJV undertakes surveys for its scope of work, including beyond the main Komo site (for example, quarries where aggregate is sourced).

The Biodiversity Strategy has been developed to address long-term mitigation of biodiversity for both the construction and operation phase. The document contains 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. Following the Biodiversity Strategy, EHL will develop the actual Offset Delivery Plan, which will be a detailed document on offset design and management. The Biodiversity Monitoring Program is comprised of five Programmed Monitoring Activities (PMA), which are as follows: PMA-1, 'Remote Sensing of Indirect Impacts', designed to monitor forest loss and degradation in the entire Upstream Project Area as caused by project-related indirect impacts; PMA 2, 'Aerial ROW Surveys' designed to monitor focal habitats and the potential spread of invasive species and disease along the ROW; PMA-3, 'Regeneration Surveys', which gathers in-field data on forest succession and faunal communities and the condition of forests adjacent to the ROW, roads and facilities using a biodiversity benchmarking system; PMA-4, 'Road Record Assessment', designed to monitor potential third-party use of Project roads during operations; and PMA-5, 'Efficacy of Offset Projects', which will be tailored to monitor the outcomes of each biodiversity offset project.

4.7.2 Observations

The biodiversity specialist of the IESC did not join the team for this site visit, therefore observations on this topic are limited and are largely focused on the Project's Biodiversity Strategy⁸. The IESC will resume their detailed review of this topic as part of the next site visit.

4.7.2.1 Biodiversity Strategy

EHL continues to progress on the biodiversity-related action items contained in the Milestones Schedule. Rev. 3 of the Biodiversity Strategy, which addresses residual comments made by the IESC, will soon be released in the public domain⁹. The IESC considers the Strategy to be in line with current best practices in biodiversity management.

The Project's stakeholder engagement with various international and national conservation organizations is substantial. Formally underway since 4Q 2010, EHL has continued a steady dialogue with these organizations throughout 2011. The scope of the consultations is broadly as follows: (i) to understand the stakeholder landscape and gain a sense of current conservation efforts in PNG; (ii) to introduce the Project and describe EHL's approach to biodiversity mitigation and management; (iii) to exchange ideas on conservation actions that EHL could undertake, most notably in the development of its biodiversity offset program; (iv) to identify overlapping interests and potential partnerships.

In June 2011, EHL agreed to partner with Conservation International (CI) to mutually pursue a number of initiatives. As part of a first phase of work, CI is currently advising EHL as part of the development of a Biodiversity Offset Delivery Plan, to be in line with current best practices in offset design and biodiversity management. It is EHL's intent that biodiversity offset projects are delivered via partnerships between local PNG NGOs, where the emphasis is on building and combining the strengths of each individual NGO. The Offset Delivery Plan follows through on Item #15 in the Milestones Schedule and will include a technical rationale for offsetting the residual impacts on high biodiversity values in the Kikori River Basin outlined in the Biodiversity Strategy. Tasks to be completed as part of the effort, *inter alia*, include the

⁸ Information acquired via presentations made during conference calls.

⁹ See Rev 2 of the Biodiversity Strategy at <http://www.pnglnc.com/commitment/biodiversity.html>

following: review of local and regional conservation priorities as context for offset selection; identification of potential biodiversity offset areas and actions; scoping of opportunities for additional net gain outcomes; assessment of offset implementation feasibility; assessment of potential partners (e.g., communities, universities, government agencies, NGOs); assessment of potential legal, funding and governance mechanisms for offset implementation.

The final Offset Delivery Plan is targeted for disclosure at the end of 1Q 2012. The draft Offset Delivery Plan is expected to be developed by end 4Q 2011, consistent with an MOC presented to the IESC during the March 2011 field visit¹⁰.

Regarding Biodiversity Monitoring, Firescape Science has been contracted to gather a pre-disturbance baseline using Landsat/SPOT 2009 archive imagery (or as close as possible to this year) for Programmed Monitoring Activity (PMA)-1. As part of the first monitoring event in PMA-1 (remote sensing), pre-disturbance baseline imagery will be compared to 2011 imagery for the entire Upstream Project Area. The Project is acquiring 2011 imagery in August of this year, and ground-truthing is targeted for completion this coming November. Firescape Science has demonstrated that indirect impacts and forest degradation, which PMA1 is designed to monitor, are readily quantifiable using a range of remote sensing analytical techniques. Cloud cover does remain a problem however, but the option to use radar imagery has been dismissed due to the coarseness of resolution. Landsat/SPOT imagery is still considered to yield the best results.

PMA-2 (Aerial Surveys) is under development but will consist of helicopter flyovers of the ROW and other project-disturbed areas. This activity will be designed to be used to regularly check focal habitats along the ROW and act as an early warning system for invasion and spread of alien species and diseases. Regarding PMA-3 (in-field regeneration surveys), a benchmarking system to monitor changes in forest quality in adjacent Project-disturbed areas has been developed. The sampling design for vegetation has been established, although metrics for measuring the recolonization of fauna are still being selected and will likely focus on bird species only. The selection of the final benchmark sites will depend on discussions with landowners. PMA – 4 (road assessment) has not yet begun.

The Milestone Schedule Item 16 (Legally Protected Areas) states that programs relating to the promotion and enhancement of conservation aims of the Lake Kutubu Wildlife Management Area (WMA) would be integrated into the Offset Delivery Plan. However, an MoC has been agreed to remove the Lake Kutubu program from the Offset Delivery Plan. EHLs contribution to conservation in the area will instead form part of the collaborative WMA program, led by project co-venturer partner OSL. EHL's component will be to focus on the implementation of a fisheries program intended to educate the community on the ecological processes of the aquatic habitat necessary to maintain and conserve the endemic fish species, and thereby ensure a continued source of protein, and help conserve the fishing communities.

4.7.2.2 Ecological Management and Induced Access Management

Pre-construction surveys have continued along Hides Ridge. Where significant ecological resources have been identified, mitigation procedures have been implemented. For example, as part of a sidecasting assessment for Wellpad B, a bat cave was identified (as well as a chance find cultural heritage site) and the sidecasting was moved such that these resources would not be impacted. MCJV has also conducted pre-construction surveys where ecological considerations were addressed at the Tamalia Quarry and spoil disposal areas. Pre-construction surveys have also been completed by Spiecapag within about the first 150 km of the ROW from the Omati Delta. At the LNG Plant site ecological surveys include the monitoring of sandalwood.

Regarding induced access management, the Southern Route is now a fully functional access such that it is now possible to drive from the Omati Delta to Hides. Access is currently restricted to Project personnel or local populations under controlled circumstances. Long term control of access to new project roads is a cornerstone commitment of the EIS and Induced Access Management Plan, and EHL is working through the details of how best to deliver that commitment. Control of access to the Kantobo and Gobe areas will be achieved through a combination of using natural terrain features and removing culverts. Access roads associated with construction of the pipeline are to be reinstated. It is understood that this is also a subject

¹⁰ A management of change was processed to postpone the date of delivery of the draft Offset Delivery Plan to 4Q 2011 (Item #15 of the Biodiversity Strategy indicates 1Q 2011). The IESC agreed with this postponement.

of discussions between EHL and Spiecapag has a draft version of Induced Access EMP that still needs to be approved by EHL.

4.7.2.3 Invasive Species Management and Quarantine Management Program

Invasive species and weeds management continue to be well executed by EHL's and the Contractors' environmental staff. All of the main EPC contractors have programs involving the surveillance for weeds and interventions (spraying; physical removal) to eliminate them should they be encountered. MCJV reports weekly inspections and three comprehensive weed audits resulting in implementation of a spraying program. CCJV reports the production of weed identification cards for Priority 1 weeds and that weeds were removed from vetiver grass at the Hides Landfill site. Spiecapag reports that daily monitoring inspections are conducted; control is achieved through manual hand pulling and application of herbicides (although the latter was restricted due to rainfall); vulnerable sites are demarcated; and awareness training is provided in tool box talks and inductions about the presence of priority weeds and the management measures needed to avoid the spread of the weeds. At the LNG Plant site surveys are also routinely conducted to detect outbreaks of significant weed and/or pest species or plant pathogens. None were encountered since the March field visit, but the use of an herbicide has been approved for use, in particular along the new fences.

Another component to invasive species management is decontamination of vehicles, for which vehicle washdown station has been erected. The Mubi Quarry West site for vehicles traveling northwards into the area of previously undisturbed habitat between Gobe and Kantobo was visited and found to be well operated. At Hides, the washdown station is being established at KP 3.3 for heavy and light equipment moving into Hides Ridge was also visited and found not to be functioning at a level to prevent the transfer of soil. This situation was assigned to be a non-conformance by EHL and corrective actions were underway at the time of the field visit. Accordingly, a non-conformance is not assigned in this report.

Aerial surveys of Hides Ridge had identified an area of dieback of *Nothofagus* (beech) forest at the time of the March field visit. Culturing of lupin seeds in soil collected from areas suspected of dieback on the ROW has been undertaken by Spiecapag to ascertain the presence or not of *Phytophthora cinammomi*, the main cause of dieback. EHL was in the process of completing construction of an in-house dieback laboratory at Moro B Camp A to be operated by Spiecapag, but also to test samples collected by other contractors.

Regarding implementation of the Project-wide Quarantine Management Plan (QMP), EHL's contractors appear to be adhering to the Quarantine Procedure, which is a contractually-binding document that requires Contractors to conduct inspection, and, if necessary, treatment of cargo at the point of origin. National Agriculture Quarantine and Inspection Authority (NAQIA) officers also follow-through with inspection when cargo arrives in-country. The Project measures the implementation of the Quarantine Procedure through regular reporting from the Contractors to EHL's Material Logistics Group (MLG). Data are now available for most EPC contractors, and results were presented to the IESC for each major contractor. For EPC-2, for example, NAQIA officers inspected vessels in Singapore prior to their mobilization to PNG Waters. NAQIA then visited Kuantan (Malaysia) to conduct pre-inspection of pipe coating and load out facility for EPC-2. These visits build on lessons learned from NAQIA's visit to the loading facility at Batam Island, Indonesia for EPC5A. The Project also presented results from EPC-3, EPC-4, EPC-5A and Drilling. Regarding C1 and EPC-5B, cargo is largely in-country, and the Project is considering a retrospective analysis. The number of inspections, fumigations and sometimes re-washing is generally correlated with the degree of risk at the point of origin. In general, fumigations and re-washing occur infrequently, although it appears that NAQIA is following through on their remit to inspect and treat incoming cargo. The IESC still has not directly reviewed contractors' documents or visited off-loading sites in PNG while inspection was in progress. This will be a future activity.

4.7.2.4 Freshwater Ecology

Prior to the site visit, the IESC requested a summary of responses to findings of the March 2011 IESC report related to freshwater stream studies, and status of any changes or results from this work. No new information was received and our previous comments are repeated below.

While the Project has significantly improved its approach to monitoring freshwater ecology in the Upstream Project Area, there is still room for more improvement, as suggested in the June - July 2010 baseline survey report. Indices of feeding guilds cannot be properly assessed until they are calculated for

samples from sites that are known to be impacted. These indices will need to be considered alongside other methods of invertebrate community analysis, and cannot stand alone as a measure of impact.

The Project's freshwater monitoring program currently does not include post-wet season sampling events given its location in a tropical environment. A post-wet season sampling event would help improve the freshwater baseline and might help enable the Project identify if changes in freshwater ecology are project-related or due to natural variability, but it is understood that sampling of the river during high flows may be ineffective.

The IESC endorses the recommendation that the monitoring program will benefit from the addition three sites identified. There are some river crossings, however, that were excluded from the sampling program (notably, four crossings as identified in the materials presented to the IESC during the March site visit) due mainly to a lack of access.

4.7.2.5 Omati River Studies

On the positive side, EHL appears do have done a reasonable job in evaluating certain aspects of the Omati River environmental setting:

- identifying potentially affected villages;
- determining the main species or species groups harvested, at least on a qualitative basis;
- measuring physical characteristics: river flow and sediment load; riverbed sediment transfer; chemical properties of sediment; etc.; and
- conducting physical modeling.

In spite of this effort there are still some significant limitations to EHL's environmental characterizations of the Omati River. The Omati River fisheries utilization study resulted in documentation of only 3 species by scientific name and five other general categories of species. It is unknown if any endemic species occur in the Omati. Other studies in major river estuaries draining to the Gulf of Papua have documented up to 49 species of fish (Haines, 1983) and each system has a different species composition (Alan Haines, personal communication).

The life histories of fish resources that will be impacted by dredging and pipe-laying activities have not been documented such that impacts can be predicted. Based on the limited data presented to date, which will hopefully be resolved with the completion of all of the survey reports, the catch per effort has been extremely variable, such that comparisons with baseline, during and post construction monitoring will be impractical. An additional limitation is that the economic baseline of subsistence fishing in the Omati River has not been quantified. Subsistence fishery surveys were conducted in December 2010 and February 2011, and the Q2 survey should have been conducted during April through June, but the field work was delayed until July. Reporting for the December effort was reported to the IESC only at the time of the field visit. Again, it is understood that EHL has compiled additional information, but this was not made available to the IESC.

The current situation where impacts from dredging are still uncertain is unlikely to be resolved prior to the scheduled start of dredging in October 2011. IESC recognizes that it is no longer practical to establish adequate baseline conditions, although EHL is strongly encouraged to continue surveying to the degree practical. Monitoring needs to continue through the dredging process. The Project's monitoring provision to have LCA personnel from the Kopi field base accommodated on the support barges moored in the Omati River is a good start. They will support and provide daily supervision of local community activities along the waterway, including managing community safety and dealing with community grievances arising out of construction impacts. Among issues they may have to deal with are fish kills that stakeholders may believe are linked to the dredge operations.

4.7.2.6 Caution Bay Studies

EHL has made some significant achievements in terms of characterizing the marine and shoreline environment of Caution Bay:

- identifying potentially affected villages;
- determining the main species or species groups harvested, at least on a qualitative basis;
- measuring physical characteristics: ocean currents and sediment load; seafloor sediment transfer; chemical properties of sediment; etc.;

- conducting physical modeling; and
- characterizing seagrass, coral, and mangrove resources, in particular defining the characteristics of the mangroves.

The evaluation of the movement of sediment as a result of offshore construction in Caution Bay is based on modeling that appears to have been well done, but actual environmental impact is not clear. Some unique offshore coral areas were documented in the April 2011 Marine Ecology Report. The revised sediment plume modeling study appears to assume impacts on the basis of nearshore coral reef habitat depicted in EIS Appendix 23, Figure 3.04, but in actuality there appear to be offshore coral resources at risk from the dredge backfilling. In particular, the April 2011 Marine Ecology Report identifies that the highest hard coral structural complexity was observed at Coral and Fish (CF) sites designated as CF-11, CF-13, CF-14 and CF-17, the first three of which, are in the middle of the path of suspended sediment plume resulting from the backfilling of the pipeline trench. These sites were also where the highest abundance and diversity of fish was observed in conjunction with the sites of increased coral reef complexity and health. An additional complication to understanding potential impact is that quantitative data that would characterize important fishing places in terms of catch by species by gear, and the value of the catch by species is not available.

The conclusion from the environmental monitoring and modeling effort in Caution Bay by the IESC is that there is uncertainty as to the actual environmental impact from the upcoming dredging. Monitoring therefore needs to continue through the dredging process, and the monitoring should focus on the projected sediment plume from the pipeline trench backfill operation as it impacts the unique offshore coral features.

4.7.3 Recommendations

- 1) As PMA-1 will soon be underway, consider the mechanism for disclosure of monitoring results for this and for other PMAs.
- 2) In the upcoming report for the monitoring of freshwater ecology, ensure that a justification is provided for those water crossings that were excluded from the design, especially for the four indicated in the presentation developed for the IESC. The reasons for their exclusion are not clear (repeat recommendation).
- 3) A monitoring program of the dredging in the Omati River should be established. Recommended activities include: document the extent and duration of visible plume from the air; verify that anomalous dissolved oxygen (DO) is not associated with the plume at various positions and depths in the plume downstream of the dredging; estimate the number and species entrained in the dredging equipment; record and verify observations provided by community observers; and other measures outlined in Table 11 of the Omati Dredging Report.
- 4) The project should recruit and hire a qualified fish scientist with experience in design and analysis for fisheries baseline surveys to oversee the fisheries work and mentor existing staff.
- 5) If significant amount of large woody debris is removed from the Omati channel, the project should consider reestablishing lost habitat features.
- 6) The monitoring sites for fish and coral should be changed to eliminate the outlying areas (CF-O1, 02, 12, 17, and 18) and establish several more sites (around CF-11, CF-13, CF-14 and CF-17) in the path of the projected sediment plume from the pipeline trench backfill operation. This must be done as soon as possible, because trenching is scheduled for September.
- 7) The Project should conduct real-time sediment monitoring during backfilling at the LNG site landfall at Caution Bay, and at least two monitoring episodes following completion of the backfilling to assess impacts to the unique offshore coral features.

5 SOCIAL

5.1 INTRODUCTION

5.1.1 Scope of Social Review for this Site Visit

In total, the IESC engaged with some 150 people individually or in groups, including those affected by resettlement, communities living adjacent to Project works areas. The IESC social review included (but was not limited to) the following activities:

- introductory presentations by L&CA in Port Moresby;
- in-field discussions with a range of project personnel including project managers, L&CA officers, the resettlement team, and contractor community liaison and field staff;
- discussion with members of the Environmental Law Centre (independent observers of the RAP process);
- meeting with a delegation of eight officers from Central Province Government and Hiri District led by the Central Province Government Deputy Administrator;
- various meetings with the Resettlement team now based at Juni;
- interviews with clan elder and three people relocated for the Kopeanda land fill facility
- interviews with the operators of the Kikori District Rural Hospital and headmaster of Kikori High School;
- observation of a graduation ceremony of Barging Route Waterways Committee at Kikori and subsequent discussions with some committee members;
- Meetings with people residing or working in the vicinity of the Omati waterway – Goare village and A'abari fishing camp;
- meetings with key informants and community representatives in Lealea village (near the LNG Plant);
- visit to Komo Nursery, established as a demonstration area and to provide seed stock/propagules for agricultural livelihood restoration;
- inspections of garden re-establishment and discussions with a resettler family displaced by the Komo airstrip;
- informal discussion and participation in a post-resettlement celebration with people displaced by the Timalia River borrow area; and
- informal interviews with individual displaced families at Kopeanda, the Komo airstrip, the Hides quarries & members of communities in the vicinity of major works areas¹¹.

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 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

¹¹ Sites visited during the July 2011 IESC visit included, but were not limited to: Kopeanda landfill resettlement; Timalia River borrow site/ resettlement; Well Pad B and spine road; Hides Quarries 1,2,3 and 4; various replacement house & water collection structure sites in the Hides area; resettlement area adjacent to the Komo air strip entrance; Komo Nursery, Komo Government centre; Goare village; A'abari fishing camp, Omati waterway; Kopi Scraper Station; Kikori District Rural Hospital; Lealea village, near the LNG terminal; LNG terminal jetty and pipeline landfall; and, inspection of the LNG terminal vicinity (uncontrolled filling & solid waste disposal; new industrial and residential development; opportunist settlement).

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 L&CA (FORMERLY 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.

Since the last IESC review, L&CA has distilled its role and functions into the following.

Goal:

- Support Project success by mitigating execution risks with community engagement and by developing a ‘social license to operate’.

Objectives:

- Secure and maintain land access;
- Mitigate work stoppages;
- Maintain/enhance license to operate with community; and
- Comply with company policies and Lender commitments.

5.2.2 Observations

5.2.2.1 L&CA (formerly SELCA) Organization

During the last review, the IESC noted that it was generally comfortable with the L&CA organizational framework. From discussions with both Port Moresby-based and field staff, it was apparent that solid progress has been made in integrating L&CA field staff into Area Construction Managers’ field teams. This had raised senior project management awareness of the challenges that the L&CA team faces. It had also contributed to better integration of land access, resettlement planning and stakeholder engagement with construction activities.

Recent L&CA staff turnover has been high. EHL provided the following reasons:

- a renegotiation of L&CA team contracts carried out in March and April 2011 led to the resignation of a number of expatriate and national discipline leads and other staff;
- some expatriate staff have been working on the Project intensively and away from their families for 2-3 years and are now ready to move on; and
- the intensity of field work in PNG and the daily threat environment both in Port Moresby and in the Highlands takes a heavy toll on staff.

There has also been turnover in L&CA team managers. The present manager is an interim appointment, the fifth that has held the position in the 3-year period that the IESC has been interacting with the team. Recent incumbents have succumbed to serious health and medical screening issues. EHL has designated a long-term replacement to transition into the position during Q4 2011.

The fall-out from an exercise to renegotiate L&CA team contracts carried out in March and April 2011 was still being felt with the resignation of a number of expatriate and national discipline leads. Other staff turnover has been high. The IESC is very concerned by the continuing lack of stability in L&CA team leadership and by its failure to fill many L&CA positions. The Project is nearing its peak construction period. It is about to embark on land access and compensation negotiations in what is likely to be the most challenging Project area. An election and period of likely social volatility is looming. By now, it should be clearly apparent that the ability to proactively engage with communities and effectively initiate dialogue when problems occur is fundamental to timely completion of the Project. The L&CA team must be fully resourced prior to peak construction. Gaps such as those that have emerged in the LNG terminal L&CA team should be filled as a matter of urgency. The IESC considers that the absence of stable management and a fully resourced L&CA team represents an area of risk for the effective operation of the ESMS. A Level II non-conformance has been raised. The IESC will be very concerned if this pattern cannot be stabilized by the end of Q4 2011.

Subsequent to the July-August 2011 review, EHL has advised it is implementing the following measures:

- intensive recruitment with 43 new hires commenced or about to commence since the July-August 2011 review; and
- establishment of ‘call-off’ agreements with several of the key technical leads who have left the project so that they can be on call if their advice is needed.

As of November 2011, L&CA staff numbers were as follows:

National staff	120
Expatriate staff	35
Total	155
Vacancies	25

Responsibility for undertaking social screening and social impact assessment as part of the site selection process is still not clearly defined. This function needs to be addressed as there is likely to be significant ongoing site selection for quarries, borrow areas, spoil disposal areas as well as pipeline camps and laydown sites. While a clear site selection procedure has now been developed, the lack of clear responsibility for social and physical/economic displacement impact screening remains a significant weakness. This is a repeated observation.

L&CA team challenges going forward include the following:

- need to reduce the very high staff and leadership turnover;
- achieve full resourcing – with peak construction pending, unfilled positions remain;
- increase national staff in the L&CA team, especially in lead and management positions; and
- improve level of compliance with Lender Environmental and Social Requirements – reduce level II non-conformances.

The shift of resettlement-related logistics (e.g. rations delivery, resettlement-related building materials procurement and transport) and hard construction (resettlement housing delivery, schools, community roads, tracks, etc.) to the Project Development Support team (outside of L&CA) has been effective in lifting a heavy management burden from the L&CA team. It has not, however, resulted in the accelerated delivery of housing and replacement infrastructure. A much greater management focus on delivering resettlement commitments is required. See Section 5.4.2.1.

Project land access and physical resettlement will conceivably be completed by the end of 2011. On projects of this kind, the process of negotiating and transacting land and resettlement agreements builds trust with landowners and communities. Care should be taken to retain some of those staff members that have earned such trust as operations phase L&CA field officers.

5.2.2.2 Information Management

The information management system covering L&CA was operational with key interfaces and reporting templates finalized. Regular reports were being produced, although the quality of data going into some of these reports (e.g. grievances) needs to be refined.

Effective field information recording and analysis has been identified as a challenge by the L&CA management. It is onerous for field teams that have spent 8 to 10 hours in the field to return to camp at night and spend several more hours recording the day’s meetings, feedback and complaints. The IESC endorses the proposal to pilot an HSE ‘stop card’ type recording format with data entry and analysis being undertaken centrally.

5.2.2.3 Social Monitoring and Reporting

The IESC observed solid effort directed towards more effective monitoring and reporting of performance against the ‘outside of the fence’ SMPs. This was in response to the Level II non-conformance raised

during the last review. There remain some gaps in coverage but the L&CA management team is moving to address these.

Monitoring of outside of the fence SMPs needs to incorporate both quantitative and qualitative indicators. At the moment, monitoring is heavily focused on grievance analysis to evaluate EHL and contractor performance. While the pattern of grievances is undoubtedly one useful indicator of performance, the IESC recommends that monitoring also needs to include direct interaction with communities to verify:

- that committed stakeholder engagement and safety awareness raising activities are delivering the right messages in the right geographic areas ahead of construction activities;
- that those activities are proving effective in terms of community understanding and observed behavior;
- that community access to water is being effectively maintained;
- that damage to infrastructure caused by project activities is fixed in a timely and effective manner;
- that construction impacts are being effectively managed;
- that good relations and lines of communication between contractor and communities are being maintained;
- presence, or not, of spontaneous settlement or in-migration;
- whether communities have any specific project-related issues or concerns; and
- that community members are aware of grievance procedure and avenues for making a complaint.

Community monitoring techniques should include field observation, informal or semi-structured interviews with community members and key informants (e.g. teachers, religious leaders, paramedics, village court officers, council members) and small group discussions (e.g. to capture views of women, youth, children, elders, hunters, etc.). There are a number of skilled and experienced community development specialists in the L&CA team that could assist with designing and providing training for community monitoring. The safety-type ‘stop card’ or checklist described in the previous section may be an effective way of systematically recording the findings of such a process.

A roster should be developed to ensure that all project affected villages are monitored on a regular basis. The frequency of monitoring should be related to the characteristics of each village (e.g. history of blockages, difficult relations with the project, strategic location) and the intensity of project activities in its area.

Whatever monitoring system is adopted, it needs to take into account that some of the factors affecting peoples’ attitudes and behaviors towards the project are external to the project. They relate to unmet government promises or commitments, legacy issues from the oil project, or are caused by local political agitation or incitement. EHL’s monitoring system should not exclude such ‘externalities’. These externalities often represent risks to the project and may require EHL management response such as requesting government intervention.

Monitoring performance against the outside of the fence SMPs has improved since the last visit but still has some way to go, particularly with respect to monitoring within communities. In communities as volatile as some of those in the Project area, systematic monitoring of project social management performance is a key tool for providing feedback to management. At the moment, the tool is only partially developed. Because of the level of risk, the Level II non-conformance is maintained. More progress is required.

5.2.3 Recommendations

- 1) Fill vacant L&CA positions ahead of the next IESC visit.
- 2) Seek to progressively increase national staff in lead and management positions.
- 3) Identify high performing personnel from the resettlement team to be retained for ongoing project and operations roles.
- 4) Design a village monitoring program:

- a. a procedure to be followed in each village or community (dependent on characteristics, level of impact);
- b. a list of key types of people to be engaged with during each event;
- c. a 'stop-card' - type checklist for recording findings;
- d. a roster setting out frequencies for monitoring visits to all project affected villages/communities and the L&CA members to be responsible; and
- e. monitoring training for implementers.

5.3 LAND ACCESS

5.3.1 Project Strategy

The Project strategy for 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);
- 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); and
- Screening, identification and management of social impacts as required complying with the environmental and social management plans that together comprise the ESMS.

5.3.2 Observations

During the last review, the IESC raised a Level II non-conformance, because social impacts were not being adequately assessed and incorporated into the site selection process. This was identified as a systemic issue. Developments since the March 2011 review included the following:

- contractor land access requests were being routed through the EHL Project Management team with EHL taking leadership in all land access negotiations;
- EHL had developed a 'site selection procedure' and 'site selection decision matrix and ranking tool'. The tool was piloted on the proposed Daware construction camp site;
- The after-the-fact site selection process confirmed that the Daware site was the preferred construction camp location based on appraisal of five alternative sites against constructability, environmental impact and social impact criteria;
- Spiecapag has subsequently refined its Daware camp layout and confirmed that it can construct a camp with a smaller footprint that will avoid the Pandanus wetland; and
- a RAP was prepared for the Timalia River borrow site and resettlement had been completed by the time of the IESC review.

The IESC was generally satisfied with the site selection procedure. It recommends, however, that the site selection decision matrix include a criterion based on customary owner acceptance of the proposed use of the site. This would be consistent with demonstrating 'free prior informed consultation' as required by IFC Performance Standard 7, and that access to the site will be achieved without duress to accord with the PNG *Fairness of Transaction Act* (1993).

It is recommended that the site selection procedure be adopted on a project-wide basis as soon as possible. Numerous sites have yet to be selected for pipeline camps, laydown areas, quarries, spoil disposal and other uses. The IESC will be looking in every case for documentation that a robust site selection process has been followed.

There remains a lack of clarity within the Project team about who will undertake the social screening as part of the site selection process and who will ensure that SMP commitments are addressed in pre-construction surveys. Until there is clarity on who will be responsible for this, with or without a procedure, the IESC considers that the systemic issue is resolved. The Level II non-conformance is maintained.

5.3.3 Recommendations:

- 1) For the site selection decision matrix, incorporate a criterion based on customary owner acceptance of the proposed use of the site.
- 2) Clearly define who will be responsible for social impact assessment during the site selection process and who will have responsibility for ensuring social management plan requirements are incorporated into pre-construction surveys.

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;
- devise measures to support physical relocation and re-establishment. Identify and provide special assistance to people who are especially vulnerable to displacement impacts; and
- 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

Headline findings from the July – August 2011 review are as follows:

- physical resettlement was estimated by the Resettlement Team Manager to be about 70 percent complete;
- EHL had made a decision not to utilize Well Pad A in the foreseeable future - this decision avoids the need to relocate 100 households to create a buffer around the well pad;
- an improved census and survey technique has been adopted which is more transparent and will facilitate calculation of ‘top-up’ payments next year;
- agricultural livelihood open days have attracted large attendances with enthusiastic uptake of plant propagules from pathogen free sweet potatoes and other local vegetables; and
- EHL has again fallen behind in its processing of RAPs and CRPs – delays in addressing IESC comments and issuing final documents, and delays in disclosing RAPs on the website were noted.

The resettlement team has started to record days lost due to blockages, security incidents and weather. Since the beginning of 2011, the team lost 60 days due to such events, equivalent to about 30 percent of its potential working time. This is a useful record that substantiates the difficult working environment.

With pressure to sign land and resettlement agreements to achieve timely land access, the IESC has observed that there are areas where the resettlement team has for one reason or another made concessions against entitlements defined in the RPF in order to facilitate reaching agreement. Of particular note are the following:

- a move towards construction of replacement houses by EHL, rather than provision of materials and technical assistance with construction by the landowner; and
- compensation for speculative housing erected after EHL has secured rights to land, which is in fact ‘trespass’ under the Oil and Gas Act.

These departures from the RPF do not represent non-conformances per se because EHL is exceeding the compensation standards required by IFC PS 5 and RPF. They have, however, created precedents in the minds of local communities that will now be difficult to undo.

IESC has made recommendations to address these two issues in Section 5.4.3. These recommendations are unlikely to be popular or easy to implement.

It is strongly recommended that the resettlement team avoid making such concessions against agreed entitlements on a one-off basis to close a negotiation.

5.4.2.1 Resettlement Logistics

At the time of the March 2011 IESC visit, responsibility for resettlement-related logistics and construction had only recently been transferred to the Project Development Support team. The Project Development Support team was in the process of reviewing procurement strategies to accelerate the delivery of resettlement housing. As timely delivery of compensation, including housing, is an IFC PS requirement, the IESC was expecting solid progress by the time of the IESC July review. IESC July findings were as follows:

- 18 months after physical relocations were commenced, 3 replacement houses had been completed and a further 6 houses were in various stages of construction by EHL;
- to date, 26 families have confirmed housing sites, so a further 17 house packages have yet to be commenced;
- other resettler families were reportedly delaying decisions about replacement house sites because of uncertainty about when and where EHL was going to deliver promised access roads;
- the total number of replacement house packages required for building is projected at around 120;
- of 12 households at Komo Airfield that opted for building materials as part of their compensation package, one out of the 12 has received all materials, 8 out of 12 have received part of their materials and 4 have yet to receive any materials; and
- construction of access roads around the Komo air strip and HGCP site had not been commenced.

The RPF did not originally include the option of a replacement house built by EHL. This was based on analysis of PNG mining projects that had experienced problems with developer built housing. The four options in the RPF were:

- (i) Bank Managed Fund Option (Interest Bearing Deposit); or
- (ii) Self-built bush house and 50% of Bank Managed Fund Option; or
- (iii) Self-built semi-permanent or permanent (as appropriate at full replacement cost) materials for a house with tin roof and gutters provided; or
- (iv) Self-built semi-permanent or permanent (as appropriate at full replacement cost) materials for a house with tin roofs and gutters provided. In addition, provision will be made to advise and support households regarding the selection of materials, design and construction methods.

It is clear that even under optimal circumstances, it will take years rather months for EHL to construct the required number of replacement houses following the present approach. In the opinion of the IESC, so far as specific agreements allow, EHL needs to extract itself from the situation where it is perceived as the 'house-builder'. This might be done by clearly communicating to each household a realistic timeframe for when the replacement houses might be delivered if built by EHL, and reiterating that materials and support consistent with option (iv) could be delivered in a matter of weeks (if this is indeed the case). Alternatively, it might be necessary to develop a further hybrid option such as a package of materials plus down-payment/staged progress payments to enable a family to secure their own builders or carpenters to undertake construction. In any event, some clear communication with expectant resettlers to manage expectations is required.

The above situation notwithstanding, the IESC is mindful that many families vacated their land and houses 18 months ago on the basis of formal agreements with the Project. Those agreements included delivery of particular housing packages. While the agreements were not specific about the timeframes for delivery, in the opinion of the IESC 12 or 18 months is an excessive period for resettler families to have to wait. Given PNG Highlands logistical challenges, 4-6 months (at the most) might be considered fair and reasonable.

IFC Performance Standard 5 requires particular attention to be paid to ensuring that vulnerable households are not disadvantaged by the resettlement process. Given the delays in housing delivery, vulnerable households should be prioritized to receive houses earliest.

EHL needs to take a step back and identify what was committed in RAPs and specific resettlement agreements, what were the resettler families' understandings of those agreements, and determine how EHL can expeditiously deliver what has been committed. Without lapsing into a six-month planning cycle, EHL needs to prepare and implement an action plan to get housing package delivery back on track. A level II non-conformance has been recorded. By the next IESC visit, there should be a completed action plan and visible progress on the ground.

The IESC highlighted the need to install access roads around the Komo airstrip and HGCP sites to meet the IFC PS 5 requirement for 'adequate housing'¹² on the first IESC review mission. Sixteen months later, the construction of such roads has not started. At Hides, resettlers are reportedly delaying selecting replacement house sites because they are unsure about the location of the road or whether it will ever eventuate. A level II non-conformance has been recorded.

5.4.2.2 Progress in Defining Physical and Economic Displacement

Table 5.1 provides latest Resettlement team estimates of Phase 1 (2010-2014) physical and economic displacement based on completed census and surveys. Bracketed figures indicate estimates provided in the October 2009 RPF. These will be progressively updated as further censuses and surveys for project components are completed.

Table 5.1: Updated Project Estimate of Phase 1 Physical and Economic Displacement

Project Facility	Description	Area	Estimated Physically Displaced Households		Estimated Economically Displaced Households		Total All
			N	Δ	N	Δ	
Komo airstrip		517	29 (24)	-	10+49 minor compensation (6)	+49	88 (30)
Komo access road		-	16	16	5+132 minor compensation	-	153
Facilities	Including: HGCP Kopi facilities (TBD) Juni training facility	386	56 (+TBD) (63)	-	10 (+TBD)+61(+ TBD) (8)	+61(+TB D)	127 (+TBD) (71)
Pipelines	Pipeline and spine lines based on 30 m corridor	1,254	30 (50)	-	30+150 minor compensation (TBD)	+90	210 (50)
Well pads	Hides well pads: A, B, C, D, E and G	96	25 (+ TBD) (TBD)	-140	30+252 minor (+TBD) (TBD)	-190	307 (TBD)
Heavy Haul Road	Based on 50 m corridor	522	150 (253)	-	100+750 minor compensation (TBD)	+550	1000 (253)
Quarries	Approximately 30 quarries including buffers	898	31 (+TBD) (55)	-1	130 +380 minor compensation (TBD)	+136	541 (55)
Landfill	Hides & Gobe (TBD)	57	38 (+TBD) (15)	+3	51+433 minor compensation (+TBD) (TBD)	+373	522 (+TBD) (15)
HDD	Tagri, Mubi, Wah and Kikori	31	TBD (5)	-	TBD (TBD)	-	TBD (5)

¹² See the IFC PS5 Guidance Note for 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).

Project Facility	Description	Area	Estimated Physically Displaced Households		Estimated Economically Displaced Households		Total All
			N	Δ	N	Δ	
Camps	Based on 20 possible options provided to contractors	230	25 (TBD)	-	17+125 minor compensation (TBD)	+45	167 (TBD)
Total			400 (+TBD) (465)	-122	2,715 (+TBD) (TBD)	+1,114	3,115 (+TBD)

Notes:

1. The table is based on data provided by the EHL Resettlement team in July 2011.
2. Bracketed figures indicate RPF October 2009 estimates.
3. The table excludes any economic displacement in the Omati River basin fishery and LNG site/ downstream fishery.
4. The table also excludes Komo airstrip absentee owners. 440 payments had been made to absentee landowners at the time of the review.
5. The delta column indicates changes relative to the March 2011 review.
6. Significant reduction in relocation requirements at well pads with the elimination of Well Pad A.

The most significant changes to resettlement numbers were as follows:

- number of physically displaced has decreased by 122 households due to the new plan not to develop Well Pad A;
- number of economically displaced was not estimated in the RPF, but the number of those significantly affected is now significantly higher than estimated at the time of the last review due to the large increase in the number of minor compensation recipients – those that receive small payments for trees or small sections of garden affected by the Project.

On the latter issue, the number of minor beneficiaries is often swollen by very recent or opportunist settlers. EHL cannot prevent customary owners constructing houses or establishing gardens on their customary land until it has completed formalities for securing its rights to land under the Oil and Gas Act.

5.4.2.3 Land Access and Resettlement Process Issues

After an intensive effort to get up to date with RAP preparation, approvals and disclosure in the lead-up to the March IESC review, the Project has again fallen behind in its document processing. There seems to be excessive internal delays between IESC review and commenting, and documents being finalized and posted on the PNG LNG website. The IESC is not totally blameless either. At times, it struggles to review and comment on the bunches of documents that tend to arrive together.

The HGCP RAP has not been disclosed on the website, even although physical relocation covered by this RAP was completed nearly 18 months ago.

The IESC reiterates that RAPs and CRPs are forward-looking action plans. It is not necessary to have individual resettlement agreement signed before the RAP is completed. RAPs should be approved by the IESC (on behalf of the Lenders) and disclosed before physical resettlement takes place (with the exception of families who voluntarily relocate before or during the resettlement process and the Project occupies the subject land).

Table 5.2: Lender Review and Approval of RAPs (August 2011)

RAP	Received	IESC Reviewed	Lender/IESC Approved	Finalized & Disclosed on EHL website
Komo Airstrip	✓	✓	✓	✓
Hides Gas Conditioning Plant	✓	✓	✓	No
Hides Quarries 1-3	✓	✓	✓	✓
Heavy Haul Road (for some sections)	✓	✓	✓	No
Komo Airstrip Access Road	✓	✓	✓	No

RAP	Received	IESC Reviewed	Lender/IESC Approved	Finalized & Disclosed on EHL website
Kopeanda land fill	✓	✓	✓	✓
Omati to Kaia CRP (KP 227-292)	✓	✓	✓	✓
Kaia to Kantobo CRP (KP 174-227)	✓	✓	✓	✓
Kutubu to Kantobo CRP (KP 80-153)	✓	✓	No	No
Timalia Borrow Pit	✓	✓	✓	No
Hides Quarries 1-3: Addendum for Well Pad B	✓	✓	✓	No
Hides Quarries 1-3: Addendum for Quarry Expansion	✓	✓	✓	No
Caution Bay CRP	✓	No	No	No

5.4.2.4 Valuation of Trees and Crops

The Project has previously given the IESC an unequivocal undertaking that it will pay ‘full replacement value’ for trees and crops based on full replacement values as determined by the independent valuation study. This undertaking will apply retrospectively (including to IPCAs) and to all tree and crop payments going forward. Top-up payments will be disbursed during the first half of 2012.

EHL has yet to complete an independent valuation study for the mid and lower altitude sections of the Project. The IESC will be seeking to receive this on its November 2011 review.

5.4.2.5 Well Pad A

The IESC strongly endorses EHL’s decision not to proceed with development of Well Pad A. The decision avoids resettlement of about 100 households in the center of Hides (not anticipated in the RPF).

5.4.2.6 Hides Quarry Road and HQ 1-3 Quarries

The IESC inspected the Hides quarry road and HQ 1-3 quarries. The RAP for the Hides quarry road assumed a road formation that was contained within a 50-metre wide right of way. Compensation to affected landowners was calculated accordingly. Due to the montmorillonite clays and their liquid properties, side-casting has resulted in a road footprint that is probably closer to 75 meters wide (visual estimate) and much wider where the road crosses re-entrant valleys. This is recorded as level II non-conformance with the approved RAP. The works have affected more land and land users than were identified as affected in the RAP and have blocked several water courses. With urgency, EHL should prepare a RAP addendum to describe these unforeseen physical and economic displacement impacts. EHL should also be proactive in providing regular assurance to landowners affected by the expanded footprint that they will be compensated for affected land and assets as soon as a survey can be completed. Landowners should be kept updated on likely timing for compensation payment up until such payment has been completed. See recommendations in Section 5.4.3.

5.4.2.7 Heavy Haul Road

Having observed the highly mobile soils along the Hides quarry road, and the extent to which earthworks have spread and blocked natural waterways, the IESC would be very concerned if a similar situation were to eventuate along the Hides heavy haul road where the surrounding areas include extensive gardens and dwellings. Equivalent earthworks would place at risk a large number of houses, gardens and water resources not presently identified as affected by the Heavy Haul Road RAP. It would be unacceptable for this to occur in an unplanned fashion. It would also carry the risk of creating widespread community opposition. Unless the Project can come up with a strategy for vastly improved soils management for the heavy haul road (and it is difficult to envisage what such a strategy might consist of), the IESC strongly recommends that EHL look at an alternative route.

5.4.2.8 Access to Water

EHL has completed 16 of 29 planned water collection structures to provide communal access to water at resettlement locations or where community water supply has been impacted. A further 7 are presently under construction. The water collection structures provide significant standard-of-living benefits and are an effective measure for replacing lost water sources. They deliver higher quality water and reduce reliance on shallow wells and rivers. They reduce the labor and time required to collect water often from streams or springs in valley floors. Due to the all-year-round rainfall in the Southern Highlands, they provide consistent year-round supply. The only significant risk observed to date is that, where water points are situated on individual land, there is potential that a quarrel or conflict with the neighbors will lead to their exclusion from access. So far as possible, water structures should be sited in locations where they remain accessible to all (e.g. adjacent to a public path or road).

5.4.2.9 Resettlement Monitoring and Reporting

Resettlement monitoring requirements are outlined in Chapter 10 of the RPF. The resettlement team has now provided two internal monitoring reports to the IESC covering the periods January to February 2011, and May to June 2011. The latter report contained much information of value for the IESC in understanding the current status of the resettlement program. The IESC reiterates its earlier recommendation that a dashboard-type summary that highlights progress within the period and performance against 5-10 key indicators might be a more effective tool for communicating progress and issues to the senior project management team.

5.4.2.10 Fisheries Baseline and Livelihood Plans

RPF Table 7 refers to two livelihood plans that are required to cover fisheries impacts, namely:

- Item 12 Omati River Basin Fisheries; and
- Item 13 LNG Site / Downstream Fisheries.

These plans were added to the RPF schedule at the specific request of the Lenders. The Lenders noted the importance of recognizing and mitigating impacts of coastal/marine works and exclusion zones (construction and operations) on artisanal fishing activities.

The IESC inspected the LNG plant jetty (now well under construction) for which a CRP is outstanding (level II non-conformance from March 2011 review). The impacts of the marine works on local livelihoods in Caution Bay are for the most part very straightforward to identify and mitigate. Subsequent to the July visit, EHL submitted a draft CRP for IESC review. The level II non-conformance therefore remains open. An Omati waterways CRP is expected shortly.

Livelihood impacts posed by pipeline construction in the vicinity of Kido Village should also be assessed and, if warranted, a Communal Resource Plan should be prepared to address these.

5.4.2.11 Vulnerable Households

The IFC Performance Standards require that particular attention be paid to vulnerable households to ensure that they are able to fully benefit from resettlement and social programs. The Performance Standards also requires that vulnerable households are identified, consulted and given the opportunity to participate in decisions that affect them. While ELC retains a list of vulnerable households based on their consultations, EHL still does not have a complete and up-to-date register of the vulnerable. Without a register, EHL is not in a position to systematically monitor the well-being of such families or individuals, nor to offer particular assistance where it is required. The observation of the last review is escalated to a level I non-conformance.

5.4.2.12 Speculative Development

The number of 'speculative' structures being built on Project lands after the cut-off date (i.e. the date upon which the census and survey for a given site have been completed) has increased significantly since the IESC review in March 2011. This is a common risk encountered by resettlement projects around the world. PNG LNG has to some extent exacerbated this situation by paying compensation where it removes speculative structures, recognizing that customary owners have a right to occupy land until such time as EHL has established its right to use the land by meeting the requirements of the Oil and Gas Act.

Going forward, EHL needs to establish conditions in land rental agreements that require landowning clans to prevent restricted uses (such as lighting of fires, tree felling or construction of houses) within Project areas (e.g. over the pipeline, in safety buffers around well pads, and the like).

If speculative activities continue, it may be necessary for EHL to assert its rights as license holder over the land by initiating some trespass actions in accordance with Section 122 of the *Oil and Gas Act* (1998). Hopefully a small number of such actions (or the threat of such actions) would serve to discourage ongoing illegal activity.

5.4.3 Recommendations

- 1) Prioritize vulnerable households for earliest house delivery;
- 2) Develop an action plan based on extracting EHL from the role of 'house-builder' in so far as this consistent with family resettlement agreements;
- 3) For the benefit of resettlers, incorporate into resettlement agreements some guidance as to the timeframes for house package delivery;
- 4) Clearly communicate to each family that has elected for Option (iv) the reason for delays and a realistic timeframe for when a replacement house will be delivered;
- 5) Offer families affected by housing delivery delays alternative options so that they can proceed to have their own houses constructed, if this is their priority;
- 6) Conduct a review to identify lessons learned from the Hides quarry road to avoid this kind of underestimation of footprint and displacement impacts for the heavy haul road and ongoing spine road works;
- 7) Provide regular assurance to landowners affected by the quarry road expanded footprint that they will be compensated for affected land and assets as soon as a survey can be completed – keep them updated on likely timing for compensation payment and settlement;
- 8) Assess whether there are any livelihood impacts likely to be caused by pipeline construction in the vicinity of Kido Village and, if warranted, prepare a Communal Resource Plan to address these.

5.5 RESETTLEMENT INDEPENDENT ADVOCATE

5.5.1 Project Strategy

EHL has retained the Environmental Law Centre to act as 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. The ELC team includes a former Chief Commissioner of the Land Titles Commission and a former magistrate highly experienced in complex land cases. Both these team members are actively involved in PNG LNG field work.

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. The IESC again met with ELC during the July 2011 review. ELC drew the IESC's attention to the fact that there have been some changes to resettlement agreements over the duration of the Project and an overall review would be justified for the following reasons: resettlement officers were sometimes making ad hoc changes to template resettlement contracts to facilitate reaching agreements with displaced landowners or users. ELC was critical of the practice on several grounds:

- most EHL resettlement officers have no legal training and therefore limited knowledge of the applicable law;
- changes to contracts sometimes contained errors in drafting or errors of law;
- changes sometimes involved monetization of entitlements that were inconsistent with entitlements defined in the Resettlement Policy Framework (that forms part of the Lenders' Environmental and Social Requirements);
- EHL was not systematically tracking its obligations under amended contracts;

- in the case of rations delivery, EHL was often failing to meet the agreed timeframes – it may be desirable to amend the contracts to make provision for contingencies such as blockages, security shut downs or poor weather delaying delivery; and
- sometimes ELC was not present during contracts negotiation or signing (and therefore was unable to verify whether or not the negotiation was compliant with the *Fairness of Transaction Act* (1993)).

ELC's observations point to a need for tighter administration and legal oversight of land and resettlement agreements. According to resettlement team records, as of the late June 2011, EHL had entered into 2,867 agreements with affected households and individuals.

IESC's recommendations are provided in Section 5.5.3.

As there is a risk that non-conformances with Lenders' Environmental and Social Requirements have occurred, the IESC will be looking for the audit results and a corrective action plan (if warranted) on its next review. This is recorded as an observation.

5.5.2.1 Huli and Local Language Contracts

ELC noted that a Huli version of the resettlement agreement is now available. This does not, however, reflect changes where contracts are varied from the template. The contract must also be translated into appropriate languages for other ethnic groups whose land is traversed by the project.

5.5.2.2 Accommodation for ELC at Moro

As noted in the previous IESC report, the IESC considers the presence of ELC at all land and resettlement contract negotiations and signings as important protection for the Project in terms of warranting 'free, prior, informed consultation' and compliance with the *Fairness of Transaction Act* (1993). Provision should be made for ongoing accommodation of ELC at Moro so that ELC is available to fully participate in the Kutubu to Kantobo pipeline negotiations.

5.5.3 **Recommendations**

- 1) Conduct an audit of all land and resettlement agreements entered into to date to identify variations from templates and potential non-compliances with PNG law, the IFC Performance Standards, and entitlements as defined in the Resettlement Policy Framework – develop a corrective actions plan to address gaps.
- 2) Consider appointing a resettlement contracts administrator or local external legal counsel or equivalent to be responsible for contracts review and tracking compliance with contractual commitments.
- 3) If EHL believes variations to the RPF or specific RAPs are warranted in response to local operating difficulties (e.g. cash allowances instead of rations delivery) and where it can be demonstrated that these are in compliance with IFC Performance Standard 5, then MOC processes should be initiated.
- 4) Review and update contract templates as necessary.
- 5) Provide refresher training to resettlement team members on contract templates and processes for negotiation and signing.
- 6) Ensure that logistical arrangements are in place for ELC to be present and witness all land and resettlement agreements, amongst other reasons to protect EHL from possible claims under the *Fairness of Transactions Act* (1993).

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 9 month or 6-month period, in the case of linear routes, 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; and
- provision of Compensation Advisor to assist and advise on compensation investment and business options.

5.6.2 Observations

The livelihood restoration team held a number of open days at its nursery that attracted very large attendances. Upstream Project employment opportunities are temporary and short in duration. While a small segment of the population may be able to transition permanently to the cash economy, sustainable livelihood restoration for most will be dependent on restoring agricultural production. At present, a sizeable proportion of resettled farmers is preoccupied with Lanco employment and business opportunities rather than new garden establishment. As the construction workforce is demobilised in the latter half of 2012/early 2013, the Project must be in a position to provide further technical assistance and undertake further plant materials distribution. Monitoring of garden restoration should be resumed at this time. At this time, it will also become apparent whether landowners in Hides are able to access sufficient land to meet household agricultural needs. Recent livelihood restoration monitoring indicates that the average garden area established by Hides resettlers 9-12 months after relocation is 305 m² per adult equivalent. This is well below the 600 m² per adult equivalent desirable for food sufficiency. At this stage, it is unclear whether the shortfall in garden development is due to a shortage of land or a preoccupation with wages employment, or some combination of these factors.

At present, livelihood restoration monitoring appears to focus only on those families who had been physically resettled. Under IFC PS 5, the obligation is to monitor both physically and economically displaced families. This gap in monitoring needs to be addressed.

The livelihood restoration team reports that it is still short of people in some back-to-back positions.

5.6.3 Recommendations

- 1) Fully resource the Livelihood Restoration team and ensure there is accommodation for its women specialists so that the team is able to service the expanding number of displaced households (repeated).
- 2) Ensure that livelihood restoration planning, delivery and monitoring takes into account the need to provide support to those farmers presently working in the construction work force but whom will be demobilized in late 2012/early 2013.
- 3) Expand livelihood restoration monitoring to cover economically displaced families.
- 4) Develop standardized livelihood monitoring and reporting templates (repeated).

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.”*

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.

5.7.2 Observations

The improved community safety performance first noted during the March 2011 review was observed to have continued. Interviewed villagers, including children, were generally well aware of the community safety outreach programs being run by the L&CA organization. A family encountered by the IESC walking in the vicinity of Hides Quarries was aware of blasting due to occur later in the afternoon. EPC contractor measures including traffic control personnel, spotters and barriers to protect local communities were well in place. Traffic control was also observed to be effectively implemented by MCJV in the Komo area. Excellent controls were in place around jetty works in Caution Bay.

Two intensive monitoring studies undertaken for Baruni and Hagara Villages (on the Napa Napa Road that links Port Moresby to the LNG terminal) and for the Highlands Highway were presented. While resource-intensive, this type of study is clearly invaluable for assessing project/contractor traffic behavior and community safety in higher risk locations. A program for undertaking such reviews in other ‘high risk’ locations should be established.

Although substantial effort is made to ensure community safety, the Project internally reports problems where Highlands sites have been entered by locals, where access has been achieved by cutting through fences. The main issue reported by locals is that they do not have means to cross the main construction sites. Community safety risks are still considerable if they are resorting to cutting fences to cross construction sites and the issue is clearly not simple to resolve.

5.7.3 Recommendations

- 1) The construction of community paths in Hides to facilitate crossing construction areas and also to segregate vehicle and pedestrian traffic should be made a high priority, especially along routes used by children going to and from schools.

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:¹³

- the philosophy underpinning Project security is ‘community partnerships’;
- security works closely with L&CA which is responsible for frontline community liaison and interaction;
- the Project is committed to adherence to the ExxonMobil Framework for Security and Human Rights which is based on the Voluntary Principles for Security and Human Rights
- 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 through the police;

¹³ Based on presentation to IESC by ExxonMobil’s Graeme Sayce and Jimmy Vigil, 7 May 2010.

- EPC Contractors are responsible for providing their own security at their particular sites of responsibility in accordance with ExxonMobil standards, as reflected in the above Framework, and under the guidance of the ExxonMobil security team; and
- EPC Contractors may not directly communicate with the Royal Papua New Guinea Constabulary (RPNGC).

5.8.2 Observations

Key security challenges identified by the Security team remain as follows.

In the Project work areas:

- the violent and unpredictable nature of crime within PNG;
- unfulfilled government commitments (Benefit Sharing Agreement commitments) and related unrealistic landowner expectations;
- ongoing threat from inter-clan feuds and issues relating to labor relations and 2012 elections; and
- alcohol related incidents remain prevalent.

In Port Moresby:

- systemic criminal activity;
- carjacking continues to be a serious problem; and
- in-migration of people looking for work has compounded law and order issues.

Timely release by the PNG Government of funding to support mobile RPNGC squad activities in the Project work area as noted during the previous review continues to be an issue.

L&CA has commenced weekly meetings with the RPNGC commander in the Hides/Nogoli area. This has reportedly been beneficial in terms of sharing information and aligning activities.

The Security team defines EHL's immediate challenges as follows:

- continued lobbying of the PNG government to ensure consistent police support;
- working with the PNG government and RPNGC to enhance local police presence and capabilities (to eventually replace RPNGC presence);
- completing a review of physical security and response capabilities at the LNG plant Site, HGCP and Komo Airstrip; and
- 2012 election risk assessment planning.

5.8.2.1 Incidents

The Security team reported that there had been one significant incident since the March 2011 review. This incident related to a non-Project related vehicle accident in which a drunk driver killed two local teachers near Nogoli on 15 February 2011. The vehicle that had caused the incident had been illegally seized by the local landowner as leverage for negotiating compensation. On 10 June 2011, the police moved to recover the vehicle. In retaliation, that same day, five EHL/contractor vehicles were commandeered by local people. On 18 June 2011, the police recovered the five cars. The Nogoli-Komo road was dug up and effectively blocked and a three-day shutdown of nearby EHL work sites ensued. The road was re-opened on 21 June 2011.

No information has been released by the coroner on the death of the child that had triggered the Well Pad A break-in in January 2011.

5.8.2.2 MOU with the RPNGC

During the July visit, EHL provided the IESC with a copy of EHL's MOU with the RPNGC. EHL indicates that the document can be shared with the Lenders on the basis that the document is provided in confidence under the provisions of the financing agreements.

The EHL CEO confirmed that he and the EHL Security Manager had held comprehensive discussions with the new Police Commissioner on the EHL-RPNGC MOU. EHL is of a view that those discussions met the

requirement of IFC PS 4, para. 14, to “...encourage the relevant public authorities to disclose the security arrangements for the client’s facilities to the public...”.

5.8.3 Recommendations

- 1) Undertake a risk assessment (reputational, security, human rights) of RPNGC use of EHL field camp accommodation to determine whether or not the practice should continue.

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 final report was completed in June 2010.

The Project Induced In-Migration Management and Monitoring Plan does not form part of the ESMS. The Project also made the following commitment in the Labor and Working Conditions Management Plan:

“The Project shall discourage in-migration of persons in search of employment opportunities. As a minimum:

- implement and publicize the recruitment procedure which gives preference to local applicants;
- recruit through Lancos who know all the persons living in their local area;
- communicate to the community the recruitment procedure which requires applicant’s place of origin to be identified;
- communicate to the community sufficiently specific job descriptions so those without the necessary skills are less likely to apply; and
- actively assess, via monitoring or other means, in-migration to determine extent and relationships with workforce. If a positive relationship is evident, review hiring arrangements (e.g., worker rotations) or other measures that may act as disincentives to worker families who might otherwise move to the work location (ID 23.027).”

5.9.2 Observations

The IESC was again disappointed by the lack of progress and limited geographic reach of efforts to implement the Project Induced In-Migration Management and Monitoring Plan. This is a repeated observation. National staff had not been recruited to support the two expatriates presently running the study. The EHL PIIM presentation for the IESC revealed a lack of implementation progress beyond those villages adjacent to the LNG plant site. The EHL presentation did, however, present a clear picture of emerging in-migration impacts at multiple locations within the project area. These included:

- *Hides-Komo* – opportunists/rent seekers moving onto resettled lands, with some of these people apparently having originated from outside the Project area;
- *Gobe area* – various clan in-migrants clearing and establishing gardens to assert traditional ownership rights (and attendant entitlement to equity and royalties) over areas near the Kwil Creek (pipeline KP 184-188) and Epo’o Creek;
- *Kaiam bridge vicinity* – clans from Samberigi settling on the north bank and Omati based clans settling on the south bank to assert traditional ownership rights, take advantage of roadside trade and possible project employment (near the Kaiam South Spiecapag camp);
- *Scraper station, Spiecapag camp* – some spontaneous commercial development (small scale gambling, black market liquor sales, commercial sex workers) by interests from Samberigi, Baimer and elsewhere in Gulf Province;
- *Kikori station/Kekea* – Kikori has long been a magnet for seasonal and longer term in-migration for coastal and delta communities who move to take advantage of its health and educational services. Highland traders have also moved to take advantage of local economic opportunities (Oil Search, PNG LNG), some negotiating access to land or settling through inter-marriage.

The IESC considers that the ad hoc observations presented by the Project to date do not satisfy the requirement of Commitment ID 23.027 for active assessment, via monitoring or other means, of in-migration to determine extent and relationships with workforce. They most certainly fall short of the measures advocated in Project Induced In-Migration Management and Monitoring Plan which include

monitoring of PIIM impacts and compliance with Social Management Plans; building PIIM awareness and providing training to internal and external stakeholders; and building community resilience with facilitation, preparation and supervision of community-led village PIIM Action Plans. A level II non-conformance is recorded.

The Minister of Planning has recently been quoted as advocating the completion of the Samberigi to Erave access road and referring to a Samberigi Station to Kikori road link. Kikori is seen as a possible alternative port to Lae, with a Kikori to Samberigi to Erave road link potentially relieving pressure on the Highlands Highway. This Highlands to lowlands road link has always been opposed by the Lenders as a potential catalyst for significant in-migration into the Kikori basin with consequent pressure on natural resources and biodiversity. At present, the road south of Gobe to Kikori is a private road with boom-gate controlled access. It needs to be recognized, however, that there is potential for the north-south road to gain momentum as an election campaign issue.

5.9.3 Recommendations

- 1) Develop a work plan (schedule, budget, resources) for completing the PIIM action plans within a reasonable timeframe i.e. so that village/ community planning is pro-active and not after the event;
- 2) Fully resource the PIIM team so that the Project Induced In-Migration Management and Monitoring Plan can be implemented.

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;
- improve capacity and skills of local business to capture business opportunities associated with the project both locally and nationally; and
- 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

Contractor mobilization and in-country presence is clearly resulting in rapid engagement of local business and suppliers and in a steep increase in the work force. Updates provided by EHL during the IESC July/ August mission show considerably more detail in terms of the quantitative and qualitative data. The following sub-sections review the three elements of the Project strategy.

5.10.2.1 Extension of Project Environmental and Social Standards to Subcontractors/Suppliers

The issue of extending Project standards to subcontractors and suppliers relates closely to the requirements for dealing with third-parties discussed in Section 3.2.2.2. In terms of labor, the basic observation is that neither the capacity and skill building efforts of local business – including Lancos, nor the training efforts of the work force appears to include any reference to Industrial Relations (IR) management or to basic worker rights, i.e. the ILO core labor standards. This contrasts with the Procurement and Supply Management Plan, which clearly states an intention to particularly include labor in its local and national supplier/ business baseline survey and clearly states “minimum environmental and social (including labor) standards” as a Project requirement for local providers. Finally, Attachment 1 of the Procurement and Supply Management Plan – Legal and other requirements, clearly describes IFC PS2 and the UN Global Compact as benchmarks, both (partially) based on the ILO core labor standards.

The Project has offered significant technical support to its supply chain and its (future) work force. Although these efforts include occupational safety and health issues, the Project could not demonstrate monitoring and addressing some of the basics of IFC PS2 to the IESC.

5.10.2.2 Project Procurement from Local Business

In terms of in-country expenditures, EHL and EPC Contractors in combination spent around 3 billion Kina as of June 2011. EHL procured more than 90 million Kina from Lancos in terms of labor, services and materials. The EPCs procured 280 million Kina of labor and services from Lancos and purchased 23 million Kina in materials.

Local Lancos referred to above include: LABA, LABA Alliance, Agility, Agility Project Logistics, HGDC, Kutubu Security Services, Mananda Umbrella JV, Oilmen Field Services, GFS, GFE, Kutubu Security Services, Kawaso, KOI, KCL, CIVPAC, MAKI Investment Corp, Komo UJV, and others.

EHL in-country expenditures on businesses other than Lancos includes: Road transport - including vehicle purchases; air transport – including charter hire; office accommodation and associated costs; accommodation (residential); training; staff recruitment via the PNG agencies; security; cleaning service staff; PNG Institute Medical Research; and PNG Institute of Banking.

Much of the Project's commitment to procure from local business is reflected in the use of Lancos that supply labor and services to the different C and EPC Contractors. The success of this approach is reflected in the national workforce currently working on the Project. EHL reported that earlier projections for national expenditures and projected employment were understated, and are likely to be significantly exceeded. As of July/ August 2011, PNG workers made up >71% percent of the total Project workforce, which percentage wise is a slight decline compared to Q1. However, PNG national workforce in Q2 2011 still exceeds EHL's original (pre-construction) projection of slightly over 4,000 with a substantial 6,645 (9% of which are women) out of a total workforce of 9,319 (Figure 5.1). The majority of national workers is to be found at C1 (1,164); EPC3 (1,654); EPC5A (1,244) and EPC5B (1,407). EHL itself employs nationals versus expatriates on an almost 50/50% basis (388 versus 381).

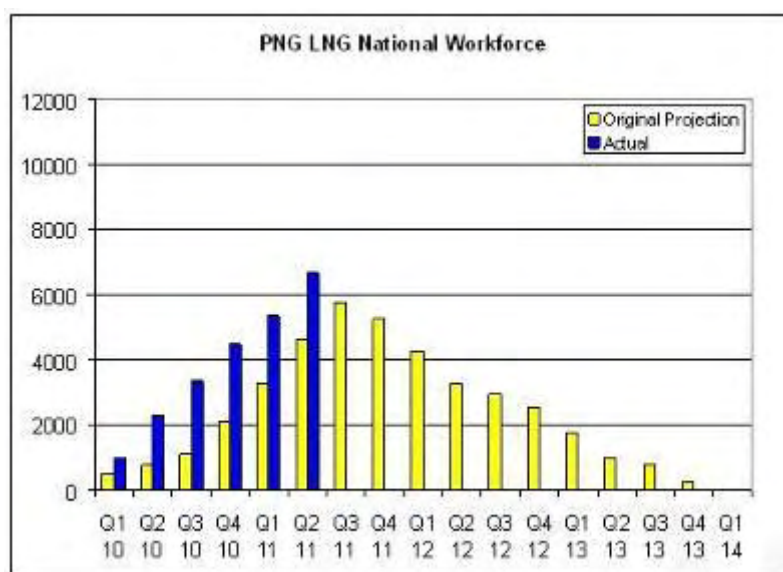


Figure 5.1: PNG LNG National Workforce – Actual versus Projected

Source: Updates provided by EHL.

5.10.2.3 Capacity and skills building of local business

In terms of supplier development EHL directly supports Lancos with their Business Development Team. The team is well resourced, with full time positions for two business development advisors at the LNG plant site, two at Gobe, one at Kopi, two at Moro, four at Komo and six in the Hides area. Nevertheless, the work to bring Lancos up to (commercial) speed is demanding for the Project. PNG laws require PNG business (including Lancos) to be financially sound, technically capable, pre-qualified and competitive in price and quality. However, the range of Lancos varies widely in terms of age, quality and experience. Some are old established companies (1992 vintage); some were only very recently established (2010 or even 2011). Also, EHL originally expected to deal with only 12 nominated Lancos and no new Lancos

along the pipeline ROW, but License-Based Benefit Sharing Agreements (LBBSAs) and seed capital have caused a proliferation of new Lancos.¹⁴

There are many complexities in working with Lancos. Lancos as political and business organizations are not always representative of all people in their area. In fact, there is much competition. Even though they sometimes have the support of the local community, it is common for the community to distrust the Lanco. Lancos often have limited capability to deliver the expected services. In many cases they are not financially sound, technically capable nor competitive and have problems in separating business development responsibilities from the day-to-day operation of the company. Still there is a huge expectation from the side of the Lancos for the Project to teach and help them make their companies profitable. In the end this development effort will of course be one of the major long term beneficial impacts of the Project on PNG economy at large.

Business development support to Lancos consists of pre-contract preparation¹⁵, contract negotiations¹⁶ and post-contract provision of services¹⁷. Figure 5.2 shows the accomplishments to date.

LANCO(S)	ACCOMPLISHMENTS
LABA	1334 project workers projected to peak at 2400 29 staff running the business (to grow to 35) Fortnightly payroll – Kina 563,000 Estimated revenue – Kina 27.6 M yearly, peaking at 50 M Completed UIA Audit
HGDC	2100+ project workers projected to peak at 3000+ 337 JV staff running the business Fortnightly payroll – Kina 2.141 M Estimated revenue – Kina 6.6 M in June 2011 Contracts with seven contractors including EHL Completed UIA Audit
Pipeline ROW Lancos	KER-KOI JV formed in the Kopi Omati Area Managing 3 traditional areas of disputes – Gobe-Samberigi, Kantobo, Moran Formation of KRS as a superumbrella Lanco for representing Kantobo, Kutubu, and Moran Over 1000 PNG workforce (76% of total) 34% skilled; 21% semiskilled; 45% unskilled Revenue to Lancos – Kina 20.5 M (as of June 1) Pipeline ROW Lanco scope: • Omati to Angore 290+ km • 20 significant Lancos • 42 other Lancos • 48 Lancos receiving BDG • Four block areas agreed with 100 skilled workers and 1000 unskilled workers from each • Average construction duration per area – 8 months

Figure 5.2: Business Development Accomplishment with Lancos

Source: EHL Lancos update July 2011.

EHL indirectly supports PNG businesses - including Lancos, through the IBBM Enterprise Center (<http://www.enterprisecentre.com.pg>). The Enterprise Center was established in 2010 as a result of an agreement between the PNG LNG Project and the Papua New Guinea Institute of Banking and Business Management. The latest mile stones include the center's 1st anniversary of operation, the inauguration of a new building, the launch of a mentorship program and of a new website.

¹⁴ Lancos to receive Business Development Grants (BDG) are now 70 in number with 84 potentially. Lancos submitting Expressions of Interest for BDG are now totaling 1133.

¹⁵ Evaluating scope of requested services; Business plan preparation; JV engagements; Improving existing systems and processes to meet EM standards; Overhead assessment etc.

¹⁶ RFQ preparation (scope, insurance, terms & conditions, risk assessment); Contract negotiations with EPC and JV partner; Pre-mobilization (staff, equipment, materials etc).

¹⁷ Audits and gap closure; Business skills mentoring and training); Operational efficiency improvements; reporting to the Board; Project management etc.

The IBBM Enterprise Center's strategy towards PNG local business is centered around training, mentoring and providing technical support. More than 2000 training days have been offered to PNG companies. Types of training and mentoring efforts include:

- Directors training – duties and responsibilities (2.5 days);
- Business Basics (5 days);
- Shareholder Information course – rights and obligations of shareholders (1 day);
- training on EHL Procurement Procedures;
- Compliance and Regulations training; and,
- a Leadership and Planning workshop.

Technical support efforts include:

Online registration of 'Expression of Interest' at www.pnglng.com (over 1,170 EoI till date); Open house policy (over 8,500 local entrepreneurs have visited the center since its opening); Business Assessments (102 assessment till date and 13 representative Lancos re-assessments in progress); Supplier Dash Board (to access business opportunities and project information. More than 90 business opportunities from EPCs or sub-contractors have been offered to PNG suppliers and substantial future growth is expected.

The IBBM Enterprise Center's strategy towards Lancos specifically is centered around training, mentoring and providing technical support to mainly the Umbrella Lancos. With this strategy the center aims to facilitate these Lancos in working with Project contractors, developing their business skills, governance, financial capacity and technical capability and managing their expectations of the (labor) market. To date the center's has a dedicated Business Development Team working with Lancos to show for. The center offers training for Lanco Directors and Board Members, which is currently a work in progress. There are numerous contracts between Contractors and Lancos in place and multiple Joint Ventures have been established with Lancos to enhance capacity and capability. Figure 5.3 shows a representative case study of a supplier development.

Porebada Ahine Ltd

- ✓ What? Porebada Ahine Ltd is a company incorporated by over 200 women from Porebada village.
- ✓ How? IBBM Enterprise Center offered directors training, basic business training and business advisory services to ensure that the business could start up and operate to meet its obligations.
- ✓ Contract! Porebada Ahine Ltd has secured a contract with the Alliance Group at the LNG Plant Site for linen camp supplies, e.g. bed sheets, curtains towels pillow and pillow cases.
- ✓ Financing! The IBBM Enterprise Center facilitated meetings with National Development Bank, resulting in the company securing a business loan to finance the further growth of the business.
- ✓ Follow up! The IBBM Enterprise Center is providing Business Mentoring Services to assist the company to work effectively during these early but critical stages. The EHL Business Development Advisor from EHL BD Team is also providing ongoing support.

Figure 5.3: Supplier Development – Case Study

Source: Updates provided by EHL.

5.10.3 Recommendations

- 1) Consider initial risk assessment on core labor standards for PNG suppliers;
- 2) Include capacity building and skill development on (i) workers' rights, i.e. the ILO core labor standards and (ii) worker-management relations, i.e. industrial relations for the Project's supply chain. This would encompass capacity building and skill development of local business, including

Lancos either directly by the EHL's Business Development Team or indirectly through the IBBM Enterprise Center.¹⁸

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 regulatory 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; and
- maximize sustainability to extend impacts beyond the project involvement.

5.11.2 Observations

The IESC has reviewed and approved the following plans that make up the Community Support Strategy:

- Community Support Strategy Action Plan (PGGP-EH-SPSEL-0000020) Rev E August 2011;
- Community Development Support Plan (PGGP-EH-SPENV-000018-029) Rev 2 November 2010.

Completion of these documents satisfies Items 19 (a) and (b) of the E&S Milestones Schedule. EHL is in the process of preparing a summary of the Community Support Strategy in appropriate form and language for disclosure to local people to meet the requirement of Item 19 (c). Once EHL has met this requirement, all E&S Milestones Schedule commitments will have been completed.

Three recommendations were made regarding the CSSAP and CDSP. The IESC has requested that these be addressed as revisions to the CSS to be finalized prior to the IESC's next visit in November 2011. The recommendations are summarized as (1), (2) and (3) in Section 5.11.3. The IESC considers that each of these recommendations is consistent with international good practice and important for ensuring that programs maximize development impact and result in measurable outcomes.

The delay in finalizing the Community Support Strategy Action Plan (CDSAP) has not delayed the commencement, delivery and, in some cases, completion of community development support programs. The CDS team presented information to the IESC showing accomplishments across a range of activities and geographic areas. Highlights included:

- continuing solid progress under the Waterways MoU;
- completion of village court audits.

Many of the CDSAP components involve activities that overlap with state, provincial or district government agency responsibilities. Through a meeting with officers of the Central Province Government, the IESC was concerned to learn that regular meetings between Central Province Government and the Project have not been occurring. Government officers responsible for agriculture and fisheries, for example, were unaware of EHL's cashew growers' program or fisheries baseline studies in the villages

¹⁸ In many (southern) African countries Business Development Service providers are extending their traditional services with services in the field of sustainability. Especially SMEs have particular challenges, but also opportunities in addressing their environmental and social/ labor issues. The sector is mainly hampered, by lack of resources (human, financial, access to know how) and its economy of scale. Its accumulated environmental and social impact is substantial and often underestimated. The gains to be made for the sector are considerable, e.g. improved relations with neighboring communities, improved worker morale and strategic positioning for entering international markets.

around the LNG terminal. As the EHL 'exit strategy' for some CDSAP components is likely to involve transfer of ownership and maintenance responsibilities to some level of government, it would be wise for both parties to remain fully engaged.

5.11.3 Recommendations

- 1) Programs in the CDSP should each have a supporting logical framework analysis which clearly sets out targeted outcomes and the indicators to be used for verifying these.
- 2) The programs that make up the CDSP programs should be subject to third party mid-term and final completion evaluations. Such evaluations have been standard practice by the World Bank and other multilateral and bilateral community development sponsors since the early 1990s. These evaluations are invaluable for objectively assessing the effectiveness of programs, identifying any mid-course adjustments that might enhance their effectiveness and for providing a guide as to which programs might usefully be continued or extended going forward.
- 3) For each CDSP program, EHL should develop a clear 'exit strategy' that may involve transferring 'ownership' of the program to a government agency, NGO or CBO; transferring any O&M responsibilities to communities or otherwise progressively reducing EHL's assistance in a transparent and sustainable manner.
- 4) Fill the vacant positions in the SCI and CDS teams as a matter of urgency.
- 5) Resume regular steering group meetings with Central Province Government to ensure coordination and clear communication between the Project and government on CDSP programs and other project-related concerns.

5.12 STAKEHOLDER ENGAGEMENT AND CONSULTATION

5.12.1 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; and,
- 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; and,
- building constructive relationships with identified key and influential stakeholders through personal contact.

5.12.2 Observations

The stakeholder engagement program was observed to have greatly improved its targeting, effectiveness and reach. Interviews with community members revealed much higher community awareness of project activities and safety requirements than in previous IESC reviews. The stakeholder engagement team has

recognized a need for improved recording, tracking and analysis of stakeholder engagement activities, issues and feedback received. See also Section 5.2.2.3.

A particular challenge during the next 3 or 4 months will be adequately communicating safety messages and other information about compensation arrangements and grievance avenues to communities in the vicinity of dredging works in the Omati waterway. The villages in this area are often very isolated, accessible only by boat and are outside of mobile phone coverage. The villages also frequently move from fishing camp to fishing camp so cannot be guaranteed to be any given location at a given time.

When interviewed, waterways peoples' understanding of the Omati Waterways MOU appeared patchy. Some villagers were very well-informed. Some had no knowledge of the MoU. It is important that EHL reinforce to Waterways council members and their agents their obligation to pass on information gained at meetings in Kikori to their constituents throughout the Delta. This obligation should be regularly reinforced.

Where Project facilities are situated close to larger settlements, consideration should be given to establishing 'village representative committees' that meet with a senior EHL manager on a monthly basis. 'Big men' are important in Melanesian culture and the fact that a senior EHL manager chose to meet regularly with local people would be a mark of respect and an indication that EHL took its local responsibilities seriously. The EHL manager would also learn that many of the issues that are a concern to the company are a concern to local communities. Such meetings would give both sides, the community the opportunity to discuss upcoming activities, employment as well as other issues and concerns. EHL could encourage serious issues to be presented at these meetings rather than become manifest through blockages. The contact would also help break down the siege mentality that often becomes manifest where facility managers operate exclusively behind the perimeter fence.

5.12.3 Recommendations

- 1) Consider establishing 'village representative committees to meet regularly with a senior EHL manager to discuss upcoming activities, employment as well as other issues and concerns.

5.13 GRIEVANCE MANAGEMENT

5.13.1 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.

5.13.2 Observations

A centralized grievance management tracking system is now established and providing reports. Worker and camp grievances are also being recorded and tracked. The reports reveal some anomalies that need to be ironed out. For example, some EPC areas (e.g. EPC 2) reported none or very few complaints. Significant further effort is required to make the grievance management system an effective social risk management tool. The IESC observes as follows:

- there needs to be more effort placed on the roll-out of the complaints management system internally. The IESC encountered situations where community members reported having made a complaint to EHL staff and yet there was no record in the grievance system. All project personnel with exposure to communities and the public need to understand what a complaint is and what their responsibilities are for recording and reporting one;
- understanding of avenues for making a complaint within communities was patchy. The availability of the grievance management system and avenues for making a complaint need to be repeatedly reinforced as part of ongoing community engagement;

- complaints were being left unresolved (for months in at least one case) due to internal disputes about whose budget was to be used to cover the corrective action. Every complaint must be allocated to a ‘complaints owner’. The ‘complaint owner’ needs to have:
 - line responsibility for closing out the complaint in a timely and effective manner,
 - access to budget for complaint resolution; and
 - authority to mobilize resources/ contractors to undertake corrective actions;
- ‘Outcomes’ of corrective actions are not being recorded. After each corrective action has been completed, some-one removed from the corrective action implementation should verify the outcome with the complainant. As noted in the last report, this could be as basic as the complainant was satisfied with the outcome; the complainant was partially satisfied with the outcome and a further corrective action was agreed or not agreed; or, the complainant was not satisfied and was referred to the third party dispute resolution mechanism (for example).

5.13.3 Recommendations

- 1) As part of ongoing community engagement, regularly reinforce to communities (and workers) the availability of the grievance management system and avenues for making a complaint.
- 2) Continue training to all EHL/contractor staff with exposure to communities on how to record a complaint – consider a ‘stop-card’ type reporting template to facilitate this.
- 3) Establish a system whereby every complaint has a ‘complaint owner’ who has line responsibility, budget and is empowered to allocate resources to ensure that each complaint is closed out in a timely and affective manner. The ‘complaint owner’ should probably be the Area Construction Manager or his/her designate.
- 4) Establish budget under each Area Construction Manager to cover cost of grievance corrective actions.
- 5) More clearly define roles and responsibilities for grievance management. The following types of roles need to be considered:

Grievance coordinator:

- entering grievances into the tracking system;
- nominating complaint owner;
- keeping complainant informed about progress towards close-out; and
- verifying outcome with complainant after corrective action is complete.

Grievance owner:

- line responsibility for timely and effective complaints close-out;
- access to budget; and,
- authority to deploy resources/contractor to undertake corrective actions.

Grievance manager:

- responsible for implementing corrective actions.

- 6) For each closed out grievance record an outcome (e.g. complainant was satisfied/ not satisfied) based on consultation with the complainant after the corrective action has been completed (repeated).
- 7) Develop clear protocols for transferring a grievance from one party to another (e.g. from EHL to a contractor) and ensure that a grievance is not recorded as closed by dint of it having been transferred (repeated).
- 8) Continue efforts to consolidate contractor grievance reporting and tracking into the EHL centralized grievance management system.

5.14 OTHER SOCIAL ISSUES

5.14.1 Project Coordination with Government

Many EHL community development and engagement activities impinge on areas of responsibility of state, provincial and district governments. Examples include the promotion of village land use planning as part of PIIM management and various infrastructure projects being developed as part of Community Support activities. At all times, EHL must ensure that it makes reasonable effort to coordinate with and keep provincial government (including the Hela Transitional Authority) and district offices fully informed of its activities. This is not merely a courtesy to host governments (local, provincial and national) because in many instances the sustainability and long term maintenance of these project initiatives will be dependent on the projects being transferred to government. On the other side, government should also be motivated to attend and provide technical and advisory support to villages in their dealings with EHL. The face of government has reportedly been noticeably missing from several recent discussions between EHL and villages in Central Province relating to subjects such as land use planning, fishing and agriculture.

In discussion with villagers, the IESC notes the value that communities place on the role of village courts as a means to 'ensure peace and harmony by mediating in, and endeavoring to obtain just and amicable settlement of disputes' (Section 16 of Village Courts Act, 1973). The IESC encourages the government to facilitate payment of outstanding allowances to court officers. In the Project area, the village courts have too important a role to play for them to be inoperative at this critical time.

There are other issues that are outside the remit of the Project that government needs to proactively address to maintain orderly land use planning and law and order. In inspecting, the LNG site vicinity, the IESC observed a number of emerging land use and planning concerns. These included:

- very rapid development of industries, transport terminals and residential development along the Napa Napa Road that links Port Moresby to the LNG terminal;
- illegal filling along the Napa Napa Road into adjacent mangrove areas;
- uncontrolled solid waste disposal and burning; and
- expanding informal housing areas as customary owners move to assert ownership.

The IESC encourages the Central Province Government to complete formalities and allocate the budget necessary to establish a Provincial Physical Planning Board (PPPB). An active PPPB is essential to ensure that development catalyzed by the presence of the PNG LNG terminal becomes an asset to Central Province and not a liability.

5.14.2 Recommendations

- 1) Re-commence regular, monthly co-ordination meetings with Central Province Government either through a steering group, or through meetings with interested departments, to keep each other fully apprised of progress and issues.
- 2) Lobby government to recommence payments to village court officers as the efficient functioning of courts in the Project area is beneficial for local law and order.

6 LABOR AND HUMAN RESOURCES

6.1 INTRODUCTION

6.1.1 Scope of Labor Review for this Site Visit

In contrast with previous missions, the July 2011 review had the additional support of a labor and employment specialist. From a labor and human resources standpoint, the IESC engaged with about 100 people individually or in groups, including Contractor managers, Contractor work force, both locally and internationally hired, and other key informants.

The IESC labor and human resources review included (but was not limited to) the following activities:

- introductory presentations on contractor management, camp management and labor and working conditions by Contractor Compliance and Interface Management staff in Port Moresby;
- introductory presentations on the National Content Plan, local business development and Project - Lancos interaction by relevant Project staff in Port Moresby;
- in-field discussions with a range of Project personnel including Project managers and L&CA Compliance and Interface leads;
- in-field discussions with Contractor personnel including managers and workers at C1, EPC 3, 4, 5A and 5B;
- introductory presentations at Port Moresby CTF and Juni training centers;
- introductory presentations by several umbrella Lancos, such as HGDC (EPC 4 - Hides Gas Conditioning Plant and Well Pads), LABA Holdings Ltd (EPC3 - LNG Plant) and visits to their offices;
- visit to Komo Nursery, established as a demonstration area and to provide seed stock/propagates for agricultural livelihood restoration.

The IESC consulted with workers in groups and individually. Group consultations took place through organized meetings according to established methods for conducting group worker interviews, where the mandate of the interviewer, confidentiality and anonymity of interviewees are clearly outlined and underlying, structural patterns are separated from symptoms and incidents. They captured views of both men and women. The focus during this mission was to map issues with regard to specific risk groups, such as women workers, locally hired workers and OCNs. As this was the first visit by the IESC labor specialist, worker consultations were carried out in a random fashion and were not necessarily fully representative of work force practices. Best professional judgment, however, did identify some issues.

In the Labor and Workers Conditions section, this report makes reference to the ILO core labor standards, the ILO 1998 Declaration etc. These standards are a benchmark to the Project's Labor and Worker Conditions Management Plan. The comments made seek to clarify the implications for Project performance of having committed to these labor benchmarks.

6.1.2 Waiver

The IESC labor review is substantially based on interviews conducted with EHL staff, (sub-) contractor staff such as construction managers, HRM etc and is based on worker interviews. Any claims made by workers or management are crosschecked against one another. Also, efforts are made to substantiate claims with project documentation, such as minutes of meetings, attendance records, statistics etc.

The IESC consulted with workers in groups only. Group interviews were carried out according to established methodology; clearly outlining the mandate of the interviewer, ensuring absence of management, guaranteeing anonymity and confidentiality of interviewees while at the same time discerning systemic labor issues and underlying patterns from symptoms and incidents. Group interviews captured views of both men and women. The focus during this mission was to map issues with regard to specific risk groups, such as women workers, locally hired workers and OCNs. As this was a first visit of the IESC labor expert, worker consultations were carried out in a random fashion and were not necessarily fully representative of the work force.

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. Also, review

effectiveness remains dependent on the accuracy of information provided by people. As such, the review does not purport to be a fully comprehensive evaluation of compliance.

6.2 LABOR AND WORKING CONDITIONS

6.2.1 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; and
- enhance PNG citizens skills base through training provided during employment.

6.2.2 Observations

6.2.2.1 Project Commitment to International Labor Standards

The Labor and Worker Conditions Management Plan, Attachment 1 – Legal and Other Requirements, clearly states intended Contractor compliance with applicable PNG Laws and Regulations¹⁹, applicable International Treaties and Conventions²⁰ and applicable International Finance Institution requirements²¹. Attachment 1 refers to the ILO Core Labor Standards (CLS), the ILO 1998 Declaration and the IFC Performance Standard 2, which are clear benchmarks for Project performance. Nevertheless, the labor benchmark seems less well understood in terms of its practical implications than the other underlying social and environmental benchmarks. The following comments seek to clarify the implications for Project performance of having committed to a labor benchmark.

The IESC did note the absence of any benchmarking against the ‘UN Convention on the Protection of the Rights of All Migrant Workers and Members of their Families’. For a Project mobilizing such sizable contingencies of Other Country Nationals (OCNs), and regardless of whether PNG is signatory to the Convention (which it is not), it is recommended to follow best practice to review its requirements and consider the implications for Project performance.

Drawing from all of the above, EHL’s monitoring of its main EPC Contractors and their respective sub-contractors could more explicitly seek to demonstrate conformance with critical international labor standards such as the ILO Core Labor Standards and other labor requirements as reflected in IFC Performance Standard 2.

6.2.2.2 Potential Risk Elements

Potential risk areas relevant for monitoring Project performance in terms of labor and worker conditions are outlined below.

¹⁹ The PNG Constitution; Child Welfare Act 1961; Discriminatory Practices Act 1963; Employment Act 1978; Employment of Non-Citizens Act 1978; HIV/AIDS Management and Prevention Act 2003; Industrial Organisations Act 1962; Industrial Relations Act 1962; Industrial Safety, Health & Welfare Act 1961; and the Workers Compensation Act 1978.

²⁰ UN Covenant on Economic, Social and Cultural Rights; UN Covenant on Civil and Political Rights; UN Convention on the Elimination of All Forms of Discrimination against Women; UN Convention on the Elimination of All Forms of Racial Discrimination; UN Convention on the Rights of the Child; UN Global Compact; the ILO 1998 Declaration on Fundamental Principles and Rights at Work; and the ILO core Conventions: Forced Labour (C29, 1970 & C105, 1957); Freedom of Association and Right to Organise (C87, 1948); Right to Organise & Collective Bargaining (C98, 1949); Discrimination (Employment & Occupation) (C111, 1958); Equal Re-numeration (C100, 1951); and Child Labour & Minimum Age (C 182, 1999 & C138, 1973).

²¹ IFC Performance Standard 2 on Labor and Working Conditions.

(Sub) Contractor Management:

- PNG local labor force, recruited through Lancos – issues specific to women workers (see 6.2), all other worker issues relate to both women and men;
- workforce development;
- contractor management of sub-contractors; and
- OCNs, recruited through intermediary agencies.

Procurement and Supply Management (see Section 5.10):

- PNG businesses from which the Project sources goods and services; and
- business development, either directly by EHL BD team or through the IBBM Enterprise Center.

Camp Management (see Section 6.3):

- living conditions;
- camp induction and training; and
- grievance mechanism.

Other Project labor components such as EHL staff and expatriates represent relatively low risk and are not covered in this review. Labor and working conditions at associated facilities were also not evaluated during this field visit and were left to a later date.

6.2.2.3 PNG Local Labor Force - Recruited Through Lancos

Laborers represent much of the PNG workforce and present special challenges for their proper management, as discussed below.

Labor Risk.

This group of workers recruited through Lancos poses a potential risk, because of their indigenous cultural traits and, in most cases, their first-time exposure to paid labor and work place issues. Women take up a special position due to certain cultural traits, which in some parts of the Project take quite extreme forms. (see section 6.2 on Gender).

Freedom of Association and Collective Bargaining

Based on various worker interviews carried out by IESC it appears that most PNG workers recruited by the Project are not organized in any fashion, neither formally (trade unions) nor informally (worker committees). They are, however, in a way organized and represented through their respective Lancos. In other words Lancos occasionally assume the role of a trade union by default. Unfortunately, most Lancos lack to various degrees experience in human resources management and industrial relations. This is exemplified by systemic complaints by PNG Project workers regarding payments, lack of representation of their interests by their Lanco and lack of governance at the Lanco. Women workers feel particularly unrepresented.

As a result of this situation, PNG Project workers have sometimes taken situations into their own hands, leading to numerous strikes, work stoppages and other labor incidents. Demands range from legitimate and less legitimate to fully unrelated to work place issues (often originating in community grievances). IESC has observed that these spontaneous, yet forced “bargaining” situations are handled in an ad hoc manner. EHL and contractor staff deals with labor incidents based on best judgment, reflecting personal decisions and differences in people’s skills rather than a systems approach. This places unwarranted pressure on EHL and contractor staff.

Overall the grievance mechanisms at the various contractors seem well known among PNG project workers, given the numerous records kept and observed by IESC. EPC3, Chiyoda JGC JV at the LNG plant site has recently started experimenting with Workers Council among PNG workers. This constructive development will be closely followed during future IESC reviews.

The Project would benefit from addressing human resource management (HRM) and industrial relations (IR) at Project level and extrapolating this focus to the EPC Contractors.

Forced and Child Labor

There are no indications of forced or child labor among PNG workers working at the Project. Nevertheless, the IESC would like to better understand how the PNG supply chain is monitored in this respect. During this site visit we were unable to determine the level of supply chain monitoring in place, which is a clear requirement under IFC PS2²². (See section 5.10 on Procurement and Supply Chain).

Discrimination

Women throughout PNG are discriminated against due to their culturally accepted low social position. The IESC looks forward to hearing about the Project's latest proactive approach to women's issues during the next field visit.

Working Conditions - Wages, Working Hours, Worker Health and Safety

There are structural payment issues at the level of the Lancos, such late payment of wages, arguments over amount of hours (including overtime) worked and actually paid out, distrust towards the Lancos about their mark up over and above the wages of workers, etc. The Project is delivering capacity building to Lancos in terms of human resource management through its Business Development program, but there is still a long way to go.

Working Conditions - Demobilization

The Project lacks a coherent approach to preparing PNG workers for demobilization. In general PNG workers will be demobilized with two-weeks' pay. A lot is being done via the community support strategy to cushion the effects of workforce demobilization, but demobilization events could and should be better aligned with these efforts. A smooth, but also immediate transformation from being employed at the Project to other livelihood opportunities is of the essence over and above the financial severance package.

6.2.2.4 Workforce Development

In terms of workforce development EHL and the EPC Contractors since inception of the Project together offered more than 500,000 hours of training and more than a 1000 courses have been completed. EHL Workforce Development Initiatives include: an Operations and Maintenance Trainee Program; an Intern Program; a Graduate Training Development Program; Drilling Engineers and Graduate Engineers Programs, and; the POM CTF and Juni Training Facilities. EPC Workforce Development Initiatives include: the Saipem Sponsorship Program (40 people for 16 months) and the Chiyoda Engineering Traineeships to Japan (nine engineers in one year).

In order to support the various (umbrella) Lancos in providing the Project with sufficient numbers of semi-skilled and skilled workers, EHL has set up the POM CTF (Port Moresby Construction Training Facility) for the plant site (EPC3) and the Juni vocational training center for the Hides area, expected to be turned over to the EPC4 Contractor in Q4 2011.

EPC3, the Chiyoda-JGC Joint Venture had originally planned to run POM CTF, but withdrew its interest. Instead, the Orion Group (Orion Engineering Project Services) is now at the center to recruit trainees, to connect graduates to job opportunities at EPC3 and its sub-contractors, as well as to carry out "direct hire".

Orion, a global leader in recruiting personnel to the oil and gas industry, is working closely with LABA – the umbrella Lanco for the LNG plant impacted communities. It prepares LABA for a handover of these activities over time. The objective is for LABA to become a PNG based, professional recruitment agency and to prepare the labor market for a transition to the post-construction period of the PNG LNG project.

Orion initially organized an educational training program over a period of 4 – 6 months to prepare the four communities impacted by the LNG plant (i.e. those located within the 5km-radius of the plant, i.e., Boera, Lae Lae, Papa and Porebada), on Project developments and opportunities for training and employment. There is another community, Baruni, that lies outside the 5K-radius, but that is impacted by heavy traffic associated with the project. This community has informally been included in the target group for recruitment of candidates for training and employment once the resources of the other four communities have been exhausted.

²² IFC Performance Standard 2, paragraph 18: "The adverse impacts associated with supply chains will be considered where low labor cost is a factor...the client will inquire about and address child and forced labor in its supply chain consistent with paragraphs 14 and 15..." (sic: paragraphs on child and forced labor)

Selection criteria include primary school level of literacy, willingness to learn and proper attitude, police clearance (those with a criminal record are excluded), medical check (those with active TB or alcohol-drugs issues are excluded – with a possibility for the individual to clean up and re-apply after 6 months). A bank account is opened for each selected candidate.

Orion observed that women clearly stand out against their male co-workers in terms of lack of absenteeism, sense of responsibility during training and on the work floor and prioritizing on safeguarding an income for their families. Maternity leave is 6 weeks for the private sector in PNG (public sector 3 months), but most women tend to be back at work well before their leave period is over. Pregnant women are not excluded from job opportunities, but when they apply for the training Orion advises them to wait and come back after delivery and maternity leave.

Orion also clarified some of its challenges and successes. A major obstacle has been the lack of transparency on job opportunities at the different (sub-) contractors. Until recently it remained fairly unclear what numbers of workers and types of skill sets were needed, as well as what the timing of recruitment would be. This is improving as (sub-) contractors are now mobilizing and establishing their PNG presence. This has been difficult for both Orion, not knowing how many people to train, what for and by when, as well as for the communities, not knowing what opportunities will be on offer.

Successes have been achieved in terms of sheer numbers of people trained (1300 in 8 months, of which more than 30% are women); database development with baseline data on available labor force in the impacted communities; improved dialogue with the (sub-) contractors and a more flexible system for ramping up (or down) on graduate delivery to (sub-) contractors.

POM CTF demonstrates an innovative approach in engaging the potential local labor force, which almost entirely lacks relevant vocational skills, through utilizing an exclusive SHE-angle in its 6-week training course. Obviously, no real construction or engineering skills can be taught in such a short period. What the center does do is to rigorously train unskilled people on SHE issues, as well as some very basic skills on how to work at a construction site. The underlying idea is getting these people mentally and practically prepared to function safely and securely enough on-site for them to be able follow on-the-job-training and to embark on a professional development path. The World Bank office in PNG has taken an interest in this approach and wants to roll out the experience to other projects.

The Juni training facility to be operated by the CBI Clough JV (CBIC) has not opened due to construction delays associated with EPC4 (HGCP). EHL plans to use the bed space at that camp until CCJV is in a position to take over in the August-September time frame.

6.2.2.5 Contractor Management of Sub-contractors

IESC observed a systemic lack of awareness of Project labor requirements at (sub-)contractor level, except for worker health and safety, which scores very high over the entire Project. ILO core labor standards are virtually unknown and practical implications at the work floor barely understood.

Most prominent were: (i) the general lack of proactive work place relations or in other words lack of organized worker-management dialogue including avenues for workers to get their concerns and needs addressed in a collective manner, rather than individually as with the worker grievance mechanism, and (ii) overall lack of understanding with regard to hiring practices for OCNs. Most (sub-)contractors hire only few OCNs directly (depending on quota in the countries of origin) and most through agencies in the countries of origin. (Sub-) contractor staff responsible for indirect OCN hire is typically not on site. In all cases IESC was referred to overseas contractor staff for further information.

6.2.2.6 OCNs - Recruited through Intermediary Agencies

Labor Risk

In terms of recruitment of other country nationals EHL will have to be able to demonstrate that its (sub-) contractors can sufficiently guarantee the quality and reputation of the recruitment agencies in the countries of origin. This implies that EHL's (sub-) contractors need to know about the agencies' recruitment policies and practices and be able to demonstrate that these agencies at minimum follow the law and do not engage in any type of bonded labor practice and better still that they follow sector best practice. IESC observed that this is not the case yet for this Project.

Freedom of Association and Collective Bargaining

OCNs at the Project lack any degree of organization or platform for collective bargaining; also no information is available on degree of organization through their countries of origin. Those interviewed did express an interest in some level of organization, but were not aware of any avenues to do so. A grievance mechanism is in place at most contractors, but communications to OCNs in particular could be improved. They typically only complain to their supervisor with varying degrees of success. A disparity with PNG workers may arise at EPC3 due to the pilot Workers Council and at other contractors, if the pilot is rolled out.

Forced and Child Labor

There are no indications of child labor among OCNs working at the Project.

None of the contractor staff interviewed by IESC was able to provide any detail on recruitment policies and practices of the agencies that provide them with OCNs, nor were they aware of hiring practices of their sub-contractors. IESC was in all cases referred to contractor staff overseas for information on hiring practices.

IESC observed a couple of issues with OCNs from certain southeast Asian countries that raise questions, such as retention of passports by POM offices of respective agencies, excessive recruitment and retention fees, structural, unpaid overtime (because overtime over and beyond 10 hrs/day was not arranged for in labor contract with the agency) etc. EHL immediately investigated the issues and will discuss the outcomes with IESC during their next visit.

Discrimination

OCNs run the risk of being discriminated in terms of opportunity to organize, e.g. EPC 3 Workers Council is for PNG workers exclusively. The Project's closed camp policy which, if not managed properly, may lead to excessive, unpaid overtime for OCNs, working on lump sum contracts.

Working conditions - wages, working hours and worker health and safety

There are certain aspects of working conditions at the Contractor level that EHL appears to need to review in depth. For example, at EPC5A remuneration packages of Indian OCNs recruited via agencies appear substandard and agency markup per recruited worker excessive. Structural overtime (over and beyond 10hrs/day on a regular basis) remains unpaid. Working hours by contract are 10 hrs/day, of which 9th and 10th are paid as overtime, beyond that no overtime is paid (lump sum contract). Of the small number of workers interviewed, some claim to routinely work days of 12 -14 hours. Transport to and from camp is not paid (and may take up to 2 hours one-way), nor is their one-hour lunch. The workweek is seven days/week and the rotation schedule is 20 weeks on/2 weeks off. Leave is not paid. It is not known if this is a common situation.

6.2.2.7 Summary

Most important findings deserving immediate attention from the Project:

- (i) Workers association/collective bargaining – IESC observed that except for a pilot Workers Council for PNG workers at EPC3, no structural, organized and proactive worker-management dialogue is in place at contractor or sub-contractor level, nor are there any collective bargaining mechanisms.
- (ii) Indirect recruitment of OCNs – IESC also observed an overall lack of awareness, transparency or data on recruitment policies and practices of intermediate agencies in OCN countries of origin at contractor and sub-contractor levels.

6.2.3 Recommendations

- 1) Concerning EHL:
 - a. conduct an internal review to ascertain if labor management is fully consistent with EHL's own commitments and expectations; if it is not, review contracts,
 - b. recruit a full-time human resource manager and industrial relations specialist; and
 - c. review labor practices at contractor level as not all contractors seem to have the same practices, resulting in project wide inconsistencies;
- 2) Concerning Lancos and PNG workers:

- a. allocate resources to and seek third party support²³, as appropriate, for the Project's Business Development Team and IBBM to accelerate HRM and IR capacity building at Lancos level;
 - b. evaluate Workers Council at EPC 3, and discuss possible roll out with other Project contractors; and
 - c. develop tailor-made HRM and IR strategy/solutions for PNG women workers' needs at Project level and roll out to Project contractors (see section 6.2 on Gender).
- 3) Concerning Demobilization of PNG workers:
- a. develop a project-wide demobilization strategy at Project level that is better aligned with the Community Support Strategy Action Plan (see CSSAP, section 2.1) and roll out to Project contractors, i.e. Project needs to look at Contractor-level initiatives and link these to community development efforts, effectively a two tiered approach;
 - b. research possibilities to offer severance packages²⁴ over and beyond the 2-week termination pay at Project level and roll out to Project contractors; and
 - c. have the LCA Team design a more concrete and immediate interface between Project demobilization activities and Community Development Support efforts. LCA could include elements of severance packages into CDS and thus offer immediate alternatives after demobilization.
- 4) Concerning Other Country Nationals:
- a. carry out a rapid risk assessment at (sub-) contractor level for OCN Recruitment Agencies in countries of origin in terms of their policies, practices and reputation. Project needs to (or is 'should be able to' better?) rapidly identify and address potential Red Flag issues;
 - b. discuss possible roll out of Workers Councils for OCNS with Project contractors; and
 - c. have Project contractors improve on and provide ongoing information on grievance mechanisms towards OCNs.
- 5) Concerning Overtime:
- a. improve on monitoring (excessive) overtime issues and possibly related accidents and decrease in worker productivity at (sub-)contractor level, mainly for OCNs.
- 6) Concerning Workforce development;
- a. POM CTF and Juni training programs to include capacity building and skill development on (i) workers' rights, i.e. the ILO core labor standards and (ii) worker-management relations, i.e. industrial relations for the Project's (future) workforce. Also, to be included in (sub-)contractor induction training of both PNG national hires, as well as OCN hires; and
 - b. POM CTF and Juni training programs to include capacity building and skill development on personal financial management to support workers with managing their (increase in) income and bank accounts²⁵.

6.3 GENDER

6.3.1 Project Strategy

The Project's provisions for gender-related topics are covered in the following management plans:

- the Labor and Workers Conditions Management Plan (Mitigations 23.026 and 23.034); and

²³ The ILO could support such an effort, through its network of specialists and consultants and through its regional office - the ILO Country Office for South Pacific Island Countries in Suva-Fiji.

²⁴ For example, have PNG industrial partners such as the Department of Labour and Industrial Relation and the Papua New Guinea Trade Union Congress (PNGTUC) assist the Project with identifying local best practice options within the local legal requirements. Severance packages may include not just material benefits, but also support in terms of career development, small scale business development, and access to microfinance.

²⁵ This recommendation has already been warmly welcomed by POM CTF staff.

- the Camp Management Plan (Mitigations 24.027 and 24.029).

Relevant mitigation measures are not specific to gender but are included as part of the overarching requirements for equal opportunity and non-discrimination. Gender would also be covered under PS2, Labor and Working Conditions.

6.3.2 Observations

6.3.2.1 Women vis-à-vis Labor and Workers Conditions

Whereas the Labor and Workers Conditions Management Plan clearly subscribes to general non-discrimination principles at the work floor through its commitment to IFC PS2, it also subscribes to the principles of the 'UN Convention on Elimination of All Forms of Discrimination against Women'. Implementation of these principles is difficult in PNG.

A group interview with women workers at Juni camp in the Hides area brought out several issues that appeared systemic when cross-checked in individual interviews with women later on during the mission. Issues revolve around workplace and income.

Women have difficulty in dealing with Ltd - the local umbrella Lanco responsible for their hire. Various workplace grievances, issues or simple misunderstandings came to the table during the interview. However, women have no avenues for getting grievances addressed or misunderstandings clarified, neither at the camp level, nor at Lanco level. They said that Ltd is run entirely by men, including those dealing with Human Resources Management issues. Given the PNG cultural context and more specifically the local Huli cultural context²⁶ women feel that (Huli) men at HGDC responsible for paying out their wages and other allowances or for dealing with their grievances simply dismiss women with their complaints.

The other major issue to women is income generation. In the Huli cultural context women face incredible pressure to hand in their earnings due to (male) community demands and all expressed great frustration about this issue. Literally they said: "the moment a woman passes the camp gate, her wages become the possession of her husband and of other male clan members." They all expressed the desire to have access to bank accounts to safeguard their money and apply their earnings to building their lives and that of their children. Men, they claimed, typically use the money earned by their women for alcohol, pigs and settling community issues and conflicts. So, besides contributing to social and economic empowerment of women and children²⁷, women's income generated by the Project unfortunately also enhances (domestic) violence due to increased alcohol abuse and increased means to fight out conflicts etc.

The "women's-control-over-income" issue - balancing rather at the interface of "work place" and "endemic community issues," lies to a great extent outside the sphere of influence of the Project. However, the potential impact on both women directly and on the Project indirectly in terms of the security and reputation, warrants serious attention. It is understood that EHL has current and planned partnerships that have the potential to ease this issue and IESC anticipates briefings on this subject during the next field visit.

The observations made during the interview were later shared with HGDC management, who explained that female Human Resources Management staff (one plus two assistants) had recently been put in place, but that they had not come around to communicating this to women workers in the camps. IESC feedback on women workers concerns at Juni was much appreciated and management said they would plan for regular (fortnightly) visits of HGDC Human Resources Management staff to the camps. They said they would, as they understand that outreach to women workers needs a more pro-active approach and that women cannot easily make time or financial means available to travel to and from the HGDC office.

The issue of women's earnings getting under full control of their male family members was confirmed by the general (male) manager at the HGDC Hides office as the obvious and culturally acceptable thing to do. However, the fact that women see things differently and really want to have their own bank accounts was taken on board by HGDC. As no banks are present in the Hides area, IESC discussed the possibilities of

²⁶ In Huli society women are discriminated against due to their culturally accepted, subordinated position to man and due to being marginalized in the politico-legal sphere. E.g. women's energy is considered polluted and not to be mixed with male possessions or living space and Huli women are submitted to extreme and structural forms of domestic violence, which generally goes unpunished due to cultural acceptance and overall lawlessness in the area.

²⁷ Beneficial effects of investing in women have been amply researched and documented and are globally recognized as a most powerful tool in poverty reduction, reduction in child mortality, enhancing development and educational opportunities for children and enhancing social stabilization and economic growth.

working through cell phone banking, and possibly engaging financial institutions to provide micro-finance facilities (i.e. credit, saving and insurance) to women. This issue will be followed up during the next IESC mission.

6.3.2.1 Women and camp management

During the July/August 2011 IESC mission most issues with women's accommodations in every camp visited (see mission agenda, Appendix A) appear to have been resolved. Every camp offers adequate numbers of women's accommodation, as well as gender separation in terms of sanitary services. .

Security measures for women differ from camp to camp, as in some camps women are assigned to specific and enclosed quarters, whereas in others women are intentionally interspersed with male accommodations, to make it harder to detect their location in case of attack. Enclosures do allow for adequate light and airflow. Also, enclosures are no longer seen as excessive and women generally feel safe in camps. Both security strategies - enclosed separation and interspersing, have their merits. In terms of the enclosures, a more rigid protocol for actually locking the doors at night seems necessary. The most obvious solution is putting up a written, non-removable, protocol at the door in all relevant languages, i.e. PNG and European languages, but also various languages spoken by women OCNs, if applicable.

In terms of women voicing potential grievances, there are no easy avenues available to women. The minimum requirement would be to have a 'confidante' available at all camps, who is adequately trained in understanding and dealing with women-specific complaints and vocal and strategic enough to get complaints addressed. Finally, the presence of such a confidante and protocols for accessing this mechanism need to be properly communicated to women in the camp.

Well Pad A is no longer an issue, as it is being transferred to Drilling and will be entirely refurbished to their standards.

It should be made explicit that the IESC is not in a position to make recommendations on security provisions, nor are we attempting to do so in this or in any other report. These important measures are to be decided upon by security professionals. However, during previous missions IESC had recommended that women be included on the panel of experts in charge of security in the Upstream Project Area. The Project now has multi-disciplinary teams including security and non-security staff, men and women, national and expatriate that seem better equipped to consider the safety of women in camps.

6.3.3 Recommendations

- 1) Develop tailor-made human resource management and industrial relations solutions for women, especially for Huli women in the Hides area at the Project level - including concise instructions for (sub)contractors and Lancos. Most immediate attention is to focus on getting women's work place issues out in the open and safeguarding women's control over earnings.
- 2) Facilitate women's access to micro finance (credit, savings and insurance). EHL to clarify its activities in this field during next mission.
- 3) Make women-only grievance mechanisms available at all camps through appointing a competent 'confidante' and proper communication on this mechanism. (also in section 6.3 on Camp Management).
- 4) Design a more rigid protocol for actually locking doors at women's camp quarters (the so-called enclosures) at night.

6.4 CAMP MANAGEMENT

6.4.1 Project Strategy

The Project's commitments for camp management are contained in the Camp Management Plan, the Labor and Workers Conditions Management Plan, the Minimum Health Requirements for Project Execution, and the Health Inspection Guidelines. The primary objectives of the Camp Management Plan are:

- to avoid or reduce negative impacts on the community and maintain constructive relationships between local communities and workers' camps; and
- 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 living conditions (e.g., Mitigations 23.020 and 23.021). The two health-related documents contain some specific requirements for food sanitation, sanitation of living areas and laundry practices and procedures in addition to Project-wide requirements for public health and occupational health and safety at large.

6.4.2 Observations

Camp management is an important component of the PNG LNG Project. EHL projects that approximately 23 camps containing approximately 18,000 beds will have been constructed and demobilized over the duration of the Project with expected peak towards the beginning of 2012 (see Figures 6.1 and 6.2).

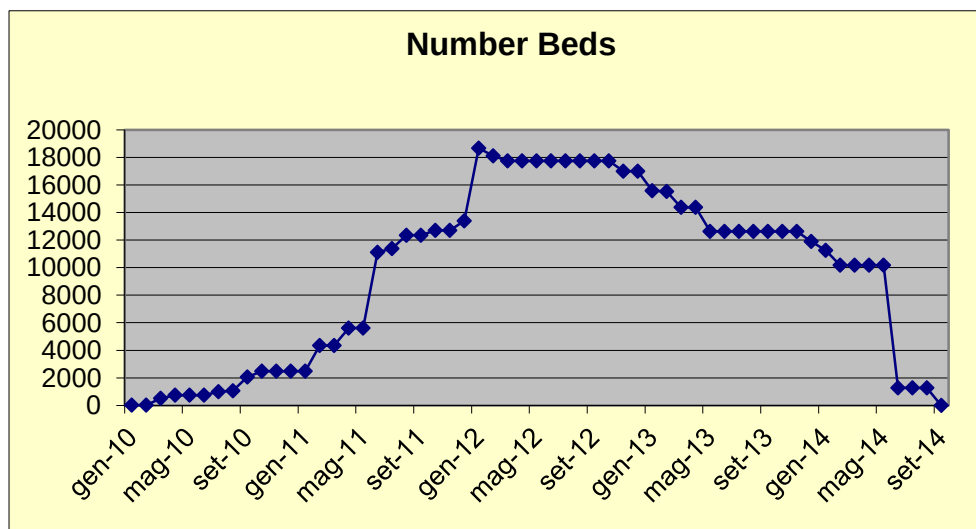


Figure 6.1: Projected Requirements for Camp Beds

Source: Presentation to IESC by EHL, July 2011.

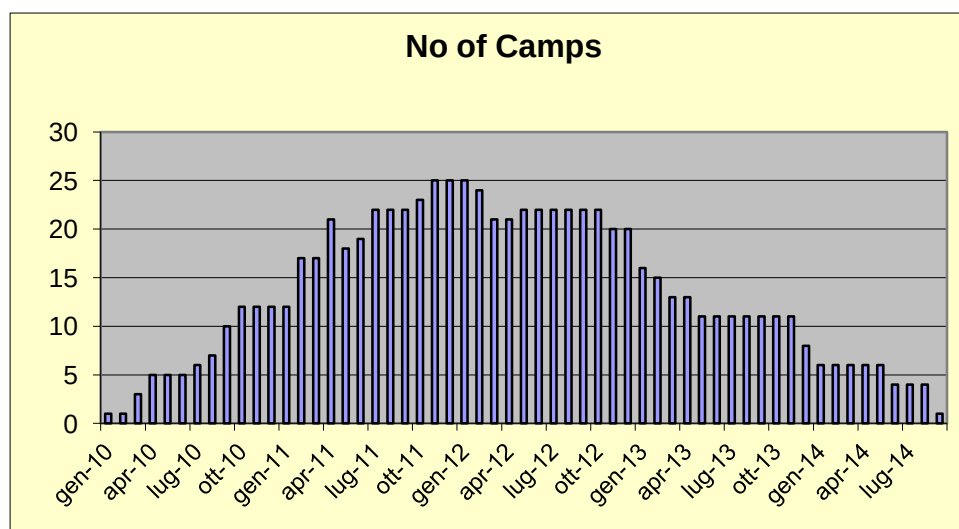


Figure 6.2: Projected Number of Camps

Source: Presentation to IESC by EHL, July 2011.

Since the March 2011 IESC field visit EHL has undertaken reviews of living conditions at 11 camps and found that some improvements were needed around room spacing, camp residency arrangements (specifically around nationals living at home), camp induction and grievance procedures. One contractor was issued with a nonconformance with respect to the minimum space requirements by exceeding the number of people allowed to occupy dormitory accommodation, a situation that has been remedied.

During the July mission IESC observed that overall camp standards are high. In general, available bed space seemed to be much less of a problem than encountered in previous field visits, but remains a point of attention given the rapid mobilization of the contractors. Some camps are still dealing with overcrowding, like C1 main camp at HGDC and the Well Pad A camp, leading to sub-standard space/person and worsened air quality. C1 has commenced extending its main camp and the issues with Well Pad A, will soon be irrelevant as the camp is being transferred to Drilling (August) and will be entirely refurbished to their standards. EHL did provide IESC with data on the state of affairs of camps (bedding, demobilization etc.)

EHL has initiated a process to implement a camp disciplinary and grievance procedure, cultural awareness training (including gender awareness²⁸), and community orientation at all of the camps. Although no details were provided on the contents of these new procedures and training, the IESC considers this as a very positive step. EHL reports that disciplinary and grievance procedures are now generally in place. Although IESC did not visit all camps during this field visit, those we did visit were found to have appropriate training/induction and grievance mechanisms in place, although there does not appear to be a standard approach to these processes, as they appear to be dependent primarily on the preferences of the individual camp managers. Accordingly, the two Level I non-conformances from the October 2010 trip report (M2.12 and M2.13) have been rescinded, recognizing that women have less access to these mechanisms than do the men, as noted in Section 6.2.

There is currently no outlet for women to express sensitive grievances that may be difficult to report to male staff (e.g., sexual harassment or assault), but most of the other issues with women facilities and accommodation have been solved. A point of attention is communication on and accessibility to camp grievance mechanisms for OCNs. This seems inadequate in the sense that OCNs are hardly aware of the existence of such mechanisms and do not make use of them.

An issue identified from previous IESC reports that the “camps to build camps” in some cases are being occupied far longer than was originally intended and resulting in reduced personal space, is slowly being alleviated. At the time of the field visit, the EPC4 camp site locations were ready for EPC4 occupancy and the C1 Main Camp was being occupied by CCJV with 350 beds available, alleviating pressure from the Wellpad A, Nogoli and Kobalu Camps. The C1 Main Camp will ultimately accommodate approximately 700 personnel, supporting earthworks on the HGCP site and Hides Wellpad Access Road. Temporary occupancy of the Juni Training Facility Camp by EHL has also reduced camp overcrowding. During this field visit, EHL presented a risk assessment of the Upstream Camps whereby mitigation measures were provided for reduced personal space (improved ventilation; improved TB training; bunk curtains for isolation; comprehensive cleaning protocols, etc.) that the IESC considers acceptable.

One of the main concerns expressed in previous IESC reports is the reduction in living space with EPC3 accommodations; in particular that EPC represents relatively long term housing that is not temporary in the sense of a “camp to build a camp.” Lowering of personal space for lowest rank workers housed in dormitories at EPC3 is indeed a fact, but EHL provided a risk assessment for this situation whereby IESC observed the solution to this problem to be of such an elegant nature that it even exceeds the quality of some dormitories that do comply with personal space regulations. The dormitories are spacious, light and airy and are divided into semi-rooms by separator walls, whereas dormitory facilities at other camps compliant in terms of personal space lacked even the most elementary privacy divides between bunk beds and did not provide the same air and light quality. Sanitary services at EPC3 dormitories are more than sufficient both in terms of quantity as quality. The solution presented definitely seems to be at the level of “sector best-practice”, given space limitations. Accordingly, the Level II non-conformance for the living space raised in October 2010 has been rescinded, but the risk mitigation measures proposed in both risk assessment reports will need to be rigidly implemented, monitored and evaluated.

6.4.3 Recommendations

- 1) Rigid implementation, monitoring and evaluation of risk mitigation measures to manage reduced space/person at the LNG plant site and in the Upstream Area.
- 2) Continue to work on the camp auditing approach, especially for the “camp to build a camp” category.

28 The recommendation (i.e. “A gender component should be included in training/inductions at all levels...”) was made in Section 5.16 on Gender in the IESC’s October site visit report and is still valid. It is reiterated in this section given its broad relevance to camps and similarity to training on cultural awareness.

- 3) Continue to work with the EPC Contractors to develop uniform, Project-wide procedures, in particular for grievance and disciplinary actions and a mechanism to record disciplinary actions and grievances.
- 4) Make women-only grievance mechanisms available at all camps through appointing a competent 'confidante' and proper communication on this mechanism. (also in section 5.16 on Gender).
- 5) Improve communication on and accessibility to camp grievance mechanisms for OCNs in relevant languages and cultural appropriate ways.

7 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 L&CA organization and has been treated in Section 5.7. 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 (see Section 5.7), 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.

7.1 COMMUNITY AND WORKER HEALTH

7.1.1 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 (see Section 5.7).

7.1.2 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 Management Program is described in detail in the IESC report for the March 2011 field visit. A major accomplishment since March 2011 is the completion of the first baseline census of over 10,000 people in the four villages near the LNG plant site and the census in the Asaro Valley control site is nearly complete. This process is expected to allow for the quantification of any changes in local health conditions over the course of the Project in the area of the LNG plant. The Health team is now starting to begin the census fieldwork in the Hides area with the Karkar control site census expected to start in September 2011.

The Integrated Health and Demographic Surveillance System (iHDSS) has a platform for enhanced clinical service delivery and a physician, nurses and health workers are now operational at LNG villages and a similar arrangement is in the process of becoming operational in the Hides area. To ensure scientific oversight and transparency, an International Science Advisory Board has been created with highly qualified experts from the U.S., Australia and Europe. The Infectious Diseases Diagnostic Laboratory to be located at the University of Papua New Guinea, School of Medicine and Health Sciences in Port Moresby is designed to provide timely and accurate diagnoses of the critical local diseases and is expected to start construction in October 2011. The first Board assessment was completed 9 July 2011 with the main conclusion that the Project community health program is well-designed and managed. The overall status of the community health program is that it is ongoing and the components involving rapid implementation are happening now.

As previously noted, the community health program undertaken by EHL is one of the most comprehensive ever undertaken for a private sector development project. We expect that it is one of the aspects of the Project that will leave behind a positive legacy.

With reference to worker health, the Project health program continues to be 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. Most of the work sites visited have clinics with doctor and/or paramedic on-site H24.

Since the March 2011 field visit, malaria control measures have been the main focus of attention after an increase in serious malaria cases in the first quarter of 2011. This trend continued to increase during the second quarter with 15 cases recorded and an additional ten serious malaria cases recorded in dependents of Project workers. As a result of this, occupational health control programs continue focus emphasis on control of communicable disease risks associated with project work in PNG. Health professionals associated with Company and Contractors have recently updated malaria program assessments to verify that project personnel are aware of malaria risks that appropriate bite prevention procedures are followed (repellent and long sleeves, long trousers) and that chemoprophylaxis medicine is used. During this field visit, the IESC team members were also requested to participate in random checks for the use of chemoprophylaxis medicine, so we can confirm directly that a comprehensive monitoring program is in place. The Project also conducted awareness raising activities and provided malaria prevention resources as part of World Malaria Day activities on April 25, 2011, reflecting the international community's efforts toward achieving zero malaria deaths by 2015. Another communicable disease affecting project personnel is Tuberculosis (TB). TB cases during the first half of 2011 were associated with PNG citizens (where there is approximately a 35% indigenous infection rate within the PNG national population), followed by expatriates from Asian countries. The project has demonstrated a high level of TB surveillance and awareness programs to assure TB Control programs are fully implemented. Outbreaks of food or water-borne illnesses were not recorded since the March 2011 field visit.

HIV/AIDS in the workforce is difficult to quantify, but is estimated by the Health Group to be at a relatively low 1-2% and remaining steady. The PNG LNG closed camp policy could actually be a factor in containing the Project-induced spread of this disease, as construction undertaken with an open camp policy and large contingencies of migrant workers is often associated with a sharp increase in HIV/AIDS incidence and presence sex workers. IESC intends to look into Project-related truck movements – a well-known vector in the spread of HIV/AIDS – during the next mission.

Another issue is the rapid increase in obesity among PNG workers - and all long term obesity-related health risks such as diabetes. This increase is due to a rapid and sudden exposure of PNG workers to Western diet and the abundant availability of food in the camps. Also, the content and quality of the weekly food packages provided to PNG workers by the Lancos as in-kind remuneration, leaves much to be desired. And, of course, people's purchasing power has simply gone up and made certain foods accessible. Although most camps have organized impressive and humorous poster campaigns (in English, Pidgin, Huli etc) all over their canteens, the amounts of carbohydrates and sugar taken in by PNG workers looks however impressive as well as the over-consumption of freely available soft drinks that is now being limited in some canteens.

7.1.3 Recommendations

- 1) The community health program currently being undertaken represents the cutting edge of what can be achieved within the framework of a private-sector development project and EHL has the potential for emerging as a world leader in this field. EHL should take care to assure that community health is maintained as a fully integrated program, involving both monitoring and community services (repeat recommendation).
- 2) Examine ways that the Integrated Health and Demographic Surveillance System (iHDSS) and related surveys can be leveraged as a tool for wider resettlement and other SMP monitoring (repeat recommendation).
- 3) Consult with a specialist in obesity issues in Melanesian cultures, to re-think the menus offered in camp canteens as well as the food packages issued to PNG workers.

7.2 WORKER SAFETY

7.2.1 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.

7.2.2 Observations

Worker safety continues to be a primary focus of EHL and the EPC contractors. Safety statistics presented by EHL show a continuing decrease in the Total Recordable Incident Rate (TRIR), down to 0.55 from the 0.67 from the March 2011 field visit, but the Project also recorded two fatalities, both associated with tree felling.

Based on field observations, excellent use of personal protective equipment (PPE) was determined, as well as ample training on its use offered to workers, at sites directly controlled by EHL. Excellent use of PPE was observed at work sites controlled by main EPC Contractors, but inconsistently encountered at Project sites controlled by third parties or subcontractors. The IESC attended several early morning toolbox meetings where safety was observed to be a primary topic where lessons learned at work sites were reviewed with the workforce. IESC also observed powerful peer pressure in the sense of workers of all ranks providing feedback to one another in cases of a near-miss or (even minor) breaches of safety protocol. EHL is making the effort to take the lessons learned from the Early Works contractors and make that information available for the EPC contractors tasked with the main construction. The Project continues to stress core safety processes (e.g., Job Safety Analysis, Personal Risk Assessment, and Observation and Interaction) to address safety issues, in particular an observed increase in hand-related incidents. Safety is also managed through the application of security protocols and countermeasures to address the local environment. As already mentioned in Section 6.1, Labor and Workers Conditions, IESC does question safety impacts of excessive working hours/structural overtime, lack of adequate breaks and rotation schedules at the level of the Project's (sub)contractors. This situation does not appear to be reflected in the Project incident statistics, but appears to represent a potential risk.

7.2.3 Recommendation

- 1) Extend the umbrella of worker safety to the third-party facilities and activities identified as requiring stewardship. Safety should be one of the most important aspects of this stewardship (emphasized repeat recommendation).

8 CULTURAL HERITAGE

8.1 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; and
- 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 defines procedures to be followed when unexpected cultural features are encountered during construction activities and also provides a Salvage Plan designed to provide guidance for reporting and excavating finds.

8.2 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 continues to demonstrate respect for this heritage.

Ongoing archaeological activities at the time of the site visit continue to be related mainly to pre-construction surveys and the management of chance finds, but some salvage activities have also taken place along the Pipeline ROW. The preconstruction surveys are currently focused along the Pipeline ROW and with infrastructure construction including Hides quarry locations, spoil disposal sites, the Hides truck laydown, the access road to the Tokaju Camp, and the Mubi quarry.

Salvage work undertaken at the LNG Plant site has now been analyzed and reports completed. The findings demonstrate the presence of long and continuous archaeological sequences that indicate that the ancestors of the Koita lived in this area as far back as 4200 years ago. Previously no sites older than 2000 years had been found in the Port Moresby area. Artifacts from salvage work in the HGCP area were transported to Port Moresby in late April 2011 and inspected by PNG Museum – analysis will take place at Monash University after export permit is obtained.

During the first two quarters of 2011, EHL reported only one salvage excavation located at Site TJ003, approximately one kilometer from Moro B along the pipeline ROW. The site was identified during the pre-construction survey and excavations were undertaken in June 2011. In the end, the site was designated to be of low priority, but appropriate field procedures were followed to arrive at that conclusion. As the Project progresses, chance finds are expected to represent the main field component of the Project's cultural heritage program, as the pre-construction surveys for the pipeline route are more than 80% complete. Pre-construction surveys in the Hides area identified 21 significant cultural heritage sites in the first half of 2011. Over the same period, pre-construction surveys along the pipeline ROW identified 48 sacred sites (e.g., spirit sacrificial sites, spirit water sites, spirit trees and spirit healing sites); 11 ceremonial sites (e.g., ceremonial houses, ritual areas and dance grounds and bachelor cult sites/guardhouses); and 15

settlement sites (e.g., abandoned villages, burial sites/graves, ossuaries and cemeteries). 32 archaeological chance find sites consisting of durable buried artifacts (stone tools and skeletal remains) were identified at various locations across the Project.

APPENDIX A

IESC 4TH MONITORING VISIT – TRIP SUMMARY AND DOCUMENTS PROVIDED

TRIP SUMMARY**July 20:**

IESC Environmental Team - EHL Offices in Port Moresby: review of pre-read material.

IESC Social Team - Port Moresby: meeting on Social topics.

July 21:

IESC Environmental Team:

- Meetings on Environmental Non Conformances and Incidents, Waste Management & Recycling, Drilling and Cultural Heritage.

IESC Social Team:

- Meetings on Resettlement, Development Support Update and Security;
- Transit from Lawes Rd to POM CTF.

July 22:

IESC Environmental Team

- Visit to Northern Logistics Base in Lae.

IESC Social Team:

- Contractor Management Progress: update on Plans & Implementation, including L&CA interfaces;
- Camp Management: update on Plans & Implementation including open camps (EPC3) and accommodation space requirements;
- Labour & Working Conditions;
- Stakeholder Engagement;
- L&CA - Grievance Procedure/results.

July 23:

IESC Environmental and Social Team - Port Moresby – transfer to Moro

- Community Health program;
- Business Development – at Lanco level.

July 24:

IESC Environmental & Social Team – transfer to Nogoli and Kubalu

- Site Selection Process;
- Update on Daware Camp/Laydown and Quarry;
- Environmental & Labour: Drive to Juni via Akara Creek;
- Juni Camp inspection;
- Social: Inspection of Spine, including meeting resettlers.

July 25:

IESC Environmental & Social Team: Kubalu

IESC Environmental Team:

- C1/EPC4 HGCP Site and C1 and EPC4 Tent camp Visit;

- Visit to Tokaju camp.

IESC Social Team:

- Housing acceleration program;
- TB1 site visit, including meeting resettlers.

July 26:

IESC Environmental & Social Team – Highlands

IESC Environmental Team:

- Transit – Juni/ Kobalu to QA1 and QA2 Quarry;
- Visit to Hides Wellpad Access Road;
- Visit to Well Pad A and Camp.

IESC Social Team:

- Mini workshop with RIT staff;
- Visit to landfill site, combined with briefing on rations and tool distribution.

July 27:

IESC Environmental & Social Team – Transfer to Komo

IESC Environmental Team:

- EPC5B Komo: Pioneer camp and main camp general inspection and data collection;
- Heavy Haul Rd; lay-down area, reinstatement nursery.

IESC Social Team:

- Komo end of HHR inspection and meet resettlers;
- Inspect Komo nursery and briefing from LR. Meet with participants in LR program.

July 28:

IESC Environmental & Social Team – Transfer to Kantobo

- Mubi Quarry West and Laydown (North) site (Vehicles);
- C1 Mubi Laydown Site;
- Gobe Camp inspection (formerly Camp of C1 – CCJV, now Camp 2 of EPC5a - Spiecapag);
- Visit to OmatiGoare Village.

July 29:

IESC Environmental & Social Team – Transfer to Gobe

- Tour of Gobe camp;
- EPC5A Kaiaam Site and Pipeline ROW;
- EPC5A Pipeline ROW and Kopi Scraper Station Main Camp Site;
- Visit to Kikori Village and to Kopi Camp 1.

July 30:

IESC Environmental & Social Team – Camp 1 (Kopi) to Omati landfall and to Moro via chopper

- Camp 1 - Inspections;
- Camp 1 - Omati landfall;
- Site visit to new EHL Helipad.

July 31:

IESC Environmental & Social Team – Port Moresby

- Presentation on Biodiversity Strategy, Biodiversity Offset Delivery Plan, Biodiversity Monitoring;
- Information Management System update and demonstration of representative modules.

August 1:

IESC Environmental & Social Team – transfer to Port Moresby

- Visit to the LNG site: site tour and camps;
- Meetings Visit to POM CTF;
- Meet with Kido Village.

August 2:

IESC Environmental & Social Team – Port Moresby:

Presentations on:

- Caution Bay Plume Modeling;
- LESR / incident reporting;
- Camp Management;
- Conference call with IESC Team on fisheries;
- MOC- Status and review;
- Fibre Optic Cable;
- Social: Meeting with Central Province Planning Department.

August 3:

IESC Environmental & Social Team – Port Moresby: document review and close-out meeting preparation

August 4:

IESC Environmental& Social Team – Port Moresby:

- Close out Meeting;
- IESC departure.

DOCUMENTATION RECEIVED**Pre-mission documents:**

- *Caution Bay Revised Pipeline Burial Modelling_Rev1;*
- *CB Marine Ecology Report - PGLN-EN-JRZZZ-960051 Rev 0;*
- *CB Marine Sedimentation and Water Quality - Rev 0;*
- *Consolidated Omati River Dredging Assessment Report.*

On-site documents:*PRESENTATIONS:*

- *Agility Presentation_Gas Development Conference Cairns_June 2011 - ppt presentation;*
- *Logistics Operations along the NLR- Update BriefNLR and NLB Operations – ppt presentation;*
- *Sidecasting&Spoildumping_Lenders_04.03.11 - ppt presentation;*
- *Aug 2011 Lenders EPC-3 Environmental Presentation – ppt presentation;*
- *Lender Visit 01 Aug Environmental (Claborn) – ppt presentation;*
- *PNG LNG_Lender_Review - Telecommunication Scope Change_23 March 2011 - ppt presentation;*
- *Fisheries_Lenders2011-08-02– ppt presentation;*
- *CB Trenching Revised Conditions_IESC Monitoring Visit #4 – ppt presentation;*
- *FOC Update IESC - 2 Aug 2011 _Final – ppt presentation;*
- *Marodi Environmental Performance - IESC #4 – ppt presentation;*
- *Cultural Heritage_July 21 201 - ppt presentation;*
- *Waste Pres June 212011 IESC Visit_RB FINAL - ppt presentation;*
- *Summary of Air Emissions Modelling - ppt presentation;*
- *IESC Visit #4 - Associated Facilities - ppt presentation;*
- *Construction Update - Lender Visit - July 2011 - ppt presentation;*
- *IESC Visit - Resettlement Housing Acceleration (21July11) - ppt presentation;*
- *L&CA Organisation Update - - ppt presentation;*
- *Lenders visit - Resettlement Overview (20July11) - ppt presentation;*
- *Security July Lenders report - ppt presentation;*
- *Lenders_Grievance Management, 2011-07-22 – ppt presentation;*
- *Lenders_StakeholderEngagement_AsGiven12011-07-22 - ppt presentation;*
- *Lenders_StakeholderEngagement_Final2011-07-22 - ppt presentation;*
- *Contractor Management_Presto Lenders_Jul 2011 - ppt presentation;*
- *Project Overview National Content-2nd quarter 2011 update- Lenders 22 July 2011 - ppt presentation;*
- *BD Org - Lender July 2011 - ppt presentation;*
- *July 2011 IESC Com Health - ppt presentation;*
- *LCA IMS - July 2011_Lenders - ppt presentation;*
- *Hides Wellpad Access Road Induction_Rev3 – ppt presentation;*
- *Spill Risk Lender Presentation Aug Rev 1 - ppt presentation;*
- *OIMS Assessment_PNG_v4 - ppt presentation;*

ENVIRONMENTAL MATERIAL:

- *Waste Management procedure – doc;*
- *Waste Management Plan RevB – doc;*

- *Waste Record C1 Hides Template 2011* xls file;
- *Waste Record_C1_Gobe_2011* - xls file;
- *WQ Database_2_Gobe* - xls file;
- *WQ Database_2_Hides.2* - xls file;
- *Monthly Environment Data April 2011* – doc;
- *Monthly Environment Data - May 2011_Project* – doc;
- *Monthly Environment Data - June 2011* – doc;
- *Monthly Status Report May 2011_CCJV* – doc;
- *Monthly Status Report June 2011_CCJV* – doc;
- *CCJV Environmental Organization Chart* – doc;
- *PNG LNG Organization Chart (Rev 9 as at 30th April 2011)* – doc;
- *Site Specific Spill Response Procedure – Hides* - ref. doc. 08185-HSE-PR-G-0057;
- *Hazard Hunt Register-JULY* - updated 24.7.11kk – xls file;
- *PCS Status C1 - May - July 2011* -- xls file;
- *Monthly_Environment_Report_2011-04-30 (2)* – doc;
 - o *Appendix-1 Environmental Patrol Report* – doc;
 - o *Appendix-2 Sandalwood Monitoring* – doc;
 - o *Appendix-3 Consolidated Waste Control Activity Monthly Report* – xls file;
 - o *Appendix-4 WWT Discharge Monitoring Report* – doc;
 - o *Appendix-5 Water Usage Summary* – doc;
 - o *Appendix-6 Disturbed Area Map* – doc;
 - o *Appendix-7 Disturb Area Photos as of May 31 2011* – doc;
 - o *Appendix- 8 Dewatering Water for pH At LNG Tank Area* – doc;
 - o *Appendix-9 Contractor-Sub-Contractors Environmental Audit Report No 1* – doc;
- *Construction Monthly Environmental Report-2011-06-30* – doc;
 - o *Appendix-1 Environment Patrol Report* – doc;
 - o *Appendix-2 Sandalwood Monitoring* – doc;
 - o *Appendix-3 Consolidated Waste Control Activity Monthly Report (June 2011)* – doc;
 - o *Appendix-4 WWT Discharge Monitoring Report* – doc;
 - o *Appendix-5 Water Usage Summary* – doc;
 - o *Appendix-6 Storm Water Discharge Quality Monitoring Report* – doc;
 - o *Appendix-7 Disturbed Area Map* – doc;
 - o *Appendix-8 Disturb Area Photos as of June 30 2011* – doc;
 - o *Appendix-9 Dewatering Water for pH At LNG Tank Area* – doc;
 - o *Environment Map Rev 3* – doc;
- *Ambient Air Monitoring Equipment* – doc;
- *Marine Fauna Observation Report - 1284_90* – doc;
- *FOC ESA_Final for Endorsement_Rev0* – doc;
- *MCJV Chance Finds Register* – xls file;
- *Monthly Noise Monitoring Results* – xls file;
- *Monthly Waste Management Spreadsheet* – xls file;
- *Monthly Water Monitoring - Physical Parameters* – xls file;
- *Pioneer Camp - WWTP Discharge Result* – xls file;
- *PGHU-MC-BRKPI-420018-V0-(Monthly-Progress-Report-018)* doc;
- *Juni&Kobalu Temporary Incinerator Insp Summary-Titus July 2011* - doc;
- *Associated Facilities Procedure_Rev E_clean*– doc;

OTHER DOCUMENTS:

- *Camp Info Jul 2011 – xls file;*
- *PGLN-YK-FRRSK-990002 Risk Assessment Report Camp Arrangments Rev1 Approved – doc;*
- *PGLN-YK-FRRSK-990003 Risk Assessment Report Room Sizing Rev 0 Signed – doc;*
- *PNG LNG Room Sizing Risk Assessment upstream – doc;*
- *Main Camp - WWTP Discharge Result - xls file;*
- *E&R Org Chart;*
- *EPC5B EMCorp Reportable Chemical Spill, doc dated 6 May 2011;*
- *MCJV Tap Root Investigation Report 1000L NaClO Spill, doc. dated 12.05.11;*
- *C1 EMCorp Reportable Spill & TapRoot, doc. dated 22 May 2011;*
- *Monthly Report ref. Doc. PGHU-SC-BRZZZ-000017_Rev 0 – doc;*
- *Monthly Report ref. Doc. PGHU-SC-BRZZZ-000018_Rev. 0 - doc;*
- *Monthly Report ref. Doc. PGHU-SC-BRZZZ-000019_Rev 0 - doc;*
- *Pollution Prevention and Response ref. Doc. PGHU-SC-SPZZZ-000161- Rev 0. – doc;*
- *IESC Tracking Matrix_whisker 22 June – xls file;*
- *Inventory_management_database;*
- *MOC log - Jul 6 – xls file;*
- *PNG LNG Project - June 2011 Monthly Progress Report – doc.*