FINAL REPORT OF THE:

INDEPENDENT ENVIRONMENTAL & SOCIAL CONSULTANT

ENVIRONMENTAL & SOCIAL COMPLIANCE MONITORING

PAPUA NEW GUINEA LNG PROJECT

Site Visit: October 2010

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

Export-Import Bank of China

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D'APPOLONIA

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Prepared by: D'Appolonia S.p.A.
Via San Nazaro, 19
16145 Genova, Italia
www.dappolonia.it

Audit Team Members:
Giovanni De Franchi – Team Lead - Environmental Specialist
William J. Johnson – Earth Scientist/Cultural Heritage Specialist
Lori Anna Conzo – Biodiversity and Natural Resource Management Specialist
Robert Barclay – Social Development Specialist

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ACRONYMS

Borealis	The Project's Information Management Platform
BSA	Benefits Sharing Agreement
CBI	Chicago Bridge and Iron
CJJV	Chiyoda JGC JV
CCJV	Clough Curtain Brothers JV
CEA	Cumulative Effects Analysis
CHMP	Cultural Heritage Management Plan
CSS	Community Support Strategy
CIP	Contractor Implementation Plan
CSSAP	Community Support Strategy Action Plan
CTA	Common Terms Agreement
CTF	Construction Training Facility
DEC	Department of Environment and Conservation
DLPP	Department of Land and Physical Planning
DPE	Department of Petroleum and Energy
EHL	Esso Highlands Limited
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
ELC	Environmental Law Centre
EPC	Engineering – Procurement - Construction
ESIA	Environmental Social Impact Assessment
ESMP	Environment and Social Management Plan
ESMS	Environmental and Social Management System
GFE	Gobe Field Engineering
HGCP	Hides Gas Conditioning Plant
HH	Highlands Highway
HWMA	Hides Waste Management Area
IESC	Independent Environmental and Social Consultant
IFC	International Finance Corporation
ILG	Incorporated Land Groups
iDHSS	integrated Demographic Health Social Surveillance
KPI	Key Performance Indicator
L&CA	Land and Community Affairs
LBSA	License Area Benefits Sharing Agreement
MCJV	McConnell Dowell CC Group JV
MCH	Maternal and Child Health
MOC	Management of Change
MOF	Marine Offloading Facility
MOH	Manager of Occupational Health
MoU	Memorandum of Understanding
MSDS	Material Safety Data Sheet
MTPA	Million Tons per Annum
NAQIA	National Agriculture Quarantine and Inspection Authority
NCD	National Capital District
NCDC	National Capital District Commission
NGO	Non-Governmental Organization
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	Weed Management Area
WWTP	Wastewater Treatment Plant

EXECUTIVE SUMMARY AND CONCLUSIONS

This report represents the second 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. This visit was conducted between October 5 – 22, 2010 with 15 days spent in Papua New Guinea (PNG) and the remainder spent with ExxonMobil staff in Brisbane, Australia.

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

EHL has begun the process of commercializing the undeveloped petroleum resources in the Hides, Angore and Juha fields and the associated gas resources in the currently operating oil fields of Kutubu, Agogo, Gobe and Moran in the Southern Highlands and Western provinces of PNG. The gas will be conditioned for transportation by pipeline to an LNG facility twenty kilometers northwest of Port Moresby on the coast of the Gulf of Papua. There, the gas will be liquefied and the resulting LNG product (approximately 6.6 million tons per annum) loaded onto ocean going tankers and shipped to gas markets overseas. At the time of this visit, field work was still limited primarily to the initial development of the infrastructure to support the planned main construction program, with activities such as pre-construction surveys, site preparations, road and bridge improvements, access road construction, construction of bypass roads, logistics base development, construction of work camps, resettlement activities, etc. The main construction activity at the time of the visit was associated with earthworks in anticipation of the construction of the LNG Plant. Pipeline construction had just started with the clearing of 12 kilometers of right-of-way (RoW) from kilometer point (KP) 266 to 278 near the Kopi shore base.

As a general comment stated in the first IESC trip report, it continues to be apparent that EHL is committed to avoiding adverse social, environmental, health and safety impacts that could be caused by Project activities. EHL's program for environmental and social management is comprehensive. 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. These positive observations need 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 expanded since the last IESC visit in May. At the time of the IESC visit in May 2010, an observation was made that some communications links among different groups appear to be weak. This situation appears to have improved. Restructuring has improved communications between SELCA and Management. Environmental and social teams have initiated interaction with the logistics team working out of Lae, which was not the case in May. Preconstruction surveys now have a social component, which was also not the case during the first site visit.

Improvements still need to be made. The stakeholder engagement program is still not uniformly applied across all of the work fronts. On the social side, SELCA has been expanded, but is falling behind in terms of managing resettlement. As work progresses there will be an increasing need to increase the capacity of the Lancos to work within the Project environmental and social management system, which will require additional commitment of E&S and H&S staff, both at EHL and Contractor levels. Logistics and E&S

teams are not yet fully integrated. Staffing still needs to be reinforced for development of the Biodiversity Strategy and its associated components.

The most critical aspect of organization and staffing will be responding to the onset of the main construction phase. Our impression is that environmental staffing can just meet current requirements, but will soon need to be expanded to manage upcoming major construction. Social requirements have already reached the point where additional staffing is required. It will be important to review the overall organization of the E&S teams and not just overall staffing levels to be able to respond to the huge expansion of the workforce that will take place over the next year.

Environmental and Social Management System

The Environment and Social Management System (ESMS) for the Project is nearly complete. PNG Department of Environmental Conservation (DEC) provided an interim approval of the ESMP on September 22, 2010. This event has allowed for the public disclosure of this document, an event that took place at the time this report was being prepared. This is a major accomplishment, but there some additional documents still pending disclosure. The Project has disclosed the Community Support Strategy but not the Community Support Strategy Action Plan and the Community Development Support Plan. It is understood that EHL would prefer to incorporate additional comments into these two documents before putting them in the public domain. The Komo Resettlement Action Plan (RAP) has not been disclosed and it is understood that EHL prefers to disclose the Komo RAP when other RAP documents are disclosed. This overall situation for disclosure is much improved from what was encountered in May 2010, but is still considered a non- conformance with Project commitments until all of the required documents have been disclosed.

A commitment within the LESR is for the development of a Management of Change (MOC) process following criteria defined in the LESR for Lender reporting. This process had not started at the time of the May 2010 visit, but has now been initiated and the process is now in conformance with Lender requirements.

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 has finalized a robust and comprehensive process to identify the additional third-party facilities and activities where the ESMP should be directly enforced or where there at least needs to be Project stewardship on the basis of a risk assessment. As a result of applying this process, EHL has identified over 230 facilities or activities where requirements for Project intervention have been identified. Some evidence was observed in the field to show that efforts have started to initiate stewardship at third-party facilities, but field activities have reached the stage where this process needs to be accelerated and actions taken as appropriate.

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 being installed by Boreal Information Strategies (Borealis) and is expected to provide a tracking framework for the large amounts of data associated with social and environmental management. IESC considers the implementation of this type of management system to be a positive development to achieve overall conformance with Project commitments.

Environmental Management – Waste and Wastewater

Overall, EHL acknowledges the main challenges associated with waste management and has proposed a number of interim solutions to reflect their ESMP commitments in the field. Furthermore, the Project has demonstrated to have fully understood the potential implications of delays in the implementation of the long-term waste management strategy and is taking actions to avoid further postponements in the development of the key facilities. One of the main achievements observed in the field is that the use of local municipal facilities has been effectively discontinued and the Project has initiated a project-wide waste management review to be able to manage construction waste. A specific waste working group supplemented by a full time waste management advisor has been established to undertake an overall review of the Project waste management strategy and identify realistic waste disposal solutions, including evaluating the adequateness of the third-party facilities for waste disposal, as well as potential in-country recycling opportunities. A study to identify an acceptable location for the WMA at Hides has been

completed and the site initially selected as the best option from an environmental and geotechnical standpoint has been confirmed to be the best of available options. The IESC recommends accelerating the construction of this waste disposal facility to ensure the Project will be able to manage the relatively large quantities of waste that will be generated with the onset of the main construction phase. The approach for the management and monitoring of the incinerators used during construction has been reviewed and the monitoring approach proposed by the Project for temporary and permanent incinerators is now considered adequate.

Environmental Management – Hazardous Materials

Overall, the hazardous materials continue to be well managed. Where deficiencies were observed during the May visit, such as at the Kobalu helicopter refueling area, usage has been discontinued until environmental upgrades have been completed. The most important near-term hazardous materials management issue is the distribution and handling of the significant amounts of fuel needed to supply the fleet of earthmoving equipment involved with construction. Our main recommendation is that EHL should verify that fuel management throughout all Project locations is consistent with the Hazardous Materials Management plan and the Journey & Traffic Management procedure.

Ecological Management and Biodiversity

EHL has developed Rev. 0 of the Biodiversity Strategy in line with Item #13 of the Milestones Schedule. Revision 0 is a significant improvement over its predecessor, but some further work is required, most notably on the Offset Delivery Plan section of the document. A critical missing element is the Project's commitment to provide a technical rationale for the selection of offset projects. Regarding in-field ecological management, detailed, site-specific ecological pre-construction surveys are on-going at Project disturbed sites, and the Project continues to show excellent follow-through of ecological mitigation measures. EHL's advisory, field and verification environmental staff members are vigilant and continue to be an impressive team. The IESC remains concerned of the Project's ability to adhere to its commitment to restrict third-party access on project roads for the construction and the entirety of the operations phase. Based on findings from this site visit, we recommend an integrated approach that considers both environmental and social dimensions. We also recommend that the Project develop a critical assessment process for reviewing contractors' proposed roads in the Upstream Project Area. Regarding invasive species management, EHL is making a serious and multi-faceted effort to address related risks and potential indirect impacts.

Land Access and Resettlement

Resettlement for the Komo airstrip has been completed. This proved more time-consuming than anticipated due to occupation of the site by families displaced by the 2000 clan conflict. This situation was unique to the airstrip site and should not occur elsewhere. Resettlement of the HGCP site was 84% complete at the time of the IESC visit.

Since the last IESC visit, SELCA has made a concerted effort to incorporate specialist social input into site screening, alignment planning and the preconstruction baseline surveys. The following improvements were observed:

- the resettlement team was working closely in the field with the heavy haul road engineers to minimize impacts and accurately determine the extent of the physical and economic displacement;
- EHL had conducted a re-screening of potential landfill sites at Hides, including consideration of impacts on productive land and requirements for resettlement associated with each option; and
- a SELCA representative was involved in the preconstruction surveys for the LNG pipeline.

EHL's resettlement planning procedures and RAP documentation have steadily improved since the Komo airstrip RAP was completed in November 2009. Latest RAP documents have been shorter and more focused on addressing specific local issues and the actions necessary to implement the resettlement program. This is a positive development.

As the resettlement team moves onto some of the components involving larger resettlement numbers there is a need for more forward-looking logistical planning so that the Project is in a position to deliver compensation, housing and other agreed assistance promptly. Based on housing packages preferred by resettled families to date, it appears likely that EHL may have to deliver materials and technical assistance to support construction for perhaps 200 to 250 framed houses at diverse locations. From the Komo airstrip and HGCP resettlements alone, there is already a mounting list of community infrastructure civil works and

structures that will need to be delivered in various locations e.g. access track/ kiap road to Emberali and outlying resettlers around the Komo airstrip; replacement churches at Komo; access tracks or roads around the HGCP site; replacement for Para school, etc). The IESC has recommended that this work should also be handled by a dedicated resettlement project manager.

The resettlement team continues to face a number of compliance challenges. These include:

- demonstrating compensation payment at full replacement value for each and every landowner – applies to Resettlement team and L&CA team activities (see discussion Section 5.4.4.4);
- achieving compliance with the RPF procedure that requires RAP preparation, Lender (IESC) review and approval, and disclosure, prior to any displacement occurring (see discussion Section 5.4.4.3);
- promptly addressing adverse impacts on community infrastructure and access to services as an integral part of RAP commitments; and
- timely delivery of compensation and other resettlement entitlements.

The most notable sequencing problem that the IESC observed on its October 2010 review was that clearing and contractor access of the pipeline right of way had commenced before any RAPs were in place. The level II non-conformance for this issue, first recorded in May 2010, has been maintained.

EHL has provided a revised construction schedule which shows RAP preparation continuing until September 2011.

Livelihood Restoration

The IESC met with 5 families at various stages of establishing replacement gardens at Emberali and Hides. The inspections generally verified the livelihood team's assumption that the period required for a motivated household to establish sufficient replacement garden area to meet household subsistence needs was about 9 months and that the approximate garden area required per adult equivalent was more or less in the range of 600-700 m^2, dependent on land quality. This garden area was slightly lower than previously estimated.

A majority of surveyed Komo airstrip resettler households (90%) moved on to land that was equivalent or better in quality than that which they occupied prior to the move, although this appears to have been achieved at the cost of moving further away from community services. More than half of the surveyed households were at greater distance to a medical post than their original land. Post-move, 7 out of 24 survey households were more than 1-1/2 hours walking time from the nearest aid post, compared to 30-44 minutes pre-moving.

For the Komo airstrip, livelihood team measurements showed that 39% of surveyed resettlers had achieved the 600 to 700 m² garden area per adult equivalent necessary to meet household food sufficiency, 39% we're still below the target area, and 23% of families (n=6) had no recorded garden area. Of the 6 families who reported no gardens, 2 had businesses and little interest in farming; 3 appeared unmotivated to start gardens (drug problems, hold vague aspirations of going into 'business') and one landowner had indicated he does not want to be monitored.

The preliminary livelihood monitoring work undertaken for the Komo airstrip (and now being extended to later resettlement components) has proved invaluable for planning livelihood monitoring activities going forward. EHL now needs to scale up its livelihood team and resources in anticipation of the much greater workload that will be generated as accelerates over the coming 12 months.

Community Impacts Management

Since the IESC's last site visit, EHL has made efforts to focus on community safety and related impacts. On-site spotters from local communities have been hired to interface with community members and discourage their passage through worksites. The Project's stakeholder engagement teams have emphasized safety topics in community meetings and have distributed flyers, brochures and other materials. Despite this, several unmitigated hazards were observed at Project sites. The most notable was children and adults traversing the HGCP site and the access road to the Hides Ridge spineline, which are both active worksites with heavy machinery. Managing community safety is and will likely continue to be a challenging issue for EHL. Landowners often consider their access to EHL worksites justified based on their customary land ownership rights and strong ties to the land. The Project's on-site spotters and security guards hired from the local communities are often ignored. Management of community safety risks will likely require an on-

going presence in surrounding communities by teams of individuals who are capable of delivering the message in a culturally relevant manner in the local language.

Labor and Worker Conditions

The main observation for this topic is the absence of the Worker Grievance Mechanism at some project sites in the Upstream Project Area. This is a Project commitment specified in the Labor and Worker Conditions Management Plan. The Grievance Mechanism should not be reliant on the site supervisor and should allow workers to voice grievances to a neutral third-party (e.g., Human Resources). The IESC also recommends that the legal maximum number of working hours in PNG should be specified in employee contracts. The IESC intends to further review labor and worker conditions in future site visits.

Community Security

Under an internal MOC, approved 25 June, 2010, ExxonMobil Global Security has assumed management of security in Papua New Guinea, including for the PNG LNG project. All Project security staff will now report through the ExxonMobil Global Security Adviser/Security Manager. The Project security organization has been split into north and south areas to better align it with the Project execution organization. EHL's Security Manager noted the following key security incidents and responses since the last IESC review:

- threat of tribal fighting in the Hides area in July, 2010 – the response was for the RPNGC to increase their patrolling and presence in the area to keep the warring factions separated;
- threats to destroy bridges in Project Work areas by clan leaders in the Southern Highlands during July, 2010 - the response was to increase Project dialogue with the affected leaders and raise the level of communication;
- two project vehicles at Kaiam were destroyed by fire on 24 September, 2010. At the time of the IESC review, the incident was still under investigation by the RPNGC.

The Boera-Porebada conflict appeared to have subsided as of October 2010, although some related court cases were still pending. The IESC was satisfied with the security arrangements that it observed.

Community Support Strategy

During the IESC visit, EHL submitted a Community Support Strategy incorporating a Community Development Support Plan for review against Milestone Schedule Item #19.

Both Community Development Support and Strategic Community Investment have now been brought under the same Community Support umbrella. The IESC endorses the need to initiate some quick impact projects as soon as possible. Quick impact projects will help raise communities tolerance to the inconveniences of construction mobilization and will give them some assurance that they are not being neglected by PNG LNG. The Community Support team has also identified an appropriate suite of early community development support projects. These include the following:

- strengthening village courts;
- agricultural and business support to women groups;
- entrepreneurial support funds to catalyse micro-and small business;
- support to schools and to improve conditions for teachers; and
- exploring opportunities to increase local supply of food to Project camps.

Camp Management

The large number of camps of various types and sizes makes this topic an especially challenging one to manage as all SHESS aspects come into play (safety, health, environment, security and social). With a workforce that is expected to peak to over 17,000, camp accommodations are critical path for the successful implementation of the Project. Currently there appears to be no obvious mechanism to audit the various classes of camps, e.g., bush camps, fly camps, pioneer camps, temporary camps, and the changing scope of these camps due to expansion confounds the issue. It is also unclear which social and health requirements apply to which class of camp. We recommend that the Project categorize all camps, define which are stewardable, clarify social/health requirements for each camp class and develop monitoring procedures. We also recommend that the Project establish its Camp Grievance Mechanism, which is currently missing. EHL reduced the existing specification of 4.6 m^2 per person minimum space to 3.75 m^2 per person for the EPC3 (LNG site) construction camp, and to 2.65 m^2 per person for temporary camps for

upstream infrastructure. A health risk assessment was conducted prior to this change. A Management of Change was processed, and the IESC disagrees with the Class III categorization of this change as it is a change to a Project standard. Lastly, the Project has re-assessed its requirement for a closed camp policy at all camps. After conducting a risk assessment on the issue, it has been decided that in some camps PNG nationals residing nearby the premises will return to their villages, while foreign labor will adhere to a closed camp policy.

Gender

During this site visit, we took a more structured approach to this topic by conducting interviews with female EHL staff (nationals only) in the Upstream Project Area. The results dispelled some of the issues raised in the former IESC report and focused the spotlight on others. By far the biggest complaint amongst the women interviewed was related to bed availability in the Upstream Project Area, especially near Hides. According to in-field resettlement teams, the difficulty for women in obtaining bed space has stymied resettlement activities, and in particular, livelihood restoration. Well Pad A camp does not include any accommodations for women due to the reported difficulty of the contractor to implement EHL's additional security requirements for women's accommodations. As mentioned in the IESC's last report, some security requirements appear excessive and have the potential to compromise women's participation on the project (e.g., separate metal fence surrounding women's facilities). According to the interviews, women felt safe on camps, even late at night. They were satisfied with the basic security requirements (e.g., curtains on windows, peep holes, duress alarms). The condition of female accommodations with respect to male accommodations was not raised as a significant issue among interviewees.

Procurement and Supply

EHL reported that earlier projections for national spend and projected employment are likely to be significantly exceeded. As of October 2010, PNG workers made up 64 percent of the total Project workforce. The national workforce in Q3 2010 was about three times EHL's original (pre-construction) projection for 3rd Quarter 2010.

EHL is establishing training facilities at Port Moresby (POM Tech) and at Juni. POM Tech had commenced training in the 2nd Quarter 2010, managed by the Chiyoda-JGC Joint Venture. Full completion of the PomTech facility was scheduled for November 2010. To date, 292 civil laborers and 39 drivers have graduated. Delivery of the Juni facility has been delayed by problems in getting labor onto the site. It is now scheduled to open in the 2nd Quarter 2011, managed by the CBI Clough Joint Venture. Training may be commenced from an interim facility in Mendi.

IESC heard some strong views from local leaders and local lanco participants. It is clear that local lancos are very frustrated with the lack of direction and information that they are receiving from the umbrella lancos. Improved top-down communication is essential or the umbrella lancos risk losing the support of their constituent local lancos.

Stakeholder Engagement and Consultation

As a result of the transition to a matrix organization, Stakeholder Engagement field teams will now be regionally based with line reporting to SELCA field managers. This should result in much closer and better coordination with the L&CA teams and contractor community liaison teams. This addresses a key concern raised by the IESC during its last review. It should also contribute towards closing the consultation loop i.e. disseminating information, gathering issues and concerns from stakeholders and providing feedback to communities and stakeholders about how their issues and concerns have been or will be addressed. The latter step was conspicuously absent from the previous 'travelling road show' approach.

The IESC endorses the need to establish project information centers in the vicinity of major activity areas – Hides, Komo and Port Moresby/the PNG LNG site. The Hides Committee consisting of clan leaders from the HGCP area have specifically requested a L&CA presence at Hides so that complaints can be addressed promptly and before they escalate.

Grievance Management

EHL had made solid progress in rolling out a Project-wide grievance management system. Key achievements since the last review included the following:

- more effective recording and tracking of grievances;

- engagement of Boreal-IS to operationalize a Project-wide grievance recording and tracking system;
- commencement of training to the L&CA team (as primary community interface) on grievance recording and response; and
- decision to use the Environmental Law Centre as a third party mediator in the event disputes cannot be resolved directly.

For the period up until 5 October, 2010, 100 grievances had been received. The majority were related to compensation (40%), recruitment (13%), business opportunities (13%) and land (11%). About 50% of grievances originated from the Komo area.

The IESC recommends that the Project-wide grievance management system should also record and track the grievances received by construction contractors. This will provide the Project management team with a more complete picture of the Project's overall social performance as well as of the relative performances of its contractors.

Health and Safety

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

Worker safety continues to be a primary focus of EHL and the EPC contractors. Safety statistics presented by EHL, in particular the occurrence of only one Lost Time Incident (LTI) and a low Total Recordable Incident Rate (TRIR) of 0.83 demonstrate the overall concern for safety. In terms of community safety, Project traffic and uncontrolled access of local residents to work locations are the biggest concerns. Community awareness programs include specific training undertaken by SELCA at local communities, as well as work protocols designed to minimize potential community impacts, including the use of controlled convoys for heavy traffic along the Highlands Highway. Improvements were noted in terms of community access to work sites with the completion of fencing, especially at the Juni Training Center where uncontrolled access was identified as a problem during the May site visit. Community incursions to work sites were still observed during this trip, indicating more controls still need to be established. It is expected that the completion of fencing around fixed facilities will improve community safety at those locations, but special care will be required to keep communities safe along the linear components of the Project, in particular the pipeline route and access roads.

Cultural Heritage Management

Cultural heritage surveys continue to be conducted consistent with the CHMP. Cultural heritage sites identified prior to construction have been effectively managed. For the archaeological sites this has been with excavation (mainly at the LNG Plant site and Hides Plant area). Cultural heritage surveys continue to be undertaken as part of pre-construction surveys. Where the surveys are conducted in dense rainforest, modern culturally significant areas are being identified, although it is understood that archaeologists are conducting surveys after vegetation has been cleared. The upcoming work for cultural heritage management is expected to be on the basis defining modern heritage sites from field interviews with local communities and archaeological chance finds. Chance finds are already being made and managed consistent with the Chance Finds Protocol that is part of the overall CHMP.

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

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[1] *IESC Team members: Giovanni Battista De Franchi (Team Leader – Environmental Specialist), Robert Barclay (Social Development Specialist), Lori Anna Conzo (Biodiversity and Natural Resource Management Specialist) and William J. Johnson (Earth Scientist/Cultural Heritage Specialist), 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; HGCP site preparation; the Highlands Highway upgrades, and associated work camps. At the time of our visit, 99% of the Kopi Shore Base had been turned over to Spiecapag. This is a major accomplishment, except that the original schedule provided to the IESC was for first pipe to be delivered in mid-July. The Southern Supply Route consists of road upgrades and the construction of 39 km of new road and three bridges associated with 2.3 million m^3 of earthwork. The Northern Supply Route consists of road repair/maintenance and the construction of 21 new bridges. Engineering and procurement are complete and the bridge and road works are underway. The 250 man camp at Gobe is operational. The Southern Supply Route was projected to be open by November 15, but this opening will be delayed. EPC4 Camp laydown and accommodations originally projected for August 1 are projected to be a handover of the camp area by the end of December 2010. A fly camp platform is expected to be handed over to EPC4 by the end of October. The HGCP CCJV Transit Camp scheduled to be available by November 2010 will also be delayed to about the end of Q1 2011 based on the estimates provided for completion of the main bridges. Earthworks at the HGCP site had not started at the time of the site visit, so it is expected that there will be additional delays to the handover of the HGCP site to EPC4 from the April 2011 estimate provided in May. The overall scope of work for CCJV was projected in May to be finished by the end of Q4 2011, but the October estimate is for completion of their responsibilities by the end of Q1 2012;
- *Red Sea Housing*: Red Sea Housing provides support for the development of upstream infrastructure by means of the construction of the Juni Construction Training Facility (CTF), currently under construction (close to the HGCP site) and expected to be operational by Q2 2011. Red Sea Housing is also responsible for the construction of new camps at Kobalu, Gobe, Juni CTF, and Moro Parker (Kobalu, Gobe, and Juni still under construction at time of visit);
- *C2 – LNG Plant Early Works (Parsons and Curtain Brothers)*: responsible for 5.4 km bypass road around LNG Site (completed); 12.6 km of road construction to replace deteriorated public roads (33% complete); 800 person Pioneer Camp (completed and turned over to EPC3); the 3-wire lease line perimeter fence and the PNG LNG site security fence (94% of fencing 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 completion;
- *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. As noted in the May 2010 IESC report, the EIS stated the pipeline would be buried for protection against impacts from vessels and anchors in the Omati River (and some distance beyond river mouth to a water depth of between 5 and 10 m), this approximately equates

to KP 50. The current execution plan now forecasts the trenching and natural backfilling of the pipeline to KP 75 (KP 50 to 75 is considered Gulf of Papua). The reason for the additional burial is to ensure the stability of the pipeline in this shallow water section and to provide protection to the pipeline in the vicinity of the Kumul terminal. The EIS also assumed a shallow-draft barge would be used for pipe-laying in the Omati River. Saipem prefers to avoid excessive trafficking within the Omati River, which would be the case if pipe-laying were to be conducted by a shallow-draft barge as originally planned. Instead a larger pipe-lay vessel (the Castoro 10) will be employed. 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. Engineering for the offshore pipeline is reported to be at the 30% Design Review stage. Procurement has started with linepipe manufacturing and coating underway. Construction of the pipeline is not scheduled to start until Q1 2012, but a welding procedure qualification is underway and installation planning is ongoing;

- *EPC3 – LNG Plant and Marine Terminal (Chiyoda JGC JV - CJJV)*: This joint-venture EPC contract between Chiyoda and JGC Corporation, both engineering and construction firms headquartered in Yokohama, Japan, is for construction of the 6.6 million tons per annum (MTPA) LNG plant, with two 3.3 million trains, including facilities for inlet processing, treating, liquefaction, storage, and the marine terminal. Site preparation activities have started by CJJV's earthmoving subcontractor Leighton. CJJV announced on October 5, 2010 the award for the fabrication and construction of the topsides for the PNG LNG condensate offloading jetty to the BAM Clough Joint Venture, extending their existing contract for the jetty construction an additional US $53 million, bringing the total value of contracts awarded to BAM Clough for the PNG LNG jetty project to US $308 million;
- *EPC4 – Upstream Facilities including Hides Gas Conditioning Plant (HGCP) and Well Pads (CBI Clough JV)*: this joint venture of Chicago Bridge & Iron Company (CBI) from Amsterdam, Netherlands and Clough Limited from Perth, Australia is responsible for the design and construction of the HGCP, the HGCP Industrial Park, HGCP Rotator Housing Community, the construction camp and the Hides Wellpads. As noted above, C1 handover to EPC 4, estimated at the time of the May 2010 visit to be April 2011, will likely be delayed. From an engineering standpoint the design is at the 30% model review stage and procurement activities have started with the issuance of RFQs and purchase orders. Initial temporary camp materials have cleared customs and mobilization has been initiated to offices in Port Moresby;
- *EPC5A – Onshore Pipelines and Infrastructure (Spiecapag)*: Spie Capag SA of Colombes, France will develop onshore pipelines and infrastructure for the project. This effort includes the construction of a 32 – 34-inch gas pipeline for a distance of 285 km, 109 km of 8-inch condensate pipeline, and the Hides Spineline and gas field flowlines and also including above ground facilities (e.g. mainline valve stations, meter stations, pig launcher/receiver stations, cathodic protection equipment), power and optic telecommunications cables. Infrastructure includes road upgrades, access road construction, bridge improvements, camps and associated facilities for waste management, vehicle washdowns, helipads, etc. Pipeline laydown activities are not scheduled to start until Q4 2011, but Spiecapag has established a Project office in Brisbane and field operations are underway from a newly established 150 bed camp in Kopi and a bush camp located at the site of the future scraper station at KP 266.5. The 30% design review is complete and technical studies related to fault crossings are underway, as well as detailed topographic surveys. Ongoing activities in the field include pre-construction surveys and tree felling that has taken place from KP 266 to KP 278 in the vicinity of Kopi. The first linepipe arrived at the Kopi Shore Base on October 21;
- *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 Komo 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 route. The two routes join together at Tagari Junction, located approximately 10 km northwest of the end of the new runway. Construction was initiated in February 2010 with preliminary earthworks and geotechnical earthwork trials at the airfield. At In October 2010 the earthwork trials for the runway were still underway with the testing expected to be completed by mid-November. The clearing and grubbing of the runway centerline was complete. Approximately 75% of the fencing was installed with completion expected by the end of October and the ground preparation for the main camp was nearly complete. Heavy haul road construction had also started at one of the five construction sections and the design of the remaining four sections was expected to be completed by mid-October. An important aspect to construction of the airfield is identifying suitable quarry material and it was expected that a final quarry strategy would be made by the end of October.

EHL was directly responsible for construction of the POM Tech CTF in Port Moresby. This facility is now complete, open for training, and can house and train 750 – 800 construction graduates per year.

In terms of current workforce, EHL reports that more than 3,700 PNG nationals are currently employed on the Project, representing 64% of the total workforce. This is substantially up from the 1,400 reported in May 2010, primarily due to the addition of EPC contractors and an increase in manpower with the Early Works Contractor CCJV. This total already exceeds the original construction target of employing approximately 3,500 PNG nationals out of a total workforce of about 12,000 at peak (~30 percent). During production the goal is for PNG nationals to represent 80 percent of the total workforce (950 of 1,200 at steady state).

1.2 SOURCES OF INFORMATION

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

1.3 REPORT ORGANIZATION

Subsequent sections of this report are organized as follows:

Section 2.0 – Issues Table

Section 3.0 – Environmental and Social Management

Section 4.0 – Environment

Section 5.0 – Social

Section 6.0 – Health and Safety

Section 7.0 – Cultural Heritage

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

2 ISSUES TABLE

This Chapter tabulates a summary of the non-conformances raised in this report, consistent with our TOR as discussed in Section 1.0. The Table has been structured to provide a color-coding for strict non-conformances 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.

Nº	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
Environment and Social Management							
[2]M1.1	May '10		Certain items are past their due delivery date based on the timeframe established in the E&S Milestones Schedule. Several others are projected to miss their schedule commitments.	II	E&S Milestones Schedule	Open	See Section 3.3.2. This issue will not be resolved until disclosure of all of the documents consistent with the Milestones Schedule has been made.
M1.2	May '10	Oct '10	An MOC process involving Lender notification has not started.	II	LESR	**Closed**	An MOC process has been started such that the IESC is informed of MOC activities and a formal Lender notification process has been defined that is acceptable to the IESC.
M1.3	May '10		Key documents have not been publicly disclosed.	II	LESR	Open	See Section 3.2.2 – the Project has achieved a major goal with the disclosure of the ESMP. There are firm plans to disclose the other associated documents in the near future. When all of the required disclosures have been made this non-conformance can be considered closed.
Environmental Issues – Waste and Wastewater Management							
M1.4	May '10	Oct. '10	Some portions of the Project has used unapproved local disposal facilities that in the case of solid waste disposal are effectively open dumps and in the case of wastewater treatment are likely to be managed at a level below Project requirements. Examples include construction wastes from C2 Infrastructure (early works) and POMTech, in particular.	II	Waste Management Plan	**Closed**	See Section 4.1.2 – Despite the delays in the development of the main long-term disposal facilities, the Project has developed alternative temporary solutions and the use of local municipal facilities has been effectively discontinued since the previous site visit.
M2.1	Oct. '10		The use of the municipal WWTP at Lae should be discontinued for the disposal of effluent produced at the 11 Mile base.	I	Waste Management Plan	Open	See Section 4.1.2 – Some sewage from the Agility 11 Mile laydown yard at Lae is not sent to the on-site treatment plant, but is hauled to the Lae municipal WWTP, not audited by either Agility or EHL, contrary to ESMP requirements.

[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).*

Nº	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
Environmental Issues – Hazardous Materials Management and Pollution Prevention							
M1.5	May '10		The engineered pollution prevention systems at some areas within the Kobalu site are not consistent with the HMMP. The basic recommendation is to develop specific properly designed areas (paved, bunded and roofed and provided with traps to collect potential spills), in particular at all sites where long-term storage of flammable materials is expected.	I	Haz-Mat Management Plan	Open	See Section 4.2.2 – It is expected the Project is well aware of deficiencies that exist with some pollution prevention systems and is in the process of rectifying these situations.
Environmental Issues – Air Quality							
M1.6	May '10		Stack emission monitoring should be performed at all incinerators used by the Project, regardless if owned by a third party.	IESC Observation	Air Emissions Management Plan	**Closed**	See Section 4.3.2 – Emissions tests will be required for permanent facilities, but there appears to be a likelihood that OSL facilities could have relatively long-term usage. IESC recommends that EHL consider teaming with OSL to evaluate their facilities and upgrade as appropriate.
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.
Environmental Issues – Biodiversity and Ecological Management							
M1.7	May '10		Bolster EHL's internal capacity to manage biodiversity issues in a more integrated manner. Experienced full-time senior level technical biodiversity staff should be procured and supported by other staff members dedicated to this topic. This is especially relevant to the development of the Offsets Delivery Plan.	IESC Observation	E&S Milestones Schedule / Performance Standard 6	Open	This observation was opened in the May '10 site visit, although its description has been modified to reflect the current situation in Oct '10. The nature of observation is essentially the same. See Sections 4.7.2.1.

Nº	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
M2.3	Oct. '10		The Project should spell out its commitment in the Biodiversity Strategy to eventually develop a technical rationale for the selection of offset projects based on an assessment of residual impacts on biodiversity values.	IESC Observation	Performance Standard 6/ E&S Milestones Schedule	Open	See Sections 4.7.2.1 and 4.7.3.
M2.4	Oct. '10		As observed during this site visit and the previous site visit (May 2010), contractors continue to appear unaware of the practical implementation of induced access management commitments (i.e., Spiecapag during this site visit). A more rigorous, integrated approach should be adopted by the Project before construction fully ramps up.	IESC Observation	Performance Standard 6	Open	See Sections 4.7.2.3 and 4.7.3.
M2.5	Oct. '10		Priority 1 weeds are now taking hold in some areas (e.g., Gobe to Mubi River Road and Kopi Shore Base). As EHL and contractors have done a notable job in identifying weeds on site, now is the time to encourage contractors, for example Spiecapag and CCJV, to begin actively removing weeds from areas before they become fully established. EHL should also ensure that Spiecapag and CCJV, as well as other contractors, are developing specific management plans for Priority 1 weeds and that integrated approaches to weed control are being spelled out in Management Plans as it is not clear if this is being done.	IESC Observation	Weeds Management Plan	Open	Mitigation Measures A61, M52, M118 in the Weeds Management Plan. See Section 4.7.2.4 and 4.7.3.
Social Issues – Land Access							
M1.8	May '10		Selection of a densely populated and productive garden site for the Hides landfill does not appear to be compliant with the PS 5 requirement to avoid or at least minimize involuntary resettlement.	II	Performance Standard 5	**Closed**	A siting study was presented that demonstrates that the selection of the previously proposed site is the best available location in this are including social considerations. Final site selection report has been received.

Nº	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
Social Issues – Resettlement							
M1.9	May '10		RAP preparation and issuance to lenders for review is substantially behind the timing indicated in RPF Table 6 and Figure 4.	I	LESR, Resettlement Policy Framework	**Closed**	EHL has issued a table indicating revised timing for RAP preparation in the Rev 1 RPF to be disclosed. See also Table 5.3 of this report.
M1.10	May '10		Land access and resettlement agreements are being entered into prior to RAPs being approved by the Lenders and before they have been locally disclosed. Contractor access and right of way clearing has commenced for the LNG pipeline. RAPs to cover this work have not been prepared.	II	Performance Standard 5, Resettlement Policy Framework	Open	See Section 5.4.4.3.
M1.11	May '10		Parts of the Komo airstrip site have been occupied by the Contractor before physical relocation of people has been completed.	I	Performance Standard 5	**Closed**	Latest RAPs (for the heavy haul road, for example) include clearly defined staging.
M1.12	May '10/ Oct '10		EHL compensation rates paid to date have not been based on the 'full replacement value' rates indicated by the Komo Airstrip Valuation Study. L&CA compensation is using Valuer General's rates and not 'full replacement value".	II	Performance Standard 5, Resettlement Policy Framework, Komo Airstrip RAP	Open	See Section 5.4.4.4.

Nº	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
M1.13	May '10/ Oct '10		PS 5 requires that loss of access to assets (including community assets) be addressed and mitigated. The Komo Airstrip RAP does not satisfactorily address replacement of community infrastructure such as churches, or the issue of displaced households whose access to community infrastructure such as churches, schools and medical facilities is impaired by the Project. A similar issue is likely to arise for HGCP resettlers.	I	Performance Standard 5, Resettlement Policy Framework, Community Impacts MP, Company Community Health Safety and Security MP	Open	Komo airstrip: joint funding (government & EHL) of a road to access households to the east of Komo airstrip has been agreed, but timing for delivery is unclear. Community planning for other replacement infrastructure for Komo resettlers has been initiated. HGCP: a proposed access road alignment, & site for a replacement school were presented. Timing, budgets, roles and responsibilities for procurement & delivery are unclear. Later RAPs list affected community infrastructure & commit to its replacement, but there is no detail about replacement sites, timing, budgets, or responsibilities for delivery.
M1.14	May '10		The RPF and Komo Airstrip RAP indicate that compensation advisers will be provided to advise resettlers on options for compensation investment. To date this commitment has not been delivered for Komo airstrip resettlers.	I	Resettlement Policy Framework, Komo airstrip RAP	**Closed**	Compensation advisers have been mobilized.
M1.15	May '10		EHL entered into compensation and resettlement agreements with 15 families who spontaneously settled on the Komo access road without a covering RAP.	II	Performance Standard 5	Open	The IESC has still not received a RAP covering the Komo access road. EHL reports the resettlement process is 94% complete.
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).	I	Performance Standards 1, 5 and 7	Open	Huli translation of agreements had reportedly been completed, but Huli documents have not been used to date.

Nº	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
Social Issues – Community Impacts Management							
M1.17	May '10		Communities were still observed to be exposed to un-mitigated hazards at several construction sites visited by the IESC. These included: • Children playing in and adults passing through a construction area with active earthworks– HGCP site. • Children and adults passing through a construction area with active earthworks and heavy vehicle movements underway – access road to Hides spineline. • Severed village access with villagers, forced to traverse a steep and slippery clay slope to pass around a project perimeter fence in order to reach their dwellings – Well Pad A accommodation camp.	I	Community Impacts MP	Open	Although it is recognized that there have been significant improvements in preventing community interaction with Project work sites, because of the construction of fencing, this issue is not fully closed. This non-conformance was opened in the May '10 site visit and repeated observations were made on this same topic in other areas during the Oct '10 site visit. The opening date will remain May '10, although the description has changed. See Section 5.7.2. It is recommended that the contractor develop alternative access routes (footpaths, walkways) around worksites as existing methods are of limited effectiveness. See Mitigations 22.004 and 22.006 of the Community Impacts MP.
M2.6	Oct '10		Fencing should be erected at the HGCP site as soon as possible as community members, including children, are exposed to a significant hazard over a very large area.	IESC Observation	Community Impacts MP	Open	See Section 5.7.2.
Social Issues – Stakeholder Engagement and Consultation							
M1.18	May '10		Communities affected by C1 and C2 works in other locations have not been consulted or engaged by the Stakeholder Engagement team or Contractor Community Affairs teams as envisaged by the Stakeholder Engagement Plan. They have not received basic information on community safety issues, employment, in-migration or avenues for making a complaint.	II	Performance Standard 1, Stakeholder Engagement Plan, Community Engagement MP	**Closed**	See Section 5.15. Since the May 2010 visit, the Project was observed to have made a concerted effort to extend the reach of community engagement activities. Presentation materials on safety issues had been prepared. The shift to a matrix organization with regionally based field staff (L&CA, stakeholder engagement) should lead to more effective implementation of the Stakeholder Engagement Plan.

Nº	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
Social Issues – Grievance Management							
M1.19	May '10		The grievance management system described in the Stakeholder Engagement Plan has not been implemented. Information about avenues for lodging a grievance have not been disseminated to all construction affected communities.	II	Performance Standards 1, 4, 5, 7. Stakeholder Engagement Plan	**Closed**	See Section 5.16. EHL has implemented an interim grievance tracking system. Boreal-IS has been engaged to develop a comprehensive grievance management (and social information management) system.
Social Issues – Labor and Worker Conditions							
M2.7	Oct '10		EHL and its contractors should establish the Worker Grievance Mechanism.	II	Labor and Worker Conditions MP	Open	See Section 5.13.2. Recommendation made in line with Mitigation 23.025 of this MP.
M2.8	Oct '10		EHL, contractors and subcontractors should spell out the legal maximum number of working hours in workers' employment contracts.	IESC Observation	Performance Standard 2	Open	See Section 5.13.2.
Social Issues – Camp Management							
M2.9	Oct '10		There is currently no auditing approach for camps in the Upstream Project Area and social and health requirements as they apply to the various classes of camp are not clear.	IESC Observation	ESMP	Open	See Section 5.14.2. This topic is being flagged as an IESC observation with respect to Sections 6.2 (Verification) and 6.3 (Monitoring) of the ESMP framework document. Verification and monitoring is compromised given the current situation. Recommendations are made to (i) establish a set number of camp class types and eliminate the use of differing language; (ii) clarify the social/health requirements applicable to each camp class; and, (iii) develop monitoring procedures.

Nº	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
M2.10	Oct '10		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. EHL's description of the MOC also does not match the information provided during this site visit. EHL's current classification of this item as a Class III is incorrect.	II	LESR	Open	See Section 5.14.2. EHL's decision to change a Project standard was not subject to Lenders' review or approval as spelled out in Section F.6 in the LESR. Changing of a Project standard would be considered a Class I MOC.
M2.11	Oct '10		The following observations were made with respect to camp construction: • At Well Pad A camp, covered walkways are not planned to be installed to ablution facilities and bed spacing is not 1.2 m apart in some sleepers. • Across the Project, physical controls for mosquito intrusion prevention were not observed at any of the camps (e.g., screen doors, self-closing devices, and mosquito bed nets).	I	Camp Management Plan / Health Inspection Guidelines	Open	See Section 5.14.2. Recommendations are made to carry out corrective action measures in alignment with the Health Inspection Guidelines and Mitigation 24.025 of the Camp MP.
M2.12	Oct '10		A Camp Grievance/Complaint Mechanism is not in place at all camps.	I	Camp Management Plan	Open	See Section 5.13.2. Recommendations made in alignment with Mitigation 24.009 of the Camp Management MP.
M2.13	Oct '10		On-site workers' training/induction is not in place at all camps.	I	Camp Management Plan	Open	See Section 5.13.2. Recommendations made in alignment with Mitigation 24.009 of the Camp Management MP.
Social Issues – Gender							
M2.14	Oct '10		Camp accommodations differ based on gender: • Well Pad A camp is not fitted with sleeper accommodations for women. • Komo camp does not contain a public bathroom for women.	I	Camp Management Plan / Performance Standard 2	Open	See Section 5.17.2. The relevant mitigation in the Camp Management MP is 24.027.

Nº	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
Social Issues – Other							
M1.20	May '10		The transport and servicing of the floatel has had impacts and allegedly caused damage to the property of waterway communities outside of the area covered by the Project ESIA documents. Free, prior, informed consultation with affected communities was not undertaken until after the event.	II	LESR, Performance Standard 7	**Closed**	See Section 5.18.1.2. The floatel has been demobilized. A MoU has been entered into with the delta communities whereby they give their consent to EHL's barging and ancillary operations.
M1.21	May '10		Ensure that commitments and actions contained in the Community Engagement, Community Health and Safety and Community Impact Management Plans are extended to all waterways and delta communities that are exposed to Project vessel movements through the appropriate Contractor.	I	Community Engagement MP, Community Health and Safety MP and Community Impact MP	**Closed**	See Section 5.18.1.2. The MoU with the delta communities includes an undertaking by EHL that it shall ensure that barge and other ancillary operations are conducted in accordance with best practices regarding health, safety and environmental protection.

3 ENVIRONMENTAL AND SOCIAL MANAGEMENT

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

3.1 ENVIRONMENT AND SOCIAL MANAGEMENT PLAN

3.1.1 Project Strategy

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

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

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

The ESMP is currently applicable only to Phase I of the Project associated with construction and drilling. 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

PNG Department of Environmental Conservation (DEC) provided an interim approval of the ESMP on September 22, 2010. This event has allowed for the public disclosure of this document. Over the course of the Project it is expected that some modifications of the ESMP will be required to reflect realities in the field that may not align with assumptions made when documents were written. Further changes may result from achieving a final approval from DEC. In such cases 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 application of the ESMP needs to be reflected in the development of Contractor Implementation Plans (CIPs) that are sometimes referred to as Environmental Control Plans (ECPs) or sometimes with the same or similar titles to the Management Plans that are part of the ESMP. These CIPs may also be grouped in terms of Environmental Management Plans (EMPs) or Social Management Plans (SMPs). Considerable progress has been made since the May 2010 visit. The C1 Contractor for the upstream infrastructure (CCJV) and the C2 Contractor for LNG Plant Early Works (Curtain Brothers) have both finalized their environmental and social management plans with EHL approval. Of the main EPC Contractors, all but the EPC2 Contractor (Offshore Pipeline), are mobilized in the field or are at an advanced planning stage, such that they have made good progress in finalizing their environmental and social plans.

The EPC1 Contractor for construction of the telecommunications towers (TransTel Engineering) has developed an ESMP that has passed some iterative revisions and is pending EHL approval. The EPC3 contractor for the LNG Plant and Marine facilities (CJJV) has developed their ESMP such that their environmental and social plans are approved at the Revision 0 level. CBI Clough JV, the EPC4 Contractor for the HGCP and Hides well pads, has also developed their ESMP such that their environmental and social plans are approved at the Revision 0 level, except for their Environmental Monitoring Plan. Spiecapag, the EPC5A Contractor for the onshore pipeline has developed an Early Works Management Plan, still pending EHL approval, but critical environmental plans such as the Waste Management Plan, Raw Materials Management Plan, and the Spill Prevention and Response Plan have been approved at the Revision 0 level. Their social plans have been approved by EHL at the Revision 0 level. All environmental and social plans for MCJV, the EPC5B Contractor for the Komo airfield, have been finalized at the Revision 0 level, except for Spill Prevention & Response.

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) being developed by Boreal-Information Strategies (Borealis). In essence, the Borealis IMS is a computer and web-based tool to track, monitor, manage and report on social and environmental compliance with respect to Project commitments, stakeholder engagement, grievances management, compensation and resettlement, community support, employment, and environmental monitoring. The system is integrated with the Project Geographic Information System such that observations in the field can be tracked as to the exact locations where findings are made. The SELCA organization has fully integrated this new technology for their monitoring and evaluation programs and the system is in the process of being implemented as the main tool for the environmental teams.

The Borealis IMS still has to overcome some technical challenges before it is able to be fully implemented: ability of Project stakeholders to have suitable computer access, internet connection and connection speed; implementation of training in its use; development of corporate structures to take advantage of its capabilities; etc. Of course, the system will only be successful if there are comprehensive monitoring and evaluation programs to be reported. The IESC looks forward to observing the full implementation of this IMS, as it has the potential for significantly improving the overall monitoring and evaluation process.

3.1.2.4 Organization and Staffing

One of the observations from the May 2010 visit was that some components of the Project appeared to be overly compartmentalized, and communications links among different groups appeared to be weak. Since that time, EHL has reorganized their overall corporate structure such that Safety, Security, Health and Environmental (SSH&E) and Social, Economics and Land & Community Affairs (SELCA) teams report to geographically-oriented field construction managers (Upstream North, Upstream South and Downstream LNG). This change has required that there be SSH&E and SELCA field managers reporting to the field construction managers. The internal structures of the SSH&E and SELCA organizations have remained similar to what was described from May 2010, but there is now a geographic focus. The overall concept of this reorganization is that communications will be improved and line management will be better able to control and enable execution of work undertaken by the functional support organizations, which in turn will be responsible to make sure procedures followed are consistent with Project commitments. Our observations indicate that restructuring has improved communications between SELCA and Management and between SELCA and the SSH&E organizations. Environmental and social teams have initiated interaction with the logistics team working out of Lae, which was not the case in May. Preconstruction surveys now have a social component, which was also not the case during the first site visit.

EHL has bolstered their staffing for the environmental management of EPC-5A. Three EHL environmental staff have been dedicated to the ROW and will be reporting directly to site construction manager. On top of this two individuals from the field verification team and three rotating individuals will be dedicated to EPC-5A. Esso Highland Limited's environmental advisor for EPC-5 is still in place and reports directly to the EPC-5A project manager. Within Spiecapag, an environmental manager, deputy manager and environment site manager are in place. Two members from the environment team are already on board and three nationals will be joining.

Improvements still need to be made. The stakeholder engagement program is still not uniformly applied across all of the work fronts. On the social side, SELCA has been expanded, but is falling behind in terms of managing resettlement. As work progresses there will be an increasing need to increase the capacity of the Lancos to work within the Project environmental and social management system, which will require additional commitment of E&S and H&S staff, both at EHL and Contractor levels. Logistics and E&S teams are not yet fully integrated. Staffing still needs to be reinforced for development of the Biodiversity Strategy and its associated components.

Our impression is that environmental staffing can just meet current requirements, but will soon need to be expanded to manage upcoming major construction. On the social side, SELCA has been expanded, but as noted above is falling behind in terms of managing resettlement and the Stakeholder Engagement Team is still not able to cover all of the work fronts. Employment projections show more than a doubling of the Project workforce by Q1 2011, so if the capabilities of the current field staff are stretched, this situation is not likely to improve. It will be important to review the overall organization of the E&S teams and not just

overall staffing levels to be able to respond to the huge expansion of the workforce that will take place over the next year. Geographic compartmentalization appears to be a good start to being able to manage activities at the various construction fronts, given the extreme logistical difficulties inherent with working in PNG.

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 with local regulatory bodies was provided by the letter whereby the DEC has provided interim approval of the ESMP.

3.1.3 Recommendations

1) Make sure that the different functional organizations working under construction line management have sufficient independence such that they are not entirely under the control of the construction manager. For example, a quality assurance/quality control (QA/QC) organization might be compromised if they report directly to the organization that they audit. As another example, on other projects we have seen situations where E&S functions are compromised if the construction manager decides that all of the available vehicles need to be directed towards construction activities. There are pros and cons to having functional groups report to line management, so our recommendation is that EHL carefully monitor that the process works as planned.
2) Focus staffing increases where the need is most acute, e.g. the L&CA team currently being poached by outside organizations and the staff involved with livelihood restoration and community development.

3.2 LENDERS ENVIRONMENTAL AND SOCIAL REQUIREMENTS DOCUMENT

3.2.1 Project Strategy

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

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

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

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

Since the site visit in May the LESR has been finalized and aspects of its implementation, specifically the Management of Change process and defining stewardship for third-party facilities and activities are no longer issues. Significant progress has been made with respect to the disclosure of the ESMP and other key documents. 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 has started in the sense that a screening process by which Project will identify Lender notifications has been completed and there is a final Management of Change Plan (May 2010) that is being used internally by the Project. During this trip the IESC was provided the entire MOC list with assigned classifications consistent with a process determining their Lender classification. The non-conformance with the LESR defined during the May IESC visit is rescinded.

Based on the information provided, the Project still has not classified any MOC to be Class I (Higher Significance) or Class II (Moderately Significant) changes that would require Lender notification. The IESC is not in agreement that nothing has taken place to warrant Lender notification. For example, as documented in the IESC report for the May 2010 visit, complaints were received relating to damage allegedly caused during the towing of the 'floatel' barge through the delta waterways to Kopi that related to loss of canoes and loss of various trees and crops due to the wake of the vessel and due to bank erosion. The IESC believes that this is a case where the classification should have been Class II warranting Lender notification and some discussions in advance with the IESC. The upcoming MOC to allow for increased dredging in the Omati River would also be expected to warrant discussions and Lender notification. A potentially more significant situation is with respect to reducing living space where this represents a change to a Project Standard and should be an automatic Class I, but has not been treated as such.

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. An example would be the use of a waste disposal facility owned and operated by Oil Search. For this example, EHL is currently using Oil Search facilities only after having conducted a risk assessment that has determined minimal risk. Other examples where EHL needs to exert stewardship are not as clearly defined in the LESR, but are defined within some of the E&S Management Plans, such as the Procurement and Supply Management Plan and the Raw Materials Management Plan. EHL has finalized to the satisfaction of the IESC a robust and comprehensive process to identify the additional third-party facilities and activities where the ESMP should be directly enforced or where there at least needs to be Project stewardship on the basis of a risk assessment. As a result of applying this process, EHL has identified over 230 facilities or activities where requirements for Project intervention have been identified. Some evidence was observed in the field to show that efforts have started to initiate stewardship at third-party facilities, but field activities have reached the stage where this process needs to be accelerated and actions taken as appropriate.

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.

The ESMP was publicly disclosed on the PNG LNG web page at the time this report was being prepared. This is a major accomplishment, but there are some additional documents still pending disclosure. The Project has disclosed the Resettlement Policy Framework and the Community Support Strategy but not the Community Support Strategy Action Plan and the Community Development Support Plan. It is understood that EHL would prefer to incorporate additional comments into these two documents before putting them in the public domain. The Komo Resettlement Action Plan (RAP) has not been disclosed and it is understood that EHL prefers to disclose the Komo RAP when other RAP documents are disclosed. This overall situation for disclosure is much improved from what was encountered in May 2010, but is still considered a non-conformance with Project commitments until all of the required documents have been disclosed.

3.3 MILESTONES SCHEDULE

3.3.1 Project Strategy

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

1) Finalize the ESMP to Revision 1 by the end of Q2 2010;
2) Finalize the LESR by Financial Close (February 2010);
3) Provide a Project Standards document to the IESC by the end of Q2 2010;
4) Finalize an Environmental Monitoring and Reporting Plan by the end of the Q2 2010;
5) Finalize a Social Monitoring Plan by the end of the Q2 2010;
6) Prepare an Operations ESMP at least six months prior to the production of process hydrocarbons;
7) Prepare an Operations Oil Spill Response Plan at least six months prior to the production of process hydrocarbons;
8) Provide a Noise/Vibration Management document to the IESC by the end of Q2 2010, or contain the requirements in the Project Standards document;
9) Finalize a process for conducting periodic noise monitoring during construction by the end of Q2 2010;
10) Provide a final Journey Traffic Management Plan to the IESC prior to Financial Close (February 2010);
11) Complete a Komo Airfield Resettlement Action Plan with an independent compensation rates study by the end of December 2009;
12) Conduct a comprehensive nearshore baseline marine survey (including endemic fish species) within the area of potential impact, including the exclusion zone, of the LNG Plant site prior to the start of construction;
13) A revised Biodiversity Strategy document by the end of the first Quarter 2010;
14) Develop a Biodiversity Monitoring Program (initial draft due Q2 2010);
15) Develop a Biodiversity Offset Strategy (to be initiated by the end of Q1 2010) and deliver the offset delivery plan (initial draft by the end of Q1 2011; finalize by the end of Q3 2013);
16) Integrate conservation programs in the Kutubu Wildlife Management Area into an offset delivery plan the end of Q4 2010[3];

[3] *In subsequent discussions between the Project and the IESC, it was mutually recognized that the date indicated in the Milestones Schedule for this delivery was not practical given that the delivery for the draft Offset Delivery Plan is set at the end of Q1 2011 and that this element (conservation programs in the Kutubu Wildlife Management Area) was to be*

17) Develop a Project-wide Induced Access Management Plan whereby there is an access road register that specifies level of closure/reinstatement for each road and is linked to the Project GIS prior to the approval of the first access road;

18) Develop a quarantine program to manage invasive species by the end of Q2 2010;

19) Develop a Community Support Strategy Action Plan (Indigenous Peoples Development Framework equivalent) by the middle of June 2010; the strategy of this Plan to be defined prior to Financial Close; and

20) Revise the Cultural Heritage Management Plan (CHMP) to commit to interpretation and documentation and reporting of cultural heritage results; continue to engage with the National Museum of Papua New Guinea regarding their capacity for curation (preservation and storage/display) of materials found during the course of construction and revise the CHMP as appropriate (revisions to be complete by the end of Q2 2010).

3.3.2 Observations

EHL has made a major progress in terms of fulfilling the Milestones Schedule with the disclosure of the ESMP and associated Management Plans, including the Environmental Monitoring Plan. As noted in Section 3.2.2.3, there are some commitments that have not yet been achieved, in particular for the finalization of a Biodiversity Strategy (associated with monitoring and development of an offset). In addition, the Project has disclosed the Resettlement Policy Framework and the Community Support Strategy, but not the Community Support Strategy Action Plan and the Community Development Support Plan. In general the IESC considers that EHL has reached the point where documents need to be publicly disclosed, whether or not they are considered by the Project to be "perfect". Revisions can be made to the disclosed documents after further review.

included as part of the Offset Delivery Plan. The actual date for the delivery of this item is now recognized to coincide with the Offset Delivery Plan schedule.

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.

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

- contain, transport, handle and dispose of solid and liquid wastes arising from project construction activities in such a manner as to minimize impacts to human health and the environment;
- dispose of wastes at facilities approved by Company, for which disposal (with or without prior treatment) is the only practicable option;
- follow a systematic program that applies the waste management hierarchy to reasonably minimize wastes requiring disposal. This program shall include monitoring equipment performance and having regularly scheduled maintenance programs to provide optimum performance and minimize waste generation;
- establish facilities and procedures appropriate to prudently manage wastes requiring disposal on-site in accordance with applicable standards;
- manage waste on-site: no disposal is planned to facilities not owned by Company (such disposal is to be handled on an exception basis and approved by Company) and off-site re-use and recycling (to facilities not owned by Company) is accomplished in a controlled manner that benefits the applicable community. For the cases where the disposition of Project wastes to non Project dedicated facilities will be required, the Company shall follow its internal waste management facilities review requirements before allowing the use of the site;
- establish a network of properly designated, drainage-controlled Waste Accumulation Areas (WAAs), designated by Contractor for storage/treatment/disposal;
- interim waste management procedures and facilities (burn pit/landfill or incinerators for combustibles and food wastes at the early works camps, containerized storage of restricted wastes, sanitary wastewater treatment capability, etc.) should be utilized as necessary, pending development of construction-phase facilities and/or permanent facilities;
- reduce the impact on water quality (and associated beneficial values[4]) from construction activities;
- reduce the impact on existing surface water flow regimes and groundwater aquifers (and associated beneficial values) arising from construction activities.

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

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

4.1.2 Observations

EHL acknowledges and understands the challenges associated with managing waste and wastewater at remote Project locations, considering the limited availability of reliable local infrastructure and the near absence of an effective in-country re-use and recycling market. A number of interim solutions have been identified to reflect in the field the commitments included in the ESMP. One of the main positive observations from the discussions in the field is that the Project has demonstrated to have fully understood the potential implications of delays in the implementation of the long-term waste management strategy and is taking actions to avoid further postponements in the development of the key facilities.

The use of local municipal facilities has been effectively discontinued and the Project has initiated a project-wide waste management review to be able to manage all waste associated with construction. Although some of the Project components still rely on existing OSL facilities to treat both restricted and non-restricted wastes, due diligences and/or risk assessments to these facilities are ongoing as per ESMP requirements. One of the main achievements noted during the site visit is that the Project has retained a full time waste management advisor to undertake an overall review of the current Project waste management strategy and identify realistic waste disposal solutions, including reviewing the adequateness of the third-party facilities in use and investigating the effectiveness of in-country recycling opportunities. Contractors' waste management plans have recently been finalized and implemented with most of the plans approved by EHL and effective in the field.

During the mission, the following Project facilities were visited:

- *Nogoli Camp*: the overall situation of the site has not changed since the last site visit. The camp, owned by OSL and still used to accommodate a limited number of Project personnel, has on-site incineration that has been audited by EHL in Q1 2010. Wastewater is treated in the on-site Waste Water Treatment Plant (WWTP);
- *CCJV Camp at Well Pad A*: the camp is still under construction and currently houses about 110 workers employed in the HGCP main camp construction works. Non-restricted wastes are temporarily stored on-site in a waste storage area and taken to Nogoli for incineration until an on-site incinerator (yet to arrive at site) will be installed. Wastewater is treated in an on-site WWTP package with a second unit undergoing final commissioning at the time of the site visit;
- *Kobalu*: an existing site from BP/Chevron operations used as a construction camp and helicopter refueling base. The site, whose start-up was initially expected in July, is still under construction with civil works ongoing and operations anticipated by mid November. However, the facility is now independent from a waste management point of view with an on-site incinerator and a WWTP in operation. This site also receives and treats waste and wastewater from the Juni training facility. Waste segregation was observed to be implemented with PVC-related waste, and metals removed from the waste to be incinerated and stored separately. The site where those wastes are temporarily segregated should be improved as these wastes are currently mixed and stored in an open container. The practice to ship waste to the OSL incinerator at Nogoli has been discontinued;
- *Pioneer Camp at the Komo Airstrip*: the original section of the camp has been completed with a second block under development at the time of the site visit. Non-restricted wastes and medical waste are sent to OSL Hides for incineration until the on-site incinerator, reported to be in customs, will be installed. Restricted wastes are temporarily stored on-site pending a final disposal solution. Although understood to be temporary, the conditions of the waste storage area should be improved by at least providing proper paving with plastic sheets and fencing, as waste were observed lying on the muddy ground. Wastewater is treated in an on-site WWTP. The practice of hauling wastewater by truck to the OSL WWTP or to the municipal WWTP at Mount Hagen has been discontinued;
- *CCJV Oiyarip Camp at Mendi*: the camp is in operation and houses about 120 people. Non-restricted and medical wastes are collected, segregated and burned in the on-site incinerator with ashes temporarily stored into bags in a nearby container, pending the construction of the Hides landfill. The waste segregation area was improved since the last visit in May through adequate roofing and paving. Metals are temporarily segregated on-site and recycled in Lae through PNG Recycling, an authorized recycler. Wastewater is treated in an on-site containerized membrane bioreactor that also receives the sewage hauled from the ME15 Bridge and Tamadigi fabrication yards. Current plans are to add a second WWTP as the camp will be expanded;

- *CCJV Camp at Gobe:* the camp is in operation and houses about 250 people. Non-restricted wastes are currently collected by the local Lanco GFE (Gobe Field Engineering) and sent to the Gobe OSL Ridge camp incinerator that has been audited by EHL. Restricted wastes are stored on-site, pending construction of the permanent incinerator at Hides. Metals are sent to a recycler at Port Moresby. Overall, according to the information provided during the site visit, segregation on-site is still a challenge with a dedicated waste storage area yet to be provided. The waste disposal area used during the first stage of camp construction still needs to be cleaned up. Wastewater is treated in an-onsite WWTP;
- *Kopi Base*: the overall condition of this OSL site has not changed since the last site visit. EHL is currently using the facility with new additional shelters recently added. Non-restricted wastes continue to be treated at the on-site OSL incinerator. Restricted wastes, although reported in limited amounts, are stored on-site pending a final disposal solution. Recyclers for metals, wet batteries and oil filters have been identified, but these facilities still require a full review by the Project. Waste oil is recycled via OSL. Wastewater continues to be treated at the 200/220 person capacity OSL WWTP. As mentioned in our previous report (May 2010 site visit), although the plant is reported to comply with effluent limits, they often experience problems due to overflow because of heavy rain. Following the recommendation included in the previous report where we suggested that EHL, as user of the facility, should consider supporting OSL in upgrading the plant by roofing the sedimentation tanks to limit/avoid runoff, we have been informed that a risk assessment of the facility is underway to establish if the WWTP is functioning within specifications. Once available, the outcomes of the risk assessment will drive any improvement that may be required;
- *Spiecapag Camps in the Kopi area*: the camp/logistic base at Kopi is under construction with about 50 people housed at the time of the site visit. Non-restricted waste from this camp and from the bush camp at the Kopi Scraper Station is currently sent to the OSL incinerator waiting for the installation of an on-site containerized incinerator. Non combustible waste is stored on-site in a dedicated area until their final disposal at the Gobe or Hides landfills, once available. Wastewater is treated in two mobile 10 m^3 capacity Biocube units until a permanent RBC unit is installed;
- *Port Moresby Technical Construction Training Facility (POMTech)*: although the site was not visited this time, we were informed that construction is near completion. Operations at this facility had already started at the time of our site visit in May 2010 and a full handover to CJJV is expected by the end of November. The practice of disposing non-restricted wastes at the Baruni landfill and wastewater to the Waigani wastewater treatment ponds, which was one of the main concerns we raised during the May 2010 site visit, is reported to have been discontinued since September and May, respectively. All waste generated is currently stored on-site until being transferred to the LNG site Waste Storage Facility. Wastewater is trucked to the LNG site WWTP with an on-site WWTP being commissioned at POM Tech;
- *C2 LNG Plant Site:* the LNG plant pioneer camp has been turned over to EPC-3 and is close to being fully operational. The camp current houses about 60 people with a full capacity of up to 800. Non-restricted waste is segregated and incinerated at the on-site incinerator. The burn pit area located at the Pioneer Camp used to incinerate construction waste at the early stages of the construction is being remediated. Medical waste is currently sent to a third-party ISOS incinerator, yet to be audited by the Project. Restricted wastes are stored on-site in a properly designed WAA that will collect all restricted wastes produced during construction. Wastewater is treated in an on-site WWTP;
- *Northern Logistics Route*: the integrated (Agility & NLG) 11 Mile laydown yard at Lae was visited. Wastes are stored on-site in containers with certified contractors temporarily used as an interim solution until the on-site incinerator is installed. Wastewater from the new areas is collected into an on-site WWTP being commissioned at the time of the visit while sewage from the old area is collected in a tank and hauled to the Lae municipal WWTP, not audited by either Agility or EHL, contrary to ESMP requirements. Although it is recognized that the amount of sewage discharged is limited, the use of this facility for the disposal of Project wastewater should be discontinued as soon as practical. The use of the newly-constructed on-site WWTP is the obvious solution. The municipal facility in Lae was visited by the IESC and observed to not being consistent with both the Project strategy and best practice. The identification of long terms

disposal solutions, including the viability of recycling options, is still ongoing in this section of the Project.

According to the documentation provided and what was observed during the site visit, we recognize that significant improvements to overall waste management have been made. Although most of the Project sites still rely on OSL third-party facilities as an interim solution, there is a clear intent of the Project to be independent in terms of waste management processes, procedures and facilities and actions have been taken to achieve this. Procedures for appropriate waste collection and segregation were observed to be in place at most of the facilities visited with most of the Contractors' waste trucking registers properly maintained to record all waste generated on a monthly basis. The next step needs to be centralizing the registers and incorporating them into the Project IMS system such that all wastes produced throughout the Project locations can be tracked. A review of the overall waste management is ongoing to understand the effectiveness of the waste disposal solutions proposed at the beginning of Project design, bearing in mind that the main challenge is still final disposal.

The implementation of the waste management hierarchy as stated in the ESMP is one of the main goals of the waste management advisor with an initial PNG-wide screening of potential recyclers completed in Q2 2010 that confirmed the weakness and lack of viable options in the local market. Acceptable recycling options are highly restricted and currently appear to be limited to scrap metals at Port Moresby and Lae and waste oil through OSL pipeline. The Project is continuing to work to identify additional recycling opportunities, as well as potential development/business opportunities for recycling/reuse within the local communities (timber, scrap wood, quarry material, plastic, etc.).

Following a recommendation included in our previous report, the use of local municipal facilities has been effectively discontinued and dedicated waste management facilities consistent with the standards set for the construction phase by the ESMP have been established by the Project or by some of the EPC Contractors. Most of the camps are provided with on-site incinerators and WWTPs and are now self sufficient for the treatment and disposal of non-restricted waste and wastewater. The main challenge for the near future is to be able to implement short-term disposal solutions should there be any delays in constructing the key waste management facilities (high temperature incinerator, WMA at Hides).

Since our last site visit in May, a desktop landfill siting study to identify the best location for constructing the Hides WMA in the vicinity of the HGCP the Project has completed. Five sites were identified and assessed against engineering, construction, environmental and social criteria and the originally selected site (~4km North of the HGCP) was confirmed to be the best option and the most cost effective to develop. Engineering is completed as well as ecology, archaeology, cultural heritage, and environmental surveys with a report ready for submission to DEC. The preliminary design of this facility is that it will allow for the processing of both non-restricted and restricted waste. The WMA will be separated into two areas: a waste processing facility for waste treatment and high temperature incineration during the construction and the drilling phases of the Project and a landfill area for waste final disposal, servicing both the construction/drilling and operational phases of the Project. The landfill, designed to comply with USEPA Standards, IFC Guidelines, and PNG Landfill Code of Practice, will be developed following a multi-cell arrangement for progressive expansion, provided with an impermeable liner and a leachate collection and treatment system. The first landfill cell will not be available before May 2011. As mentioned in our previous report (May 2010 site visit), although the delays in the development of the permanent waste treatment facilities are currently manageable given the limited amount of waste produced at this stage of the construction, further delays beyond the current schedule may have a serious impact in the overall waste management strategy at the start of the main construction phase.

Another concern raised in our previous report (May 2010 site visit) was the operation of incinerators to process non-restricted and restricted waste due to the difficulties observed at similar projects in achieving consistent success with respect to their management and monitoring. According to the waste management strategy, the Project will use both temporary and permanent incinerators. Temporary incinerators are already installed at most of the Project camps and main construction sites, while a high temperature incinerator will be installed at the Hides Waste Management Area (HWMA). Although incinerators are commonly used in this type of large development project for permanent waste disposal, they require careful management and monitoring, especially if they are to be used to incinerate restricted wastes such as medical waste and oily rags. The key issue for the incineration of restricted waste is monitoring and the Project has developed an approach for monitoring temporary and permanent incinerators that has been reviewed by the IESC and considered appropriate. Temporary incinerators will be of dual combustion

chamber design with at least one second retention time at a minimum temperature of 850ºC in the secondary chamber. These units will be used to treat only non-restricted waste and health care waste and oily debris (oil filters, oily rags etc). Incineration of restricted wastes will not be allowed unless approved by EHL. Where health care waste is incinerated in the temporary incinerators, it shall be processed separately from other wastes and ashes from these burn cycles will be treated as a restricted waste, unless otherwise demonstrated through testing. Operational and monitoring/record keeping criteria will be used to monitor the proper performances of the units as specified in the Air Emissions Management Plan. Given that the health care waste generated throughout the Project is mainly non-hazardous and significantly restricted from what would be produced at a hospital, and also in consideration of the limited volumes expected, we believe the Project approach is appropriate.

The high temperature incinerator to be installed at the HWMA will be of dual combustion chamber design and specified to allow a minimum retention time in the secondary chamber of one second at 985ºC. This unit will treat restricted waste generated during construction activities. Stack emissions from the HWMA incinerator will need to meet the emissions limits in USEPA 40 CFR Part 60 Subpart CCCC (Standards of Performance for Commercial and Industrial Solid Waste Incineration Units) and will be equipped with a continuous emissions monitoring system (CEMS) capable of monitoring carbon monoxide (CO) and particulate matter (PM_{10}) and the stack will have a permanent platform for stack sampling and sample ports to enable exhaust gas monitoring. Performance tests will be undertaken during commissioning of the incinerator to demonstrate that stack emissions are within allowable concentrations and thereafter shall be undertaken periodically to enable calibration of the CEMS, but no less than annually.

Overall, although we recognize that the Project is fully aware of the implications of a delay in the establishment of long term waste disposal solutions, our main observation continues to be that the Project needs to develop contingency plans that include temporary storage to make sure that emergency solutions do not have to be adopted. A number of Project camps and facilities used during the early stage of construction will be demobilized before the WMA at Hides and the permanent incinerators will be available, which will require the stockpiling of significant amounts of restricted waste and the security and health risks associated with this practice.

4.1.3 Recommendations

1) Self sufficiency remains a key objective of the waste strategy with full independence still a challenge. The installation/commissioning of the incinerators at the main Project facilities should be expedited to discontinue the use of third party facilities (OSL) and reflect ESMP commitments in the field.

2) The process to establish WAAs at each camp or main construction location is ongoing although the number of facilities currently established and operational is still limited. Speed up the appraisal process to assess required storage capacity versus projected waste volumes to determine if multiple localized storage areas ('owned' by EPCs) or larger common WAAs are required for Upstream construction, until all the incinerators and the landfill are commissioned.

3) Now that the site selection process has been completed confirming the acceptability of the site originally proposed, construct the landfill at Hides on a fast-track to ensure the Project will be able to properly dispose of the significant amounts of waste that will be generated during the main construction phase.

4) Continue to work to identify realistic recycling options, including potential community development/business opportunities for recycling/reuse. Once identified, perform due diligences of the recyclers to ensure they fulfill Project/good practice requirements. If they do not, consider if it is practical to help these companies develop good practices through EHL's programs to enhance local businesses and work with EHL's social teams develop effective capacity building programs.

5) Now that most of the main Contractors have established their own waste tracking systems to record quantities of restricted and non-restricted waste, centralize all the data collected into the Project IMS to allow for a general tracking of all wastes produced throughout the Project.

6) Complete the due diligence process and/or the social risk assessments for third party incinerators and WWTPs still used by the Project and provide stewardship/support to improve their performance, when needed.

7) Now that the approach for the management and monitoring of the performance of incinerators has been defined, verify that the incinerators installed at the different Project locations, including those managed by the Contractors, are properly operated to avoid difficulties encountered at other similar projects where long commissioning times have been required to reach compliance standards and their operations have often had significant down times.

8) The EHL environmental group should work with EM Logistics (Agility) to help finalizing long-term waste disposal solutions.

9) Identify practical solutions for the disposal of WWTP sludge;

10) At Kobalu, revise the segregation practice for those wastes not incinerated (PVC-related waste and metals) that are temporarily stored at the site near the facility.

11) At the Komo Pioneer Camp, the current waste storage area should be improved as the conditions observed at the site are contrary to ESMP requirements.

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

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

Given the nature of the activities undertaken by the Project that require the mobilization of significant amounts of materials throughout PNG, the Hazardous 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 indications and requirements for emergencies and hazardous material spill response.

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

4.2.2 Observations

Although the amount of chemicals or hazardous materials currently required is still limited, the volume of fuels and lubricants needed to supply the construction equipment is constantly increasing at all Project locations. Given that the fuel supply will be managed by each Contractor independently, a primary requirement is that the procedures and management plans are consistent with the Hazardous Materials Management plan and the Journey & Traffic Management procedure developed by EHL. Because the Project is still at an early stage of construction and some of the Contractors are still in the process of defining their fuel and supply strategies, the details of their spill control and response plans for fuel transportation were not reviewed in detail during this visit. This subject will be reviewed in greater detail during the next site visit.

The number of spills recorded throughout the Project is increasing as the construction proceeds. Most of the spills recorded are associated with releases of hydraulic oil and fuel caused mainly by failure to properly maintain and inspect equipment and by improper work procedures. During Q2 2010, a total of 94 hydrocarbon spills were recorded with an average of 6 liters/spill released. Most of the spills are below 5 liters with none recorded above 120 liters.

The challenges associated with the movement of significant amounts of fuel are well understood by the Project. To help prepare for spill response requirements expected to be needed as construction progresses, an "Environmental Leadership Challenge - Spill Prevention and Awareness Program" was established in April 2010, with a focus on training and awareness raising activities for maintenance crews, equipment operators, spotters as well as field supervisors. The program has focused on hazard identification, training on storage depots inspection, spill prevention and handling, and spill reporting. Spill prevention performance is measured both as number of spills and also as number of spills in relation to man-hours worked (spill rate). Statistical results reported to date indicate an overall good performance and reporting culture throughout the Project.

In terms of development of site-specific CIPs, CCJV has in place an environmental control procedure for hazardous materials management, spill prevention and spill response for their locations approved by EHL. For each of their areas (Kopi, Gobe, Kantobo, Highlands, Hides) CCJV and EHL are conducting risk assessments for activities involving hazardous materials and is developing site-specific spill prevention and response plans. In April and May, spill risk assessments were completed at the Kopi site (CCJV) and Kobalu site (EHL on behalf of Red Sea). The Kopi risk assessment determined the maximum spill size scenario for the fuel transfer and developed a response plan based upon predicted spill trajectories along the Kikori River, location of downstream villages, incident notification procedures, spill containment and clean-up measures. At Kobalu, a former BP/Chevron operations site that will be used as fueling location for the helicopter company, the spill risk assessment took an inventory of all fuel and chemicals stored on-site and identified some measures for storage improvements. At the time of the visit the refueling area was in the same condition as it was in May with upgrading works ongoing and expected to be back to operation in December. However, it was reported that the use of the station has been discontinued until all the upgrading works are completed and new storage tanks for fuel storage located. At many of the CCJV Project locations fuels for the construction effort are supplied by Interoil through the IPI transportation company that also serves large local mining projects. Overall, at all locations visited, spill kits and fire extinguishers were observed to be available and properly located throughout the sites. At Well Pad A, the pollution prevention systems continue to be in place with diesel to run the power generators properly stored in a 30 m^3 storage tank located in a sealed shelter to prevent spills. At Oiyarip camp at Mendi, the fuel storage area is well designed, with two fuel tanks in shelters on a paved area connected to an oil water separator to collect runoff and prevent the spread of potential spills. Hazardous materials are currently stored in a closed shelter to be provided with ventilation.

At the LNG site, CJJV has in place a site specific Hazardous Materials Management Plan approved by EHL. The fuel storage area located within the camp is properly bunded, fenced and roofed. Spill kits and fire extinguishers were observed to be properly located throughout the site.

At the Komo airport site, MCJV is still in the process of developing their Spill Prevention and Response plan for their construction activities. Fuel is currently supplied by truck and refueling done at the different working locations directly from the tankers. Current storage capacity at site is of 36000 liters between tanks and trucks with plans to install a two million liter storage capacity at the new camp to supply all the trucks foreseen at full productivity. Fuel is supplied by Interoil through WellBris, a well referenced and experienced transportation company whose tankers are routinely inspected by Interoil before entering their terminal at Mt. Hagen. At the Komo airstrip working area, hazardous materials were properly stored in a dedicated, aerated on-site shelter.

At Kopi Base, construction is complete and the area has been handed over to Spiecapag, pending some minor reinstatement and final clean-up issues that we understood are known and already on the closure items punch list of the EHL environmental representative. The Spiecapag camp – logistics base at Kopi will be the main fuel storage facility of their operations with a number of additional minor storage depots located at the each camp. According to current plans, fuel should be supplied by the Mobil refinery in POM and Spiecapag will be responsible of its transport to site with LCT (low craft transport) by way of the Omati River. At the time of the visit a fuel risk assessment was scheduled for mid October to identify the risks and emergency procedures for fuel transport and storage.

Overall, labeling of hazardous material drums and containers was observed to be extensive throughout the sites visited with MSDS properly located and made visible at each hazardous materials storage location.

4.2.3 Recommendations

1) Areas designated for road tanker loading/unloading of hazardous materials (e.g. diesel fuel) should be always surfaced and drained to a concrete trap or an oil water separator to contain potential spills.
2) Ensure that all Contractors' site-specific spill response plans are in place by the start of their construction activities in the field.
3) Ensure that fuel management throughout all Project locations is consistent with the Hazardous Materials Management plan and the Journey and Traffic Management procedure.
4) Ensure that hazardous materials and chemicals used throughout the Project are always stored in shelters or areas provided with appropriate ventilation.

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, a number of mitigation and management measures to avoid or reduce these impacts, together with indications of monitoring requirements, and roles and responsibilities. The overall objective of the plan is to control atmospheric emissions during the different stages of Project development.

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

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.

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 equipments 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 what was observed in the field, air emissions are yet not considered to be a significant issue although the number of vehicles and equipment mobilized is increasing. The dust control activity at active sites through the use of watering is still limited and often even not required because of the locally wet conditions that keep the soil moist and naturally prevent dust formation. However, water sprinklers were observed at some site locations where significant earth moving was ongoing. From what was observed at the different Project locations visited, the Project commitment to "*maintain construction vehicles and equipment in order to limit emissions, and remove from service any equipment from which emissions are visibly excessive*" continues to be achieved through the use of vehicles and equipments either new or in evidently good condition.

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

Although it was reported that some of the contractors have developed their own site-specific air emissions management plans, to date no air monitoring of emissions has started. The Project continues to use OSL incinerators whose performances are not monitored.

One concern raised by the IESC in our previous report (May 2010 site visit), was related to the performances of the incinerators and their monitoring to ensure its consistency with the ESMP. As discussed in Section 4.1, based on our experience, other similar projects have encountered significant difficulties in achieving consistent success with incinerator operations (i.e., incinerators have complex construction where maintenance and operation need to be carefully monitored, spare parts can be difficult and time consuming to acquire, and qualified personnel are needed to be permanently on site). For this specific Project, temporary field incinerators and a single high temperature incinerator will be used. The details of the incinerators are discussed in Section 4.1, where it is also noted that the emissions monitoring program for these facilities is considered acceptable by the IESC.

Greenhouse gas emissions are documented through diesel consumptions at the different Project locations. According to the information provided, 2,755 and 8,279 tons of carbon dioxide equivalent[5] were emitted in Q1 and Q2, respectively. The increase in emissions reflects the increase in the fuel demand as the construction proceeds. The Project has not yet calculated the effect of clearing vegetation on the overall emissions balance.

4.3.3 Recommendations

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

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

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5 *Estimated based on Contractor's diesel usage and calculated using the Australian Government's Department of Climate Change, National Greenhouse Accounts Factors, June 2009.*

3) The Project should work closely with the Contractors to identify the specific locations where dust emissions generated by the construction works or heavy equipments movement could affect the local communities and implement site-specific mitigation measures (use of covers for the trucks, cover sheets for soil piles, additional watering of the site roads, etc.).
4) Ensure that diesel generator stacks, especially those close to living and/or working areas, are high enough to properly disperse fumes and to avoid excessive ground level concentrations.
5) The Project should consider starting the estimation of greenhouses emissions associated with the cutting of vegetation for the areas being cleared.

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

IESC has reviewed and approved the NVMP and its completion closes out the commitment to develop a NVMP defined in the Milestones Schedule (Item #8). Noise being generated by the Project continues to be within camps associated with the diesel generators and with earthmoving equipment and truck traffic associated with the construction activity. Blasting is taking place at quarries generally isolated from local communities, but the number of quarries is expanding and some blasting has been associated with road upgrades such that the potential for community effects is increasing. Based on discussions with members of the EHL environmental team, it is understood that noise measurements are being made, but results were not provided to the IESC and the Quarterly reports do not discuss any results of noise and vibration monitoring. This is a topic that will be reviewed in greater detail in upcoming field visits.

4.5 RAW MATERIALS MANAGEMENT

4.5.1 Project Strategy

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

A requirement of the LESR and also of the RMMP is for the extension of EHL environmental and social stewardship to quarries and borrow pits where the Project is responsible for construction at a third-party facility or shares the site with a third-party. As discussed in Section 3.2.2.2, EHL has finalized a process of identifying the additional 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

The Project has identified 46 quarries or borrow pits in use or projected to be used for construction. Of these, 24 are either new quarries or situations where the Project is fully responsible for their development and the ESMP is directly applicable. Examples of this type of operation were observed at several locations, including the Kikori South quarry (QA33), Kikori North Quarry (QA32), the Kopi quarries (Pinnacles 2 and 17), and the Hides quarries HQ1 and HQ3. These quarries appear to be well operated and the only eventual issue for some of these quarries will likely be their closure, as some are large. The Project has also identified 20 third-party quarries where stewardship is required in terms of defining contractual conditions to enforce mitigation of impacts. Examples of this type of quarry visited during this visit were

QA1 (Nogoli quarry serving MCJV for the Komo airfield) and QA2 (Tameya quarry serving CCJV for the C1 Contract). Both are old, existing quarries operated by Lancos, but in both cases Contractors are working with the Lancos to improve their environmental and safety standards. It was evident that stewardship of these quarries was being undertaken by the Contractors. It is understood that QA1 will be discontinued at the point it reaches its current permit limitation allowing an extraction of 100,000 tons and a new quarry will be used. QA2 will be continued with the concept that at the time its Project use has ended it will be a well-designed quarry for subsequent commercial use by the Lanco HGDC. It is expected that working to improve the operations at all of the third-party quarries and borrow pits will be one of the biggest challenges for the entire construction phase of the Project.

4.6 EROSION AND SEDIMENT CONTROL

4.6.1 Project Strategy

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

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

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

4.6.2 Observations

Construction activities have reached the point where erosion and sediment control are critical components of the construction activities. In general, significant effort is being placed on controlling erosion, but there is still room for improvement. Community complaints have already been registered for surface runoff from the Komo airfield clearing and grubbing activities. Earthmoving with the sidecasting technique is another potential source of uncontrolled runoff. Sidecasting is an excavation technique whereby excavated material is cast off the downhill side of a cut. This is an excavation technique that is not considered to be good practice in much of the world, but it is normal practice in PNG. The difficulties of sidecast excavation techniques are summarized in the EIA: "*The establishment of roadways and pipeline RoWs in steep terrain yields a surplus of cut material over fill material (called spoil) that requires management. The normal and long-standing practice in Papua New Guinea is set down in the Department of Works Road Design Manual, which provides for spoil to be sidecast. This method creates vegetation damage down the slopes, and fugitive sediment falls or is transported by rainfall runoff into nearby streams and rivers. These processes have an analogue in the natural landslides that are a common feature of the PNG highlands.*"

Sidecast mitigation techniques identified in the EIA include:

- examining the separation of the pipeline RoWs and roadways or access tracks to reduce sidecasting where practicable;
- using fine particle size organic matting or a lattice framework or similar in karst areas to trap organic matter across sidecast where safe and practicable; and
- implementing sediment control measures downstream of sidecast material where safe and practicable.

Where observed in the field at the construction of the bypass road around the OSL Ridge Camp near the Kutubu Central Processing Facility, none of the above mitigations were being achieved and runoff was uncontrolled into surface water. This is not considered a non-conformance with the ESMP in that sidecasting is an allowable excavation technique and it could be argued that the mitigations were not "safe and practicable," but what was observed in the field was not good practice. It is understood that Spiecapag

is developing excavation techniques whereby sidecasting will be minimized where the pipeline is constructed along Hides Ridge.

4.6.3 Recommendations

1) Review the OSL experience with sidecasting, as it is currently difficult to discern in the field that they ever used the sidecasting technique along their access roads. Our understanding of their experience is that it is necessary to optimize sidecast cuts so that enough trees are removed such that they can form a barrier to the downward movement of the sidecast and that boulders need to be broken up so that they do not roll long distances downhill. Another means to minimize sidecasting is to incorporate sidecast fill into the road sub-base.

4.7 BIODIVERSITY AND ECOLOGICAL MANAGEMENT

4.7.1 Project Strategy

The Project's strategy for biodiversity and ecological management is illustrated in several management plans that appear as appendices to the ESMP and in the 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 Plan and the Erosion and Sediment Control Plan, will be implemented by the contractors during the construction phase, and, in some cases by EHL. Mitigation measures are often specific to each of the three project areas (Upstream Project Area, Marine Project Area and LNG and Marine Facilities Site), and are sometimes site-specific (e.g., the Ecological Management Plan contains a section on Hides Ridge). 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 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, sink hole swamps less than 50-m deep, *Nothofagus* (beech) forest that will require special hygiene measures due to risk of *Phytophthora* dieback, etc. The pre-construction survey is carried out by EHL, except for EPC-5A (the RoW), where EHL's contractor, Spiecapag, will conduct the survey (further explained in the sections below).

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, and a Biodiversity Monitoring Program.

4.7.2 Observations

4.7.2.1 Biodiversity Strategy

EHL has developed Rev. 0 of the Biodiversity Strategy in line with Item #13 (Biodiversity Strategy) of the Milestones Schedule. Revision 0 is a significant improvement over its predecessor (Rev. E), although further modifications should be made. Most sections read well, graphics have been included and there is a general flow to the information presented. The Project's mitigation strategy is well represented and follows a mitigation hierarchy. The goal and objectives section is very well defined and in line with current international good practices. The document is consistent with many of the comments made on Rev. E by the IESC, and biodiversity values are defined for the Upstream Project Area, which provides the platform from which offset mitigation options can be considered.

The section of the document on the Offset Delivery Plan is underdeveloped. An important missing element is the inclusion of the Project's commitment to eventually provide a technical rationale for the selection of offset projects. Such a rationale might take the form of an assessment to demonstrate that the eventual selection of offset projects could actually offset the Project's residual impacts on biodiversity values. Although the difficulties in PNG are well-acknowledged, nevertheless the selection of biodiversity offset projects based solely on opportunity is no longer considered an acceptable practice, nor would this satisfy

critical habitat requirements of PS6. Ecological research, for example, would almost never be considered a valid offset measure by current standards unless on-the-ground measurable conservation outcomes could be demonstrated by such research. Given the challenges in PNG, it is expected that such an assessment would not necessarily be a fully quantitative one and will likely rely on expert judgment.

As mentioned in our previous report (May 2010 site visit), the Project has been working with a biodiversity strategist who has been central to the development of the Biodiversity Strategy and the Ecology Management Plan. With respect to the Biodiversity Strategy, the Project intends to develop a multidisciplinary Biodiversity Working Group formed by representatives of EHL's Public affairs and Community Programs units, the EHL environmental advisor, a project engineer, the biodiversity strategist, a biodiversity monitoring specialist, among others. A Charter will be developed for this group, and we generally support this idea.

The Project however is now in urgent need of technical specialists in biodiversity offset design, which remain a gap in EHL's environmental management team. This is a repeated IESC recommendation. Such a specialist would have the knowledge and experience with current good practices in biodiversity offset design to conduct an assessment that would tie together residual impacts, biodiversity values and the selection of potential offset measures. This person(s) would also be a critical aspect in developing the Charter to the Biodiversity Working Group. That said, EHL had agreed with the IESC in May 2010 to add additional resources as part of the implementation of the Biodiversity Strategy. It is also a requirement of the Milestone Schedule (Item 13 iii) to appropriately resource this activity. To that end, EHL has been actively seeking the appropriate resources and models for engagement of such resources.

Regarding the Strategy's Biodiversity Monitoring section, the Project's conceptualization of this component continues to move in the right direction. Biodiversity Monitoring in the Upstream Project Area will consist of several Programmed Monitoring Activities (PMA). Programmed Monitoring Activity-1 is a remote sensing survey of indirect project impacts. As upstream infrastructure is well on its way, and ROW clearing has already begun, the baseline remote sensing survey should begin without delay.

The IESC recommends that biodiversity monitoring also take place in Lake Kutubu with respect to potential project-related impacts. Lake Kutubu contains the highest lacustrine endemicity of any other lake in the New Guinea-Australian region, and there are 12 species alone that are endemic to this lake. As Lake Kutubu is one of the most notable landscape features in terms of conservation interest and biodiversity value in the Upstream Project Area, it is also in the Project's interest to ensure their ability to demonstrate 'no measurable adverse impacts' on its population of endemic species. Biodiversity monitoring in Lake Kutubu is not a current project commitment, although the Project has committed to design programs in the Lake Kutubu Wildlife Management Area (WMA) to promote and enhance the conservation aims of this protected area, in line with Item #16 of the Milestone Schedule.

Overall, biodiversity management for a project of this size in the Kikori River Basin is an enormous undertaking. The Project will need to carefully evaluate staffing and organization as existing environmental staff are stretched.

4.7.2.2 Ecological Management

In the Upstream Project Area, earthworks have largely progressed since the IESC's last site visit (May 2010), most notably at the Komo Airfield (EPC-5B) and the HGCP site (C1). Brush clearing has started taking place along the ROW from the Omati landfall to KP 266 (EPC-5A). Detailed, site-specific ecological pre-construction surveys are ongoing at Project disturbed sites, and the Project continues to show excellent follow-through of ecological mitigation measures. EHL's advisory, field and verification environmental staff is vigilant and continue to be an impressive team. The contractors' environmental staff is also notable. In particular, the EPC-5A contractor, Spiecapag, will bring considerable experience in reinstatement and erosion control, which are fundamental to the eventual ecological restoration of the ROW. Spiecapag has brought on national specialists with working knowledge of ecology as well. Micro-adjustments of the ROW to avoid particularly sensitive areas are ongoing (e.g., HQ2 quarry, which contains a cave of potential significance to a Critically Endangered bat; an area of die-back near Manu). Pre-construction data are recorded in Borealis IMS, the Project's information management tool, although there is no dedicated module for ecological findings.

Esso Highlands Limited is deviating from their preconstruction survey methodology on Hides Ridge and in the Omati lowlands by eliminating the initial ground survey that was to take place well in advance of earth

moving activities. This decision was based on a number of safety risks in these areas (e.g., hidden, moss-covered sinkholes in the former and the ubiquitous threat of crocodiles in the latter). The Project has designed an approach that they consider to meet the intent of the Environmental Permit (which calls for ground surveys) but does not expose personnel to unacceptable safety risks. The revised survey approach will focus on the most relevant ecological sensitivities and risk factors in each area. Further emphasis will be placed on information obtained via interviews with landowners knowledgeable in landscape features, and remote sensing technology (LIDAR, followed by aerial surveys) will be used to detect caves, sinkholes, dieback areas and other pertinent landscape features. Ground-truthing will then take place immediately in front of earth moving machinery at the time of construction. Additionally, Spiecapag, not EHL, will be conducting the preconstruction surveys along the ROW. Spiecapag has contracted Coffey, the environmental consulting company that developed the EIS and carried out the preconstruction surveys in all other Project areas, to provide them with the relevant expertise. Given the safety risks, which we presume are formidable, EHL's approach sounds reasonable. This approach is pending DEC approval, and we will be reviewing aerial photography in future site visits. We do emphasize the importance of ground-truthing as far in advance of land clearing as practicable at the time of construction.

The IESC visited the LNG Facilities Site during this site visit, but aside from select features of conservation interest (e.g., the New Guinea sandalwood tree), its location is relatively unremarkable in terms of local biodiversity. The pre-construction survey covered terrestrial ecology, aquatic ecology, hydrology, weeds, among other topics. Specific comments on aquatic ecology are presented in Section 4.7.2.5 in this report. Remnant areas of biodiversity that could not be surveyed at the time of the EIS (due to the discovery of unexploded ordnance on-site) were included as part of the survey (these are, savanna remnants and riparian habitat along Roku River). The most notable landscape feature is the Vaihua River Ecosystem Complex, which is a relatively large, locally important intact habitat for waterfowl and migratory shorebirds, and located to the south and southwest of the LNG Facilities Site. As part of the preconstruction survey, the Project conducted desktop modeling and field surveys of the Karuka Creek and Vaihua River catchments. Mitigation measures aim to limit the mobilization and dispersion of sediment into the downstream freshwater and estuarine environments of the Vaihua. According to the modeling, large amounts of sediment will remain within the channels of the Vaihua tributary, but the overall impact on sediment delivery to the mudflats/saltflats was not considered significant from a morphological perspective. The IESC will follow up on the implementation and effectiveness of the proposed mitigation measures in future site visits.

4.7.2.3 Induced Access Management

As mentioned in our previous report (May 2010 site visit), the IESC has expressed concern of the Project's ability to adhere to its commitment to restrict third-party access on project roads for the construction and the entirety of the operations phase. An Induced Access Management Plan is in place to help prevent the use of new and significantly upgraded project roads by third parties, and EHL has developed a project-wide access road register in line with Item #17 of the Milestones Schedule. During the site visit, the IESC again raised the question on the ability of the Project to adequately control access in the Upstream Project Area. This question was raised based on discussions with the Project on the MOC process and in light of findings from the Project's recent study on induced in-migration. During the site visit, the IESC was able to discuss the findings reported below directly with the Project. The Project has agreed to take the steps recommended in this report to further improve their current approach to induced access management.

The discussion on the MOC process was triggered when the IESC was informed that Spiecapag developed an access road from the Kopi Shore Base to the Kopi Scraper Station through an area of tropical rainforest, most of which is disturbed by previous logging, but some of which is in pristine condition (i.e., the immediate surroundings of the Kopi Shore Base). The Project conducted the preconstruction survey, as is required for all Project disturbed areas, and the road was recorded in the Access Road Register. EHL is in charge of reviewing the adequacy of preconstruction surveys, but such surveys, whilst necessary, do not require an alterative analysis of the chosen access route, and reinstatement/closure measures as defined in the Access Road Register are very general. Furthermore, it is unclear to what extent the contractors are cognizant of the importance of controlling access on new roads as Spiecapag was unaware of such commitments on this particular road. In sum, the preconstruction survey is in effect the only requirement on the contractors to develop new access roads. Once it is conducted, the opening of access roads would fail to trigger the MOC process as such roads are considered to have been envisaged in the general scope of the EIS. The MOC process would only be triggered in the event that the contractor extended its footprint

beyond the limits defined in the preconstruction survey. Based on Spiecapag's and other contractors' needs, it can be presumed therefore that any number of access roads might be developed in the Upstream Project Area by way of the preconstruction survey. This indeed has been confirmed by both the Project and the contractor.

A related factor is that the project induced in-migration study revealed that the highest risk location for in-migration is the Southern section of the Upstream Project Area (Kopi/Kikori, Gobe and Moro) followed by the LNG Facilities Site. The study also hypothesizes that risk of significant in-migration issues in the operational phase would likely be lower than the construction phase. Amongst other findings, the study recommends that a regional development study for the greater Hides-Komo area be jointly prepared by the Office of Urbanization and Social Programs in the coordination with EHL's government interface unit.

The Project's ability to successfully control third-party access and in-migration will require an integrated approach that considers both environmental and social dimensions. As mentioned in previous IESC reports, the Project has paid considerable attention to this topic in the past and is committed to further improving its approach. .The recommendations made in Section 4.7.3 were discussed in detail with the Project during the site visit, and the Project had agreed to implement this approach.

4.7.2.4 Invasive Species Management and Quarantine Management Program

The Project's Weeds Management Plan articulates the inspection, washdown, quarantine and other preventive measures to control the spread of invasive fauna, flora, weeds and pathogens. The identification of weed species is also a central aspect of the pre-construction surveys. Priority 1, 2 and 3 ratings are assigned based on observed levels of persistence and invasiveness, and known history in other tropical locations (Priority 1 weeds warrant more stringent control measures). The Project has also been divided into 'Weed Management Areas' (WMAs) based on the ecological characteristics, levels of human disturbance and weed distribution of each area.

Given these tools, the Project has obtained a good baseline of weeds at many of the sites, and EHL and the contractors' environmental staff continue to demonstrate their awareness of this issue. In some instances, Priority 1 weeds were identified in areas where they were not previously recorded (e.g., Gobe to Mubi River) or had established themselves in newly spread topsoil (e.g., Kopi Shore Base). Although such occurrences appear relatively minor at this point, now is the time for contractors to actively remove weeds from such areas before they become more fully established (Mitigation A61). We also note that the contractors' Weeds Plans should include specific management plans for high risk specialized weeds and pests and an integrated approach to weed control, as appropriate (Mitigations M52/M118). It is unclear if CCJV or Spiecapag, for example, had such specific management plans in place. Regarding *Northofagus* (beech) dieback areas, the Project has identified such areas as part of pre-construction surveys, and these should be included in the Borealis IMS in line with Mitigation A63 of the Weeds Management Plan.

The Project has developed their project-wide QMP, which is listed as a Project commitment in the EIS and the Weeds Management Plan. This commitment is also spelled out in Item #18 of the Milestones Schedule. The objectives of the QMP are as follows:

- prevent the importation and spread of pests, plant pathogens or disease (invasive species) via LNG Project personnel or cargo;
- ensure full compliance with all PNG laws and regulations as a minimum;
- facilitate expedient quarantine clearance of all freight imported into PNG for the LNG Project;
- implement effective quarantine control measures for the export of any LNG Project freight; and,
- satisfy mitigation and management commitments and Lenders' Requirements.

The Program is based on an assessment of PNG quarantine related laws and regulations, practices and capacity and comparison with related practices in Australia. As part of this effort, EHL reviewed assessments conducted by AusAid and other organizations of the National Agriculture Quarantine and Inspection Authority (NAQIA) in PNG.

The overall premise of the QMP is focused on prevention before either freight or personnel arrive in PNG. A set of control measures that range from the contractors'/subcontractors' awareness of NAQIA requirements to prohibitions on certain packing materials and machinery arriving in PNG as 'clean as new' will be prescribed in a Quarantine Procedure, a binding document to be implemented by all Project contractors/subcontractors. The Program aims to minimize any requirement for in-country treatment of

cargo. An assessment of anticipated cargo movements through Lae, Port Moresby, Paia Inlet and Kopi and Motukea Island, indicated that the increase in cargo volumes (the most notable being at Lae with a maximum of 33 percent in peak shipping per month over a duration of 6 to 7 months) are less than initial projections. One reason for this decrease is the reliance on Motukea Island over Port Moresby, which receives cargo via a smaller number of large chartered vessels rather than a large number of smaller shipments. Conclusions were that NAQIA could handle such an increase without the addition of substantial resources or with small increase in staff numbers (to be provided by NAQIA) in the normal course of business. Given that the QMP places emphasis on treatment at the point of origin, it was concluded that the construction of additional physical assets, such as an off-wharf treatment facility (e.g., washdown area, incinerator, fumigation, etc.), were no longer necessary.

Treatment at the point of origin and the development of a binding Quarantine Procedure are in line with current practice in quarantine management. The IESC questions, however, PNG's ability to handle the circumstances in the event that a large cargo shipment arriving in-country happens not to be compliant with the Quarantine Procedure. The QMP also relies on a future unconfirmed increase in NAQIA's staffing as well as the Project's ability to provide supply information on exports and look-ahead reports to NAQIA well in advance and NAQIA's ability to efficiently review and accurately respond to such information. There are a number of assumptions being made here, and despite the good intention to roll out a well-developed program, the risks are not to be discounted. We would recommend that the Project help build the necessary capacity in PNG (both operational and physical controls) in dealing with incoming cargo in the event that the QMP cannot be carried out as envisaged for every cargo shipment. This also follows Item 18 of the Milestones Schedule, which specifies that, in addition to the assessment, the QMP will "*address identified gaps in laws and regulations and capacity* [underline added]." The Project is aware of this, and the need for work beyond the Quarantine Management Plan, including capacity building, is subject to a Quarantine Risk Assessment, planned for Q1 2011. There is also a need to immediately roll out the Quarantine Procedure with contractors/subcontractors as construction is well underway.

It deserves mentioning however that EHL is making a serious and multi-faceted effort to address the risks and potential indirect impacts of the introduction of invasive species. Actions are being targeted at the micro-scale in the field as well as the macro-scale by addressing such threats before they even hit PNG's shoreline. The IESC would encourage the Project to share their knowledge with other practitioners as some aspects of their invasive species management program might well be leading practice.

4.7.2.5 An Integrated Approach

Biodiversity conservation is linked to various other topics with which the Project is grappling – these include, project induced in-migration, induced access management and related social impacts on natural resource-based livelihoods (i.e., 'provisioning' ecosystem services). The Project has now obtained a basic understanding of these themes and would benefit from a more integrated approach in addressing them. For example, a conservation management planning initiative for the entire Kikori River Basin based on biodiversity conservation, land-use planning and community education would truly be an innovative endeavor and would demonstrate leading practice in the fields of both conservation and land management. Such an initiative could theoretically form part of the biodiversity offset program, and a dedicated resource within EHL's government interface units might be successful in mobilizing co-financing by interested third-parties. Such an initiative blends well with the topic of ecosystem services, which might be one lens through which regional-level planning takes place for areas at risk of in-migration. The Project has already begun engaging stakeholders in a discussion of worthwhile conservation and community initiatives to undertake in the Kikori River Basin. The ideas presented here, some of which were discussed on-site with the Project, might be helpful to these discussions.

Whilst the ideas for developing an integrated approach are numerous, the underlying point is that the Project would benefit from senior level staff who have the capacity (and are tasked) to grasp the inter-relatedness of indirect impacts by looking across the various Project initiatives to develop cross-cutting approaches.

4.7.3 Recommendations

1) Bolster EHL's internal capacity to manage biodiversity issues in a more integrated manner. Experienced full-time senior level technical biodiversity staff should be procured and supported by other staff members dedicated to this topic.

2) A specialized senior technical resource with knowledge and experience in current good practices in biodiversity offset design and management should be identified as soon as possible. Such a specialist or specialists would have the knowledge and experience with current good practices in biodiversity offset design to conduct an assessment that would tie together residual impacts, biodiversity values and the selection of potential offset measures. Such a specialist(s) should be procured before formal development of the Biodiversity Working Group and should be involved in the development of its Charter.

3) The Project should include a commitment in its Biodiversity Strategy to develop a technical rationale for the selection of offset projects based on an assessment of the Project's residual impacts on biodiversity values. This type of assessment, which would best be carried out as part of the development of the Offset Delivery Plan, would benefit from the type of support that could be given by a technical specialist as described above.

4) Biodiversity monitoring of potential project-related impact should take place in Lake Kutubu. The focus should be on Lake Kutubu's population of endemic fish.

5) The remote sensing baseline of the Upstream Project Area should begin as soon as possible as construction is already well underway.

6) An Ecological Module should be developed for the Borealis IMS given the considerable effort in field to collect these data. The Project's avoidance of certain areas and habitat features (including dieback areas) should also be included in Borealis IMS as well. This type of information may be valuable reference material in the future and is not always captured in the pre-construction survey.

7) As agreed with the Project on-site, the Project should develop a more rigorous approach to Induced Access Management that includes the following: (i) development of an access road 'baseline' as determined by a Project-wide assessment of new and significantly upgraded access roads included within contractors' execution plans and in consideration of input provided by the EHL production teams; (ii) development of more detailed, site-specific reinstatement/closure commitments for each road; (iii) inclusion of the baseline and reinstatement/closure commitments in the next revision of the Induced Access Management Plan; (iv) development of a process (included as part of MOC or otherwise) in which contractors' future proposals for additional access roads, if any, is critically evaluated. This approach and baseline should be defined before the opening of any further access roads.

8) Encourage contractors to begin actively removing weeds from areas before they become fully established; and, ensure that contractors, for example CCJV and Spiecapag, are developing specific management plans for high risk specialized weeds (e.g., such as for the Priority 1 weeds identified along the Gobe to Mubi River and the Kopi Shore Base). Integrated approaches to weed control should be spelt out in contractors' Management Plans.

9) As part of the upcoming risk assessment, further consider risks in the event that the QMP cannot be carried out as envisaged for every cargo shipment or that NAQIA is not able to increase staff numbers by themselves. Address PNG's capacity in terms of both operational and physical controls based on these risks.

10) Roll out the Quarantine Procedure with contractors/subcontractors as construction is well underway.

11) Provide a justification of the Project's strategy for freshwater ecological monitoring in the Upstream Project Area. This should include an explanation of the very limited number of metrics, the number and location of sampling points, the relevance of expected results; the location of treatment and control points; and the ability of the program to address freshwater natural resource-based livelihoods.

5 SOCIAL

5.1 INTRODUCTION

5.1.1 Scope of Social Review for this Site Visit

The October 2010 review had a particular focus on field verification of Project progress with resettlement. It also focused on visiting and conducting consultations in each of the four villages neighboring the LNG terminal site, which were not covered during the May 2010 visit. In total, the IESC engaged with some 170 people including those affected by resettlement, communities living adjacent to Project works areas and other key informants.

The IESC social review included (but was not limited to) the following activities:

- introductory presentations by SELCA in Port Moresby;
- in-field discussions with a range of project personnel including project managers, L&CA officers, the Resettlement team, members of the Stakeholder Engagement team and a contractor community liaison manager (Spiecapag);
- discussion with members of the Environmental Law Centre (independent observers of the RAP process);
- attendance of a Resettlement team weekly meeting at Nogoli;
- participation in a meeting of the Hides Coordination Committee consisting of clan leaders from the HGCP area and EHL representatives;
- pre-resettlement community meeting at Kopeanda (proposed Hides land fill resettlement) with the community resettlement committee (12 members) and about 100 villagers;
- Meetings with key informants and community representatives in Porebada, Lealea, Papa and Boera villages;
- inspections of garden re-establishment and discussions with resettler families in the Hides area and at Emberali (east of Komo airstrip);
- informal interviews with individuals and groups affected by the project including displaced landowners and users at the Komo airstrip, the HGCP, lanco directors, the Komo absentee landowners committee & members of communities in the vicinity of major works areas.[6]

The IESC consulted with Project affected people in groups and individually. Some consultations occurred through organized meetings. Others occurred informally on the roadside, in gardens or in the proximity of proposed or actual PNG LNG work sites. They captured views of both men and women. The separation of the IESC social and environmental team itineraries resulted in a much improved level of interaction with local communities. The breadth of interaction and exposure of the IESC to affected people during the October 2010 review was assessed as excellent.

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 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.

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6 *Sites visited during the October 2010 IESC included, but were not limited to: Nogoli camp, Kopeanda community (proposed land fill site), HGCP site and surrounding Hides resettlement areas, Para School, Heavy Haul Road alignment, Komo Pioneer Camp, Komo airstrip site, Emberali (to the east of the Komo airstrip), Gobe camp, Gobe to Kikori river crossing road, Kikori Camp, Porebada, Lea Lea, Papa and Boera villages neighbouring the LNG terminal.*

5.2 SELCA ORGANIZATION AND RESOURCES

5.2.1 Project Strategy

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

5.2.2 Observations

5.2.2.1 SELCA Reorganization

Since the last IESC visit in May 2010, SELCA had adopted a 'matrix' organization with Land and Community Affairs (L&CA) field teams based in Hides, Moro and the LNG plant site, reporting to field construction managers. Functional groups based in Port Moresby will be responsible for pan-project strategies and standards to cover compensation, resettlement, grievance management, business development and community investment. As the re-organization had occurred less than one month prior to the IESC visit, it was too early to assess its impact on SELCA effectiveness. In principle, the IESC considers the changed organizational model favorably as it will help integrate social management and compliance with line delivery of the Project.

5.2.2.2 Recruitment and Resources

By October 2010, SELCA had filled 122 out of its targeted 191 positions. With the boom in extractive industry projects in Papua New Guinea, EHL has experienced strong competition for professional resources. Projects developed by Talisman Energy, Xstrata, Harmony Gold, InterOil, New Guinea Energy and the Lihir mine expansion are all recruiting. This has resulted in a competitive job market for experienced social and community affairs professionals and escalating salaries. Spiecapag, the pipeline construction contractor, also noted difficulties in recruiting experienced social staff due to competing projects. Recruitment and retaining experienced existing staff for the construction phase is emerging as a significant Project challenge.

5.2.2.3 Camp Bed Shortage

SELCA field deployment continues to be constrained by a shortage of camp beds at some locations, most notably at Hides and Nogoli, where resettlement efforts are presently most intensive. The shortage of beds for women is particularly acute. Women agricultural specialists are particularly important for delivering the livelihood restoration component of the resettlement program. A key thrust of the program is re-establishing food security through bringing into production replacement sweet potato beds, an activity undertaken by Huli women. The livelihood restoration team has delayed filling several women specialist positions because there are no camp beds to accommodate them. Field mobilization of the community investment program has also been slowed by lack of beds. Re-establishing food sufficiency for displaced families and commencement of early community investments are line SELCA functions that should not be compromised by logistical constraints. Women lawyers from the independent monitors, ELC, also require beds.

5.2.2.4 Information Management

The experienced information management company, Boreal-IS, has been engaged to develop a comprehensive EIS and social data management system for the Project. EHL's brief for environmental and social information management and record keeping is ambitious and, when fully realized, will establish a new best practice benchmark for large infrastructure projects. Amongst other functions, the management system will incorporate a project-wide grievance management and tracking system. It was being rolled out at the time of the October IESC visit.

5.2.2.5 Social Monitoring and Reporting

Preliminary social monitoring and reporting templates have been completed by EHL. These were being discussed with the project management team. It was expected that templates would be finalized by the end of October, following input from the EPCs. Monitoring and reporting by the contractors is to commence in November 2010.

5.2.3 Recommendations

None arising from the October 2010 review.

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); and
- the client will consider feasible alternative project designs to avoid or at least minimize physical or economic displacement, while balancing environmental, social, and financial costs and benefits. (IFC PS5, para. 7).

5.3.2 Observations

Since the last IESC visit, SELCA had made a concerted effort to incorporate specialist social input into site screening, alignment planning and the preconstruction baseline surveys. The following improvements were noted:

- the resettlement team was working closely in the field with the heavy haul road engineers to minimize impacts and accurately determine the extent of the physical and economic displacement;
- EHL had conducted a re-screening of potential landfill sites at Hides, including consideration of impacts on productive land and requirements for resettlement associated with each option; and
- A SELCA representative was involved in the preconstruction surveys for the LNG pipeline (but see also comment in Section 5.4).

At time of writing, it seemed probable that physical displacement numbers for the heavy haul road could be significantly reduced from those estimated in the Resettlement Policy Framework due to fine tuning of the design.

The landfill site re-screening study was thoroughly undertaken. It reconfirmed that the Kopeanda site (reported as preferred in the May IESC report) was the preferred site. Subsequent to the IESC's visit, the IESC received a copy of the landfill site selection report as part of the Kopeanda RAP. The related non-compliance has been closed.

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;
- divise measures to support physical relocation and re-establishment. Identify and provide special assistance to people who are especially vulnerable to displacement impacts;
- carefully monitor and evaluate to ensure that resettlement measures are meeting the needs of affected people and to identify the need for and implement corrective measures will stop.

5.4.2 Observations

EHL's resettlement planning procedures and RAP documentation have steadily improved since the Komo airstrip RAP was completed in November 2009. Latest RAP documents have been shorter and more focused on addressing specific local issues and the actions necessary to implement the resettlement program. This is a positive development.

These improvements notwithstanding, the Resettlement team faces challenges in two broad areas:

(i) logistics and strategic planning; and,

(ii) compliance with the Lenders Environmental and Social Requirements in some key areas.

These issues are briefly discussed in the following two sections.

5.4.3 Resettlement Logistics and Strategic Planning

When EHL enters into a resettlement agreement with a family (or community in the case of community infrastructure impacts), it must be in a position to deliver compensation, housing and other agreed assistance 'promptly' (see IFC PS 5, para. 20). Some interviewed resettlers mentioned delays of up to 4 months after signing agreements before they received compensation. 6-8 week delays in receiving rations were also reported. Continued effort needs to be directed towards improving logistical arrangements to achieve prompt delivery of entitlements.

The IESC observed that the resettlement team is absorbed in day-to-day resettlement and implementation tasks and is not paying sufficient attention to forward-looking, 'big picture' logistics planning particularly in the areas of:

- replacement housing;
- communal infrastructure replacement (including churches, schools, markets, access track, roads and bridges).

Based on housing packages preferred by resettled families to date, it appears likely that EHL may have to deliver materials and technical assistance to support construction for perhaps 250 to 300, framed houses at diverse locations as part of its resettlement commitments. This is a task not dissimilar to constructing a medium-sized construction camp. The resettlement team reports that its current capacity is completion of 3-4 houses per month. The IESC recommends that the resettlement team engage a dedicated resettlement project manager to undertake the following:

- schedule probable resettlement house construction requirements for the remainder of Phase 1 as described in the RPF;
- evaluate procurement options to achieve timely delivery of housing;
- evaluate options to expedite delivery (e.g. stockpiling of materials, alternative building systems, prefabrication of doors, windows and framing, etc); and,
- tendering, award and coordination of necessary procurement contracts.

From the Komo airstrip and HGCP resettlement alone, there is already a mounting list of community infrastructure civil works and structures that will need to be delivered in various locations (e.g. access track/ kiap road to Emberali and outlying resettlers around the Komo airstrip; replacement churches at Komo; access tracks or roads around the HGCP site; replacement for Para school, etc). As with the housing works, this is a considerable scope of work outside of the skills of the current resettlement team. It is recommended that this work should also be handled by a dedicated resettlement project manager.

With the larger resettlements for HGCP and the heavy haul road, the logistics of supplying and delivering rations and garden tools will also escalate significantly. Delivery is presently undertaken by local Lancos so generates local employment. Measures to reduce the logistics involved should be proactively considered e.g. reducing the frequency of deliveries (monthly or six weekly); or, issuing vouchers or similar that enable resettlers to collect their own supplies from designated local stores.

There continue to be delays in the delivering compensation. This is a sure way to fuel frustration and trigger escalating attention-seeking behavior. Continued endeavor to solve this problem is required.

5.4.4 Compliance with the Lenders Environmental and Social Requirements

The IESC noted the following compliance challenges:

- demonstrating compensation payment at full replacement value for each and every landowner – applies to Resettlement team and L&CA team activities (see discussion, Section 5.4.4.4);
- achieving compliance with the RPF procedure that requires RAP preparation, Lender (IESC) review and approval, and disclosure, prior to any displacement occurring (see discussion Section 5.4.4.3);
- promptly addressing adverse impacts on community infrastructure and access to services as an integral part of RAP commitments;
- strengthening of procedures for screening for resettlement (physical and/or economic displacement) in all instances where the Project acquires rights to land whether temporary or permanent; and,
- timely delivery of compensation and other resettlement entitlements.

5.4.4.1 Progress in Defining Physical and Economic Displacement

Table 5.1 provides latest Project 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 census and survey for project components is completed.

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

Project Facility	Description	Area (ha)	Estimated Physically Displaced Households (No.)	Estimated Economically Displaced Households (No.)	Total Displaced Households (No.)
Komo airstrip		517	29 (24)	10 (6)	39 (30)
Facilities	Including: HGCP Kopi facilities (TBD) Juni training facility	386	56 (+TBD) (63)	10(+TBD) (8)	66(+TBD) (71)
Pipelines	Pipeline and spine lines based on 1000 m corridor	1,254	20 (50)	46 (TBD)	66 (50)
Well pads	Hides well pads: A, B, C, D, E and G	96	TBD (TBD)	TBD (TBD)	(TBD)
Roads	Based on 50 m corridor	522	About 150 (253)	100 + 200 minor compensation (TBD)	450 (253)
Quarry	Approximately 30 quarries including buffers	898	37 (55)	44 (TBD)	81 (55)
Landfill	Hides & Gobe (TBD)	57	33 (+TBD) (15)	14 (+TBD) (TBD)	47 (+TBD) (15)
HDD	Tagri, Mubi, Wah and Kikori	31	TBD (5)	TBD (TBD)	TBD (5)
Camps	Based on 20 possible options provided to contractors	230	30 (TBD)	22 (TBD)	52 (TBD)
Total			**355 (+TBD) (465)**	**446 (+TBD) (TBD)**	**801 (+TBD)**

Notes:
1. Data provided by the EHL Resettlement Team, October 2010.
2. Bracketed figures indicate RPF October 2009 estimates.
3. October 2010 estimate excludes any economic displacement in the Omati River basin fishery or LNG site/ downstream fishery.
4. The table also excludes Komo airstrip absentee owners.

5.4.4.2 Revised Schedule and Progress with RAP Preparation/ Implementation

EHL has provided a revised schedule for RAP preparation. This is summarized in Table 5.2. The revised schedule was provided after the IESC visit. Discussion of resettlement timing against the construction schedule will need to take place during the next review.

Table 5.2: Revised Schedule for RAP Preparation

RAP Number	RAP Area	Revised Timeframe (November 2010)
1	Komo Airstrip	March – July 2010
2	HGCP	January – August 2010
3	Heavy Haul Road1	July – December 2010
4	KQ5 – Quarry	September 2010 – January 2011
5	Hides Landfill and Quarries	May – December 2010
6	Camp and Laydown Tamadigi	September – December 2010
7	Highlands Highway Bridges	May 2010 – January 2011
8	Omati to Homa Corridor and Camps	November 2010 – February 2011
9	Homa to Dagia Corridor and Camp	January – April 2011
10	Dagia River - HGCP - Corridor	January – April 2011
11	HGCP to Gigira Range - Corridor	April – September 2011
12	Omati River Basin Fisheries	January – July 2011
13	LNG Site/Downstream Fisheries	March – September 2011

Table 5.3 shows the status of RAPs received to date. While the IESC has approved the HGCP and Hides Quarries RAPs, it has yet to receive final amended versions of these documents from EHL for final approval.

Table 5.3: Lender Review and Approval of RAPs (October 2010)

RAP	Received	IESC Reviewed	Lender/IESC Approved
Komo Airstrip	✓	✓	✓
HGCP	✓	✓	
Hides quarries 1-3	✓	✓	
Heavy haul road	✓		
Komo Airport Access Road	✓		

5.4.4.3 Land Access and Resettlement Process Issues

During the last review, the IESC noted problems with the sequencing of RAP preparation, Lender/IESC review and approval, and disclosure before commencement of displacement. Problems with sequencing are still occurring, although RAPs are now being completed more quickly and should soon be ready ahead of displacement.

The most notable sequencing problem that the IESC observed on its October 2010 review was that clearing and contractor access of the pipeline right of way had commenced before any RAPs were in place. The level II non-conformance for this issue, first recorded in May 2010 has been maintained. EHL needs to be aware that IFC PS 5 is triggered by land acquisition i.e. by the activities of L&CA team. It is suggested that EHL address the situation as follows:

Divide the pipeline right of way into, say, two categories:

(i) those sections near occupied land or settlements and where dwellings, active cultivation or fruit trees are likely to be encountered i.e. where both physical and/or economic displacement are possible; and,

(ii) those sections remote from habitation and cultivation where EHL's activities are confined to securing rights to land and clearing of forest i.e. only economic displacement.

In the case of category (i) lands, these should not be accessed or cleared until the requisite RAPs have been prepared, reviewed and approved by the Lenders/IESC and disclosed.

In the case of category (ii) lands, under IFC PS 5, a RAP as such is not required, however EHL (the L&CA team) must be able to demonstrate (with documentation) that it has complied with the requirements of IFC PS 5, paras 20 and 21, and PS 7 paras 12 and 13. This includes demonstrating payment of full replacement value for acquired assets.

The categorization should be undertaken as soon as possible. The IESC would like assurance that contractor clearing and access are not taking place on lands to be subject to RAPs until such time as the requisite RAPs have been approved and disclosed.

5.4.4.4 Valuation of Trees and Crops

The most frequent concern expressed by project affected people cited in the RAPs prepared to date is that the 2008 Valuer General's rates are unfair. Furthermore, EHL has an authoritative independent valuation report[7] that demonstrates for many tree species that this is indubitably the case. In spite of these factors, both the Resettlement and L&CA teams continue to base tree compensation calculations on the Valuer General's rates. The Lender Environmental and Social Requirements require compensation at full replacement value.

During the IESC visit, the Resettlement team re-measured the crops on two affected landowners plots[8] and determined valuations using (i) the inventory and valuation method that has been used by the Project to date; and, (ii) a strict application of inventory and valuation using the "full replacement values" indicated by the independent valuation study. At least for the selected gardens, the Project's current inventory and valuation method resulted in a total compensation payment well above a strict inventory and payment of the full replacement rates. Reasons for this were as follows:

- EHL adopted a high compensation rate for sweet potato gardens (more than 2 times the valuation study rate) which took into account that crops other than sweet potato were interspersed in the sweet potato beds;
- in the two re-measured gardens, with relatively expansive areas of sweet potato, the higher rates paid for sweet potato area more than offset the below replacement Valuer General's rates for trees; and,
- the counting of trees was generous in favor of the owner both in terms of number of trees and assessment of maturity.

Based on the re-measurement, it is probable that the majority of affected landowners covered by the Komo airstrip and HGCP RAPs have received compensation payments that in total comfortably exceed full replacement value for the trees and crops lost. The Resettlement team concedes, however, that on steeper ground, such as that covered by the Hides Quarry RAP or the Heavy Haul Road RAP, where some landowners have a preponderance of affected trees and limited affected sweet potato area, the project

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7 *The report was entitled: "Compensation Rates for Plants in the Hides-Angove-Komo Area" prepared by Dr. Michael Bourke, Adjunct Senior Fellow with the Research School of Pacific and Asian Studies at Australian National University (ANU).*

8 *The two plots were on land required for the Hides landfill and heavy haul road.*

measurement system might conceivably result in payments to landowners that were less than full replacement value.

The IESC is awaiting a proposal from EHL as to how it will demonstrate payment at full replacement value for all landowners, including those on steep ground with predominantly trees affected. This requirement applies not only to the Resettlement team, but also to the L&CA team which also pays compensation for damage to trees based on the Valuer General's rates i.e. below full replacement value.

If EHL is unwilling to adopt full replacement value rates per se, then it will be necessary for it to prepare dual calculations of compensation in order to demonstrate to the Lenders and IESC that the overall compensation package for each and every landowner meets the Lenders Environmental and Social Requirements. This is a clumsy solution.

The IESC reiterates its recommendation that the independent compensation rates study be extended to cover trees and crops for lowland sections of the Project. Going forward, where the issue of parity with highland affected groups will not exist, the IESC strongly recommends that all compensation in lowland areas be calculated based on the full replacement values indicated by the independent study. This would serve three purposes: (i) address the primary complaint of resettlers that the Valuer General's rates are unfair; (ii) achieve compliance with the Lenders Environmental and Social Requirements; and (iii) provide baseline information on market prices for a comprehensive range of edible fruit and nuts, garden plants and other economic plants as a basis for monitoring escalation of food prices in local markets.

5.4.4.5 Mitigation of Adverse Impacts on Community Infrastructure and Impairment of Access to Services

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

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

The May 2010 IESC review noted that Komo airstrip and HGCP RAPs had failed to address losses of community infrastructure (e.g. churches, schools, aid posts and the like) and the adverse impacts of impaired access to social services (e.g. markets, schools, aid posts and the like).

Since the May 2010 review, the government and EHL agreed to jointly fund construction of a road to access households to the east of Komo airstrip. Timing for construction of the road was vague. Details for the standard of road were also unclear. As one Komo airstrip resettler noted, *"…government promises on roads are often not delivered for 5 or 10 years or not all. This would not be satisfactory for us."* EHL must press for expedited delivery of the road and should seek to formalize details of timing, standard of access to be provided, schedule and budget in an MOU with the government. If delivery of the road looks like extending beyond 6 months, EHL must look at providing some interim measure such as a pathway around the airstrip perimeter fence. One extended family at Emberali reported that several of their children had stopped going to primary school because of its distance from their relocation site. This is a very undesirable outcome. EHL reported that community planning for other replacement infrastructure for Komo has been initiated.

At HGCP, a proposed access road alignment, and site for a replacement school were presented. The IESC will be looking for substantive progress and definitive information on replacement sites, schedule, budgets, roles and responsibilities for procurement during its next review.

Later RAPs list affected community infrastructure & commit to its replacement, but there is no detail about replacement sites, timing, budgets, or responsibilities for delivery. Firm commitments should be provided.

5.4.4.6 Cumulative Impacts

The IESC had further discussion with the resettlement team regarding the risk of project land-take intensifying land use and potentially leading to some clans having insufficient land, particularly in the Hides and Komo areas. The Project's anthropologist, Dr. Laurence Goldman, explained that Huli clans typically have a mosaic of customarily-held land in multiple locations. If there was a shortage of land at one location (e.g. in the vicinity of the HGCP), clan members would inevitably be able to access clan lands elsewhere. A shortage of land per se was unlikely to occur. It was also agreed that the effects of population exceeding land capacity would take some time to become manifest. This would happen through decreased availability of fallow, shorter crop rotations and declining soil fertility. It was agreed that EHL would

incorporate performance indicators to monitor for these conditions as part of its resettlement monitoring program.

5.4.4.7 Compensation Advisers

Since the last review, EHL had deployed compensation advisers to provide assistance to resettlers as specified in the RPF.

5.4.4.8 Highlands Highway

Along the Highlands Highway, EHL is replacing or strengthening 20 bridges and undertaking various road improvement works within the pre-existing highway right of way. EHL reported that the government had paid outstanding compensation to landowners affected by Highlands Highway construction undertaken as part of an ADB-financed project some years previously. The government revalidated landowner information and made payments to about 3000 landowners.

Works are underway on four new bridges. One has been completed and handed over to the state. Affected landowners were compensated. Work on the other three bridges is close to completion but the bridges have been blocked to traffic as part of an agreement with landowners until such time as the affected land has been surveyed and payments to them have been completed.

5.4.4.9 Resettlement Outside of Lender Approved RAPs

The May 2010 IESC report noted two instances where resettlement had been or was being considered outside of the framework of a RAP:

- Komo airstrip access road, and,
- Kopi waterfront.

IESC received the Komo airstrip access road RAP after the cut-off date for this current review. EHL has decided that relocation of the Kopi waterfront households is not necessary for PNG LNG purposes.

5.4.5 Recommendations

1) Engage a dedicated project manager to be responsible for the timely delivery of (i) replacement housing; and, (ii) replacement community infrastructure.
2) Incorporate into RAPs firm agreements with communities on measures to address adverse impacts on community infrastructure and impairment of access to services (compliance requirement).
3) Extend the independent compensation rates study to cover lowland areas ahead of lowland RAP preparation and compensation negotiations (repeated recommendation).
4) For lowland areas, ensure that all RAPs, L&CA damage compensation and compensation agreements, or equivalent compensation packages, are based on the 'full replacement' rates recommended in the independent compensation rates study.
5) Develop a procedure whereby the Project (resettlement team and L&CA team) can demonstrate payment of full replacement rates for trees and crops in every situation.
6) Develop indicators for monitoring that land is not being worked beyond its carrying capacity in the vicinity of Hides and Komo. Implement these as part of the resettlement/livelihood restoration monitoring program.

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 October 2010 review. Discussions were detailed and wide ranging.

A key point that arose from this discussion (and a previous discussion in May 2010) was that ELC believes that there are people who were displaced by the Komo land war 10 years ago who have been unable to establish themselves as beneficiaries under the LBSAs for either PDL 7 Hides or PDL 8 Angora. This group of people has effectively been left landless. ELC asserts that it is the responsibility of the government to address issues of restitution for people left landless due to civil disturbance. It is suggested that ELC be asked to (i) succinctly document the circumstances of the group allegedly left landless by the Komo war; and, (ii) make a suggestion as to the kind of process (involving government) that might be used to resolve the situation. This is a legacy issue that clearly falls within the remit of the government to resolve. Left unresolved, however, it has the potential to escalate at some later time with detrimental impact to EHL's activities.

ELC further reiterated their view that land rental payments should be directed to eligible individuals and not directed through Lancos. EHL's specialists have also strongly espoused this view.

5.5.3 Recommendations

1) Request ELC to (i) succinctly document the circumstances of the group allegedly left landless by the Komo war; and, (ii) make a suggestion as to the kind of process (involving government) that might be used to resolve the situation.

5.6 LIVELIHOOD RESTORATION

5.6.1 Project Strategy

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

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

5.6.2 Observations

The IESC met with 5 families at various stages of establishing replacement gardens at Emberali and Hides. The inspections generally verified the livelihood team's assumption that the period required for a motivated household to establish sufficient replacement garden area to meet household subsistence needs was about 9 months and that the approximate garden area required per adult equivalent was more or less in the range of 600-700 m^2, dependent on land quality.

The livelihood team has observed that the quality of replacement land sometimes differs from the families' original land. As part of its monitoring, the team has introduced a simple 5-point rating scale for replacement land quality and a separate scale to reflect the relative accessibility of a household's replacement land to the nearest health aid post.

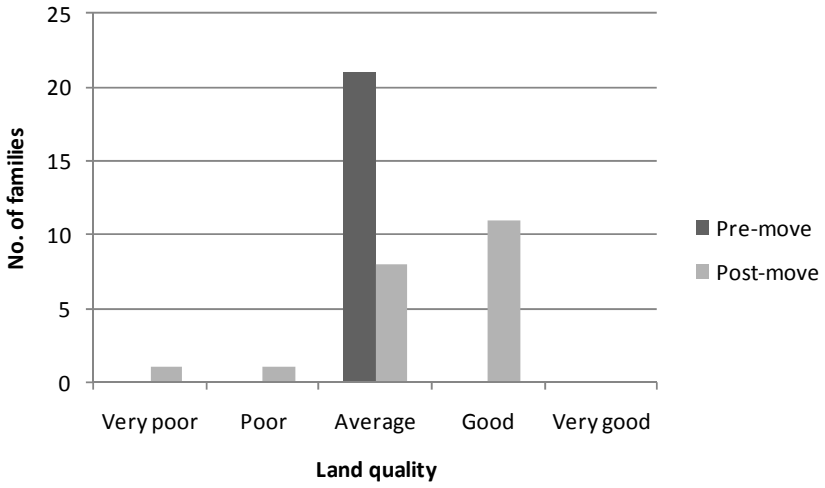

Figure 5.1: Komo Airstrip Resettlement - Comparison of Land Quality Pre and Post-Relocation

Source: Livelihood restoration team data, October 2010 (n=21 households (incomplete data))

Figure 5.1 reveals that a majority of surveyed Komo airstrip resettler households (90%) moved on to land that was equivalent or better in quality than that they occupied prior to the move. Perhaps more significantly, two households moved onto land of reduced quality, categorized as 'poor' or 'very poor'. One of these 2 families has a business and little interest in farming. The other household may potentially be worse off, and will need to be closely monitored over the coming 12-24 months.

In many cases, the trade-off for family access to equivalent or improved quality land at Komo has been a need to move further away from community services. The livelihood team has adopted '*walking time for women and children to the nearest health aid post*' as an indicator of the relative accessibility of replacement land to social services. Figure 5.2 indicates that the replacement land of more than half of the surveyed households was at greater distance to a medical post than their original land. Post-move, 7 households were more than 1-1/2 hours walking time from the nearest aid post. It should be noted that the health aid post is only an indicator. In the case of Emberali households, the walk to the local primary school was 45 minutes or so beyond the aid post.

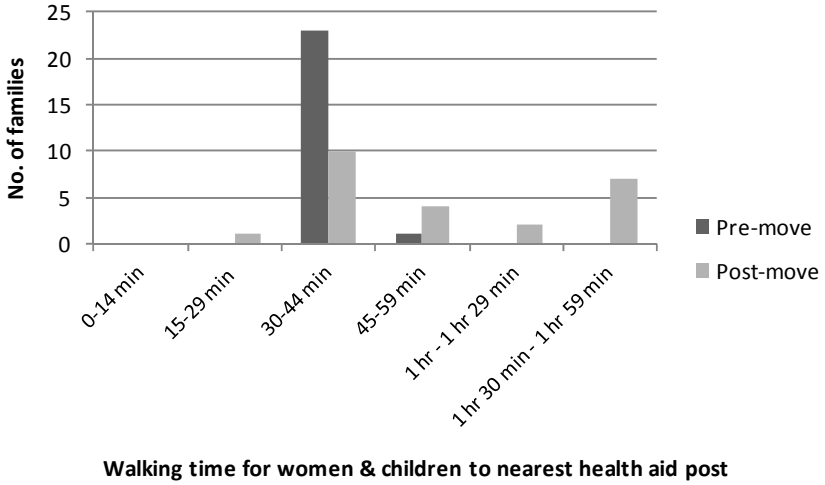

Figure 5.2: Komo Airstrip Resettlement – Comparison of Land Accessibility Pre- and Post-Relocation

Source: Livelihood restoration team data, October 2010 (n=24 households)

The livelihood restoration team has measured the area of developed food garden at two-monthly intervals for each resettled family. July 2010 data for Komo airstrip resettler families is summarized Figure 5.3. This provides a snapshot of replacement garden area per adult equivalent at that date.

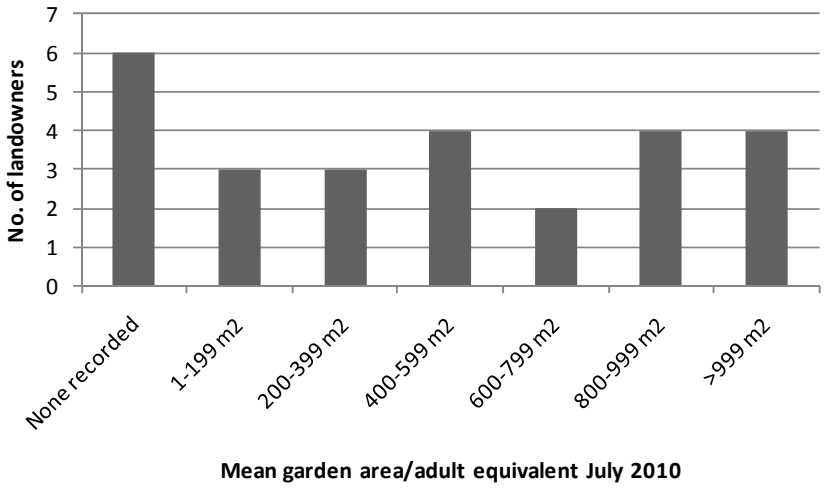

Figure 5.3: Komo Airstrip: Snapshot of Progress with Replacement Garden Development, July 2010

Source: Livelihood team data, October 2010 (n=26 households)

Figure 5.3 shows that 39% of surveyed Komo airstrip resettlers (n=10) have achieved the 600-700 m^2 garden area per adult equivalent necessary to meet household food sufficiency, 39% are still below the target area and 23% of families (n=6) have no recorded garden area. Of the six who reported no gardens, 2 had businesses and little interest in farming; 3 appeared unmotivated to start gardens (drug problems, hold vague aspirations of going into 'business'); and one landowner had indicated he does not want to be monitored. Several observations can be made:

- the livelihood restoration team reported that the number of household occupants continues to be difficult to definitively ascertain. Many households have taken on additional members to take advantage of the resettlement rations which are allocated on a per person basis. An unforeseen benefit of the additional household members is increased labor for garden development. The additional household members may, however, distort the calculation of mean garden areas/adult equivalent;
- a number of households reported very large garden areas and it is evident that they can draw on previously unreported garden resources unaffected by the Komo airstrip acquisition, in addition to their newly developed gardens;
- on the basis of the Komo airstrip sample, perhaps a quarter of families are not interested in agriculture, because they have businesses or other income or because they are otherwise un-motivated;
- livelihood monitoring has identified a small number of households that are potentially vulnerable. These should be systematically recorded and subject to careful monitoring over the 12-24 month post resettlement period. IFC PS 5 requires that particular attention be paid to vulnerable groups and that, where necessary they should be assisted to ensure they are able to benefit from mitigations; and,
- the Project increased a resettlement assistance measure, provision of tools for gardening, from one set per family to four sets. This appears to have been very beneficial in increasing the rate of garden development.

The preliminary livelihood monitoring work undertaken for the Komo airstrip (and now being extended to later resettlement components) has proved invaluable for planning monitoring activities and determining the frequency of livelihood monitoring. Monitoring activities undertaken to date have proved to be relatively time-consuming and skilled resource intensive. EHL now needs to scale up its livelihood team and resources in anticipation of the much greater workload that will be generated as resettlement accelerates over the coming 12 months.

In addition, the livelihood restoration team needs to be able to recruit the specialists it needs to commence livelihood enhancement programs that go beyond re-establishment of basic food production. The livelihood team has identified a number of feasible livelihood enhancement programs but it has been constrained in recruiting and mobilizing the specialists necessary to implement these by availability of camp beds.

5.6.3 Recommendations

1) Adjust food rations to provide say 2,100 calories/adult/day for 9 months to correspond to the observed period it takes a motivated family to develop sufficient replacement garden area to meet its food need (Repeated recommendation).
2) Scale up the livelihood team and resources to cope with the rapidly escalating amount of resettlement and livelihood restoration that will occur over the forthcoming 12 months.
3) Develop standardized livelihood monitoring and reporting templates.
4) Overcome logistical impediments that are slowing the launch of livelihood programs beyond sweet potato garden re-establishment.
5) Develop a project-wide register of vulnerable or potentially vulnerable households based on the livelihood monitoring findings.
6) Analyze monitoring findings to ascertain the types of livelihood vulnerability and develop targeted measures to sustainably support such families through the post-relocation period.

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

Since the IESC's last site visit (May 2010), EHL has made efforts to focus on community safety and related impacts. On-site spotters from local communities have been hired to interface with community members and discourage their passage through worksites. The Project's stakeholder engagement teams have emphasized safety topics in community meetings and have distributed flyers, brochures and other materials.

As construction progresses, the situation has improved at some sites while it has worsened at others. For example, a perimeter fence had been erected at Juni Training Facility, and children were no longer able to access this site as was observed in May 2010. Unmitigated hazards were observed however at other sites, most notably at HGCP and along the access road to the Hides Ridge spineline, which at the time of the visit were both active worksites with heavy machinery. The following observations were made:

- both adults and children were observed traversing the HGCP site and the access road to the Hides Ridge spineline as earthworks was underway and heavy machinery was being used. The HGCP worksite, an extensive area of approximately 70 hectares of cleared vegetation, appears to be used as a thruway by community members;
- fencing and/or other physical barriers to prevent community intrusion are inconsistent from site to site. For example, Komo Airfield is 75 percent fenced, and no unauthorized individuals were observed at this site despite on-going earthworks, whilst fencing of the HGCP site has not yet occurred. The Project has explained that EPC4 will erect the permanent security fence around the HGCP after the C1 team has constructed the final perimeter road. In the meantime, the lack of fencing around the HGCP worksite represents a high risk situation for EHL;
- on-site spotters were reported to be of very limited effectiveness. The ability of such individuals to control access was reportedly compromised, depending on their age and rank within their clans;
- the approach taken by the stakeholder engagement team has been of limited effectiveness in terms of community safety. Stakeholder engagement teams often include both expatriates and nationals recruited from various regions within PNG. Communication is often by way of community meetings and in large part by literature distribution in Pidgin English and English. Such a means of communication may not be the most appropriate for Huli who often speak their local language only and may be less accustomed to written forms of communication;
- the IESC has been informed that that although security guards are diligent at excluding expatriates from worksites, they have acquiesced on multiple occasions to requests made by their own clan members to enter sites. Landowners often consider their access to EHL worksites is justified and deserving given their customary land ownership rights and strong ties to the land;
- the Project has not provided communities with alternative access routes (i.e., footpaths or walkways) around worksites, which is reportedly one of the reasons why pedestrians continue to traverse these areas. As reported in the last IESC report (May 2010), community members near the Well Pad A site continue to use the steep slope in order to bypass its fenced perimeter.

The ability of EHL to "*prevent risk…of Contractor activities on the health; safety and well-being of individuals and communities*" (first objective of the Community Impacts Management Plan) has been, and may continue to be, a challenge for the Project. Management of community safety risks will likely require an on-going presence in surrounding communities by teams who have established relationships with local people and who are capable of delivering the message in a culturally relevant manner and in local languages. With the right training and tools, and with sufficient field personnel, the L&CA team are ideally positioned to do this. The emphasis should be on building trust and long-term relationships with local communities, not conducting one-off road shows. Schools should be a major focus of safety training and communication as children are the highest risk group, and are also effective intermediaries for carrying key messages into their homes.

Regarding access, as stated in the last IESC report, where the Project or its Contractors sever or impair community access, there is an obligation to provide safe, alternative access.

5.7.3 Recommendations

1) Fencing should be erected at the HGCP site as soon as possible in line with Mitigation 22.006 of the Community Impacts Management Plan.

2) Continue to strengthen contractor compliance with the requirement to effectively exclude community members (including children) from construction and material storage sites. The Project should develop alternative access routes (footpaths, walkways) around worksites and permanent facilities in instances where such sites expose community members (including children) to significant hazards and/or where community access to an existing thruway has been severed. These recommendations are made in line with Mitigation 22.004, which states that "*If the hazard conditions can't be eliminated, exercise special care to avoid or limit their exposure by…modifying, substituting or eliminating the condition or substance causing the hazards.*" and with Mitigation 22.006. Alternative access routes should be selected in consultation with affected communities.

3) Focus on developing trust and long term relationships with communities as the basis for influencing behavior and reducing risks. Consider developing community relations teams as a

subset of L&CA to focus on safety issues in sensitive locations. Individuals on such teams should be affected community members that are able to communicate in the local language in a culturally relevant manner and would be best selected and managed by L&CA field supervisors who are knowledgeable about local culture.

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:[9]

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

5.8.2 Observations

During the October 2010 visit, the IESC continued to hear positive views from Southern Highlands community members about the presence of Royal Papua New Guinea Constabulary (RPNGC) mobile squads. ELC suggested their finding was that older people who are the principal beneficiaries of improved law and order were most appreciative of the mobile squads, while younger people had a more qualified view. Several informants indicated that the alcohol ban in Southern Highlands Province was ineffective and widely flouted.

As part of the next phase of consolidating its presence, the RPNGC has deployed 'investigators' and 'community relations officers' in Southern Highlands Province. The community relations officers, including women, will focus on explaining the role of the police to local communities. Between 27 September and 1 October 2010, EHL Security staff observed RPNGC delivery of training on the Voluntary Principles on Security and Human Rights for RPNGC personnel.

Ongoing and timely Papua New Guinea government release of funds to support mobile squad activities in the Project works area is essential for maintaining conditions conducive to the safe and on-time completion of the PNG LNG project. The IESC was concerned to hear that in October the RPNGC was close to suspending its operations in Project areas due to delays in government release of funding. It is to be hoped that going forward continuity of funding can be assured.

From 25 June 2010 ExxonMobil Global Security has assumed management of security in Papua New Guinea on behalf of EHL, including for the PNG LNG project. All project Security staff will now report through the ExxonMobil Global Security Adviser/Security Manager. The project security organization has been split into north and south areas to better align it with the project execution organization.

EHL's Security Manager noted the following key security incidents and responses since the last IESC review:

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

- threat of tribal fighting in the Hides area in July, 2010 – the response was for the RPNGC to increase their patrolling and presence in the area to keep the warring factions separated;
- threats to destroy bridges in Project Work areas by clan leaders in the Southern Highlands during July, 2010 - the response was to increase Project dialogue with the affected leaders and raise the level of communication; and,
- two project vehicles at Kaiam were destroyed by fire on 24 September, 2010. At the time of the IESC review, the incident was still under investigation by the RPNGC.

The Boera-Porebada conflict appeared to have subsided as of October 2010, although some related court cases were still pending.

The IESC is still awaiting receipt of the following information from EHL:

- copy of the MOU with the RPNGC; and,
- account of vehicle arson at Kaiam.

5.8.3 Recommendations

None arising from the October 2010 IESC review.

5.9 PROJECT INDUCED IN-MIGRATION

5.9.1 Project Strategy

During Due Diligence, the Project committed to undertake a project induced in-migration risk assessment. A final report was completed in June 2010. The final report will be used as the basis for developing an in-migration management plan or plans.

5.9.2 Observations

The IESC was disappointed by the lack of progress in development of in-migration management or action plans. Some of the most effective short-term in-migration management measures, such as community awareness raising or registration of new arrivals, need to be implemented before significant influx has occurred if they are to be effective. As the project construction workforce mobilizes, influx pressures will intensify. If proactive early measures to reduce the impact of in-migration are not implemented soon, an opportunity will be lost. In a context of weak law and order, fear of outsiders and influx is very real for some communities:

"Influx is caused by EHL and its activities. With road links to the north, the Huli can easily come and steal our garden food and pigs. There was recently a rape here. We fear for our safety. EHL causes the problem but it has a bad attitude. When we have security problems and call for assistance, they only refer us to the police…" Village head, Kutubu area.

The IESC was pleased to note that the L&CA team in the LNG plant area has quietly promoted discussion of in-migration risks in the four villages adjacent to the plant. In the cases of Lea Lea and Papa villages, the discussion has lead to the villagers deciding to apply a ban on accepting any new in-migrants and to discourage marriage to outsiders. By the villagers' own account, these measures have already discouraged several would-be settlers.

During its field visit, the IESC made the following observations:

- in Huli areas, the prevalent population movement consists of redistribution of Huli population within clan lands, rather than in-migration of new people from outside areas. Huli culture is not conducive to welcoming outsiders. Huli families are changing location to take advantage of perceived economic or employment opportunities along access roads or around the perimeter fences of facilities such as the HGCP;
- most intense in-migration was observed in the Komo area where returning war-displaced families are settling in close vicinity to the Komo airstrip, near the Komo construction camp and access roads. The Komo situation is unique in that the project has created enabling conditions for some of the large number of war displaced families to return;

- some socially cohesive and ethnically homogeneous villages were observed to be voluntarily tightly controlling in-migration through adoption of measures such as obtaining a village consensus against in-marriage by outsiders and through community agreements not to accept in-migrants. Examples were observed by the IESC at Kaipu (Southern Highlands Province), Lea Lea and Papa villages (in the vicinity of the LNG plant);
- higher risks of in-migration may exist in villages with a more heterogeneous population and an history of in-migration such as Porebada (near the LNG plant) and Sisipia (Southern Highlands Province);
- the Project Induced In-Migration Study report has also identified Kopi and Kikori crossing areas as potential hotspots for in-migration due to their relative accessibility by boat from Port Moresby (Kopi) and the southward colonizing by the Huli (Kikori).

During discussions with project social and environmental staff, the IESC noted that there are clear synergies between managing in-migration, managing induced access and protecting biodiversity. In considering mid to long-term in-migration management measures, in-migration action plans should be aligned with the Induced Access Management Plan and Biodiversity Strategy.

The IESC looks forward to being able to review project induced in-migration action plans to cover areas at high risk of influx during their March 2011 monitoring review.

5.9.3 Recommendations

1) Align Project induced in-migration action plans with the Induced Access Management Plan and Biodiversity Strategy.
2) Complete Project induced in-migration action plans for high risk influx areas by March 2011.

5.10 PROCUREMENT AND SUPPLY MANAGEMENT

5.10.1 Project Strategy

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

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

5.10.2 Observations

EHL reported that earlier projections for national spend and projected employment were understated, and are likely to be significantly exceeded. As of October 2010, PNG workers made up 64 percent of the total Project workforce. The national workforce in Q3 2010 was about three times EHL's original (pre-construction) projection (Figure 5.4).

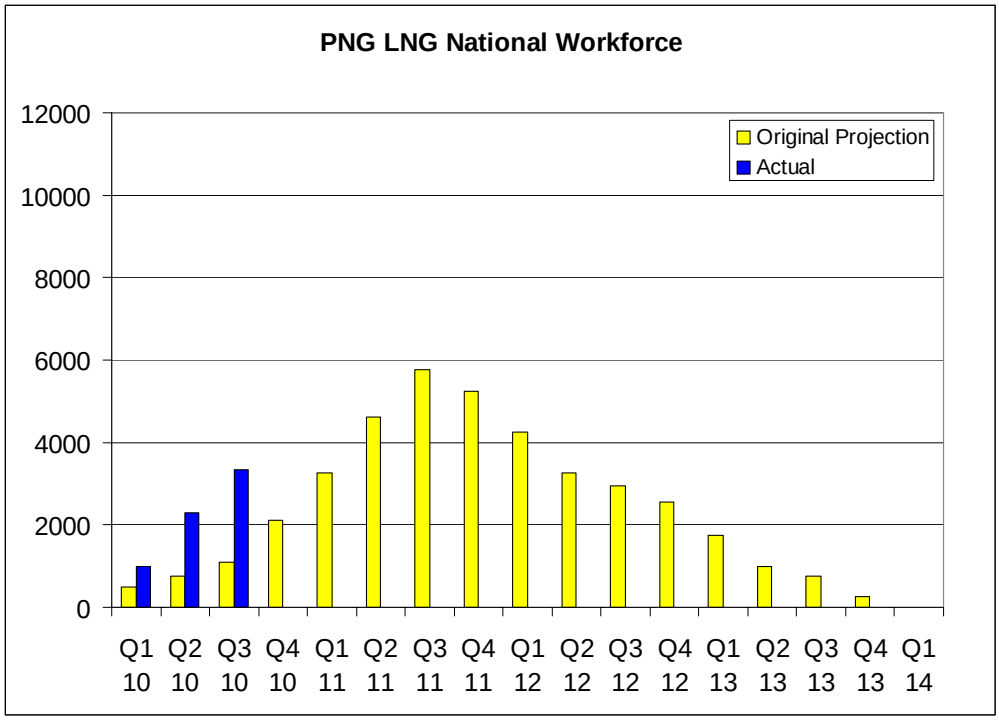

Figure 5.4: PNG LNG National Workforce – Actual versus Projected

Source: EHL National Content presentation, October 2010

5.10.2.1 Training and Workforce Development

EHL is establishing training facilities at Port Moresby (POM Tech) and at Juni. POM Tech had commenced training in the 2nd Quarter 2010, managed by the Chiyoda-JGC Joint Venture. Full completion of the PomTech facility is scheduled for November 2010. To date, 292 civil laborers and 39 drivers have graduated. Delivery of the Juni facility has been delayed by problems in getting labor onto the site. It is now scheduled to open in the 2nd Quarter 2011, managed by the CBI Clough Joint Venture. Training may be commenced from an interim facility in Mendi in the interim.

5.10.2.2 Lancos

Lancos were not a particular focus of the present review. Nonetheless, the IESC heard views expressed by local leaders and local lanco participants on a number of subjects. It is clear that local lancos are very frustrated with the lack of direction and information that they are receiving from the umbrella lancos. Improved top-down communication is essential or the umbrella lancos risk losing the support of their constituent local lancos.

"LABA management needs to come down and explain to us directly what they are doing and what the prospects are for us."

One important message that needs to be delivered is about the shortness of the construction period, particularly for the pipeline. Local lancos need to understand that the timeframes for equipment and vehicle hire (if any) are very short. They should be discouraged from investment in heavy equipment that cannot possibly generate a return within the construction phase of the project.

"The local lancos have been promised the world but nothing has been delivered. They have invested in heavy machinery with no prospect of paying it off during the construction period. They have big problems. They are going to fight."

A complaint heard in villages around the LNG Plant was that contractors tend to re-hire the same people again and again instead of spreading jobs amongst as many people as possible within each community. While there are obviously efficiencies in this for the contractor, village leaders noted that this led to creation of an embittered group of young men consisting of those who miss out. Such groups can become socially disruptive and very difficult for a community to manage. The villagers perceived that the

contractors must be over-riding their umbrella lanco, LABA, in order for this situation to arise. It is recommended that umbrella lancos (and contractors) be encouraged to spread jobs as much as practicable rather than falling into a pattern of repetitive hiring.

In Papa village (near the LNG plant), an international contractor had become wittingly or unwittingly entangled in village politics and contributed to the polarization of the villagers and village leadership over competing lancos – almost to the detriment of EHL's efforts to establish an umbrella lanco. It was clear to the IESC from a relatively brief discussion that the division created in Papa remains un-reconciled. This is an unhealthy situation given the seed money and employment benefits that are about to flow. It is in no-one's interest that the village leadership be divided and unable to take advantage of the seed money that is due to it. While the situation is not of EHL's making, it might consider whether there is value in seeking some third party intervention (either from higher levels of government or through a civil society group with conflict resolution skills) to broker some reconciliation between the two sides.

As encountered on major projects around the world, villages neighboring the LNG plant queried whether the contractor was following the protocol requiring them to give local people first priority in hiring. Local villagers noted that 5 buses carrying workers came each day from Port Moresby. They wondered whether outside people were displacing them from job opportunities. The IESC recommends that the Project regularly publish statistics about job allocation, including those jobs granted at a local level. This might take the form of a newsletter circulated to project villages or summary information that can be presented at project information centers. Perceived inequities in distribution of jobs have potential to be a significant source of conflict between clans. The Project must be as transparent as possible in its hiring practices and in the information about jobs that it publishes locally.

5.10.3 Recommendations

1) Each of the umbrella lancos needs to spend more time communicating with its local lancos. Local lanco need information about what is happening as well as direction and reassurance about their prospects.
2) Promote fair and transparent recruitment processes. Publicize locally statistics about job allocation, including the number of jobs granted to local villages.
3) Encourage umbrella lancos (and contractors) to spread local jobs amongst as many local participants as possible rather than falling into a pattern of repetitive hiring.
4) Consider whether there is value in seeking some third party intervention (either from higher levels of government, or through a civil society group with conflict resolution skills) to attempt to mediate a reconciliation of the two sides in Papa.

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

During the IESC visit, EHL submitted a Community Support Strategy incorporating a Community Development Support Plan for review against Milestone Schedule Item #19.

Both Community Development Support and Strategic Community Investment have now been brought under the same Community Support umbrella. The IESC has some reservations about the division of projects into 'soft' (Community Development Support) and 'hard' (Strategic Community Investment). The proposed approach for delivering Strategic Community Investment projects is very similar to that adopted by other oil and gas operators in Papua New Guinea for delivering so-called tax credit projects. In many instances, this has resulted in unsustainable projects that end up burnt, broken or delivering no long term benefit. Current best practice would indicate that 'hard'/ small infrastructure projects, should be delivered through a process that has the following steps:

- community mobilization;
- participatory needs assessment;
- community identification and agreement on investment priorities;
- proposal preparation and costing by communities (with training to support this);
- submission of an operations and maintenance proposal whereby communities demonstrate how they will sustainably fund and maintain works; and,
- a community contribution, in cash or in kind (e.g. sweat equity), typically in the order 15 to 20% of the investment value.

The above steps do not necessarily guarantee infallible projects, but they do encourage communities to take ownership and to accept responsibility for maintaining projects. If projects fail, the communities must look at their own decision-making and behaviors. They cannot easily lay the blame on the Project. The process gives communities useful skills for seeking future funding from government and other agencies, and it avoids promoting dependence on EHL.

The IESC endorses the need to initiate some quick impact projects as soon as possible, but not without following the steps outlined above. Quick impact projects will help communities accept more readily the adverse impacts of construction mobilization and give them some assurance that they are not being overlooked by PNG LNG.

The community support team has also identified an appropriate suite of early community development support projects. These include the following:

- strengthening village courts;
- agricultural and business support to women groups;
- entrepreneurial support fund to catalyze and support micro-and small business;
- support to functioning schools, including support to improve conditions for teachers; and
- exploring opportunities to increase local supply of food to Project camps.

5.11.3 Recommendations

1) Examine best practice approaches for delivery of small infrastructure projects in communities to promote community ownership and maintenance responsibility, and to avoid creating dependence on EHL.
2) Initiate some quick impact projects as soon as possible, particularly in the vicinity of the LNG plant.

5.12 LABOR AND WORKER CONDITIONS

5.12.1 Project Strategy

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

- maximize work opportunities of PNG citizens during construction of the Project;

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

5.12.2 Observations

As part of SELCA's reorganization, the teams have organized themselves to manage community relations ('outside the fence') and employee relations ('inside the fence'), the latter covering the Camp Management Plan and the Labor and Workers Conditions Management Plan. On both of these topics, in-field SELCA/EPC interfaces report to the Contractor Compliance Interface Lead, which sits within the Social Programs SELCA functional unit.

At the time of the IESC's site visit, CIPs have been finalized for all but two contractors: EPC2 (Saipem) and drilling (Nabors). Contractor monthly reporting templates have been prepared for all CIPs and should be finalized by end-October 2010. Implementation of monitoring and reporting schedules should begin in November 2010.

Field observations are as follows:

- the Worker Grievance Mechanism is not in place in some areas of the Upstream Project Area (Mitigation 23.025). Some of the workers with whom the IESC spoke reported that they would likely turn to their supervisors in the event of a grievance and knew of no formal grievance procedure;
- the IESC reviewed an example employment contract between Red Sea and another country national (OCN) employee. Observations are minimal at this time as this topic will be revisited in future site visits. The terms of employment are defined in the contract (e.g., work week, overtime hourly rate, annual leave, termination) and reference is made to PNG law. The contract does not specify the legal maximum working hours in PNG. Health and accident insurance coverage is not specified although this may be included in Red Sea's Human Resources Manual, which is also referred to in the contract; and,
- some employees of the Laba lanco have reportedly experienced ongoing problems with non-payment or under-payment of wages.

The Project has committed to comply with PS2 requirements, which includes compliance with the PNG Employment Act (1978). The Employment Act includes provisions for rest periods, maximum daily work hours and overtime rates. These topics are not only an issue of compliance with labor laws, they also have implications in terms of occupational health and safety. In future site visits, the IESC will be focusing in more closely on these topics.

Gender-specific observations on camp management are included in Section 5.17.

5.12.3 Recommendations:

1) Establish a Worker Grievance Mechanism to accord with Mitigation 23.025.

5.13 CAMP MANAGEMENT

5.13.1 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 (i) avoid or reduce negative impacts on the community and maintain constructive relationships between local communities and workers' camps; (ii) establish standards on worker welfare and living conditions at the camps that provide a healthy, safe and comfortable environment. The Labor and Working Conditions Management Plan also contains some mitigation measures on 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.

5.13.2 Observations

The Project is still in an early stage of constructing its main camp sites. For the upstream portion of the Project, the projection is that over the course of the next three years EHL and the EPC Contractors will occupy 32 camps at various stages. Based on information provided by EHL, requirements for beds are expected to triple over the next three months to more than 5,000 beds during Q1 2011, primarily due to the mobilization of Spiecapag for the onshore pipeline construction. Peak requirements for beds in the upstream area are projected to approach 9,000 by Q3 2012. Temporary camps are either being demobilized (e.g., the Floatel at Kopi Shore Base) or are being converted from temporary to semi-permanent or permanent facilities. At the LNG Plant site the projected requirement for beds is 8,800. These figures exclude requirements for early works involving fly and bush camps. They also do not include Lanco camps that already exist or may be constructed specifically for the Project. With a workforce that is expected peak to over 17,000, camp accommodations are critical path for the successful implementation of the Project.

From a practical standpoint, the main issue is if accommodations can be constructed in time for construction to proceed on schedule. This is a concern as some main work camps are behind schedule already: all of the MCJV camps at Komo; the HGCP EPC4 Transit Camp at Hides; Well Pad A Camp/Drilling. These construction delays are a concern for environmental and social management in that the chronic shortage of beds has been reported to be a impacting the ability of the social and environmental teams to conduct their field work. This deficiency has resulted in the extended use of tents as field accommodations, but this is contrary to bush camp policy limiting their use to no more than a month (tents at Nogoli Camp have been used for more than six months, for example). The large number of camps of various types and sizes makes this topic an especially challenging one to manage as all SHESS aspects come into play (safety, health, environment, security and social). It is also unclear which camps will be considered stewardable, such as Lanco camps. The successful decommissioning of camps and footprint restoration presents a longer term problem.

The IESC visited ten camps during this site visit[10]. Observations are limited at this time as the IESC plans to review these camp management issues more thoroughly in future site visits. Currently there appears to be no obvious mechanism to audit the various classes of camps, e.g., bush camps, fly camps, pioneer camps, temporary camps, and the changing scope of these camps due to expansion confounds the issue. Camp nomenclature is also inconsistent (e.g., Project literature also refers to 'transit' or 'short-term' camps in addition to 'pioneer' and 'temporary'). For example, it is unclear if Well Pad A camp is to be considered a pioneer or temporary camp and what the requirements would be in either case. Many camps are also expanding due to the widespread and on-going need for more bed space in the Upstream Project Area (e.g., MCJV Komo Camp). The changing scope of some camps is also difficult to monitor. The Spiecapag bush camp at the Kopi Scraper Station, for example, was designed for the needs of a small number of persons to conduct brush-clearing activities. There are now plans to considerably expand this camp to support the construction of the main camp.

There is also no obvious auditing procedure that accounts for both social and health related impacts nor are the spacing or other physical requirements for the various camp classes spelled out in a manner that can be audited. It is not clear which social requirements such as recreation facilities, prayer rooms, mental health assistance (Mitigations 24.003, 24.028, 24.032, respectively) apply to which class of camp.

Field observations on this topic were made in consideration of the management plans and health guidelines listed above and are as follows[11]:

- at Well Pad A camp, covered walkways are not planned to be installed to ablution facilities and bed spacing is not 1.2 m apart in some sleepers - *repeat observation*. Bed spacing requirements are covered in the Health Inspection Guidelines. The requirement for covered walkways to ablution facilities is referenced only in the Temporary Construction Camp Standard, which is an internal Project and contractor reference document, but this document is captured in Mitigation 24.025 of the Camp Management Plan in reference to applicable Project standards;

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10 *LNG Pioneer Camp, Nogoli Camp (OSL camp with EHL extension), Kobalu Camp (EHL), Well Pad A Camp (CCJV), Komo Pioneer Camp (MCJV), Moro B Camp (EHL), Gobe Camp (CCJV), two Kopi Camps (OSL with EPC-5A extension and Spiecapag), Kopi Scraper Station Bush Camp (Spiecapag).*

11 *A number of observations on gender were made in this section in the IESC's previous report (May 2010 site visit). All gender issues have been consolidated in Section 5.17 of this report.*

- across the Project, physical controls for mosquito intrusion prevention were not observed at any of the camps (e.g., screen doors, self-closing devices, mosquito bed nets). The Project's approach to implementing these measures, as included in Section 8.3, Environmental Vector Control, of the Health Inspection Guidelines, is not clear;
- at Gobe camp, the kitchen size appears extremely small for ~200 occupants, although no standard was found on this topic in project documents;
- a Camp Grievance Mechanism where workers could place grievances/complaints on camp-related issues is not in place (Mitigation 24.009 – "*Procedures for dealing with camp-related* complaints…", Camp Management Plan);
- on-site worker training/induction that covers rules and regulations in addition to cultural aspects (Mitigation 24.009, Camp Management Plan) is not in place at all camp sites. Currently there is no apparent difference between the visitors' induction and workers' site training/induction.

As part of the Camp Management Plan, the Project had established a 'closed camp' policy to be executed in all camps (see Mitigations 24.001, 24.002, 24.011, 24.023, 24.031). The policy was defined as follows: "*It is the Project's policy to have closed camps this means public will not be allowed to enter the camp (unless authorized by Company) and workers staying at the camp will be restricted to the camp area at the end of shifts. The closed camp 'policy' is applicable for all workers, including those who live in the nearby area (unless authorized by the Company)*[1] [footnote: *Company may provide exceptions to closed camp policy for some camps such as pioneer and fly camps where it will be difficult to implement a closed camp policy. Prior agreement from the Company is required for exception to the closed camp policy*]."

The Project has reconsidered the need to implement this policy throughout all camps and has conducted a risk assessment to establish the key risk scenarios associated with 'open camps'. These included the following: disputes between employees remaining in the camps and those returning to their villages; the spread of conflict/violence from villages to camps; events that might lead to village retaliation within camps; the smuggling of contraband into camps; various health risks; and, social impacts such as workers' salaries squandered on alcohol, drugs and prostitution.

Based on the above, EHL has established a 'mixed camp' policy (partially open) in the following locations: The EPC3 CJJV camp (LNG site), the EPC-5B MCVJ Pioneer camp (Komo Airfield), and several of the upstream infrastructure CCJV camps. Foreign labor (expatriates and OCNs) will adhere to a closed camp policy, whilst some PNG nationals residing nearby the premises will return to their villages. An EHL multi-disciplinary team consisting of representatives from social, health, safety, security, external affairs departments developed 43 new mitigation measures around risks associated with establishing 'open camps' for nationals.

The space per person guidelines and requirements were also revisited based on a review of existing guidelines and a health assessment as was mentioned in the IESC's last report (May 2010 site visit). The Project has approved two exceptions to the existing standard of 4.6 m^2 per person minimum space as found in the Health Inspection Guidelines and in the Temporary Construction Camp Standard: 3.75 m^2 per person in EPC3 (LNG site) and 2.65 m^2 per person for pioneer camps for upstream infrastructure.

The Temporary Construction Camp Standard defines 'temporary camps' as those "*with a useful life of approximately 3 years and only applies to facilities within the fence line of the camp. The standard does not apply to fly camps.*" As the IESC understands the situation, the 2.65 m^2 per person space requirement does not apply to temporary camps that meet this definition, but instead applies to pioneer camps, which have a shorter lifespan. Although the Project presented a well-studied rationale, these are still changes from the original standards. Of the guidelines reviewed, the least amount of space per person was at least 3.6 m^2 per person. The current space requirement for pioneer upstream infrastructure camps is therefore nearly 1 m^2 below these requirements.

The Class III (minor significance) classification of this change is incorrect. This is a change to a Project Standard, which would trigger a Class I classification subject to Lender review and approval. Furthermore, the MOC description of this item refers to pioneer camps only. There is no mention of temporary (again, the difference are not clear) nor to the change at the LNG site.

5.13.3 Recommendations

1) Establish a set number of camp class types and eliminate the use of differing language (e.g., bush, fly, pioneer, transit, short-term, temporary). Categorize all camps based on class type, and define which camps are stewardable.
2) Clarify the social/health requirements applicable to each camp class and develop monitoring procedures. As part of this effort, spell out which camps exactly will be subject to the 2.65 m^2 per person space requirement and which camps will be subject to the 'open camp' for nationals approach.
3) Carry out corrective action measures at Well Pad A camp where there are inconsistencies with Project standards, including covered walkways, bed spacing and physical controls for mosquito intrusion prevention.
4) Provide clarification on the acceptable size of dining halls for different classes of camps.
5) Establish a Camp Grievance Mechanism and on-site workers' training/induction in alignment with the Camp Management Plan.
6) Reclassify the MOC for the reduction in the minimum space requirements per person to a Level I and provide formal notification to Lenders and the option to assess this change.
7) Incorporate the 43 new mitigation measures associated with the 'open camp' for nationals into the next revision of the Camp Management Plan and/or other relevant management plans.
8) Ensure that SELCA/EPC field interfaces are adequately trained on 'inside the fence' employee relations (including camp requirements) in addition to 'outside the fence' community relations.

5.14 STAKEHOLDER ENGAGEMENT AND CONSULTATION

5.14.1 Project Strategy

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

- achieving the Project objectives while respecting the needs and issues of stakeholders as they relate to potential project impacts;
- developing and maintaining constructive relationship with stakeholders, striving for mutual understanding, respect and collaboration; 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.

5.14.2 Observations

As a result of the transition to a matrix organization, Stakeholder Engagement field teams will now be regionally based with line reporting to SELCA field managers. This should result in much closer and better

coordination with the L&CA teams and contractor community liaison teams. This addresses a key concern raised by the IESC during its last review. It should also contribute towards closing the consultation loop i.e. disseminating information, gathering issues and concerns from stakeholders and providing feedback to communities and stakeholders about how their issues and concerns have been or will be addressed. The latter element was conspicuously absent from the previous 'traveling road show' approach.

"*Our community gave lots of questions to the PNG LNG Stakeholder Engagement team, but we never received any answers. It was a waste of our time."* Key informant, Porebada Village.

The IESC endorses the need to establish project information centers in the vicinity of major activity areas – Hides, Komo and Port Moresby/the PNG LNG site. The Hides Committee consisting of clan leaders from the HGCP area specifically requested an EHL community affairs field presence near the HGCP to receive complaints. Their reasoning was as follows:

"We request an EHL presence near the HGCP. A site presence would be highly constructive towards rapid resolution of issues and avoidance of blockages. At present, if a serious issue arises, we have to travel down to the camp at Nogoli. Often camp security will not let us enter to meet with L&CA. Due to the time that elapses before we can raise an issue with EHL, a small complaint is escalated into a blockage and there is nothing we clan leaders can do about it. In many cases, if there were a presence on-site to hear a complaint, the issue would be resolved with an hour's discussion." Clan leader, Hides.

The IESC observed that at least one of the contractors (Spiecapag) was in the process of independently developing safety oriented posters and fliers, unaware that the Stakeholder Engagement team has already developed extensive materials for this purpose. It is recommended that the Stakeholder Engagement team make the contractors aware of the materials it has developed to avoid duplication of effort and in-consistent messaging.

5.14.3 Recommendations

1) Ensure EPC Contractors are familiar with the full range of EHL's safety oriented posters, fliers and information dissemination materials.

5.15 GRIEVANCE MANAGEMENT

5.15.1 Project Strategy

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

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

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

5.15.2 Observations

EHL had made solid progress in rolling out a Project-wide grievance management system. Key achievements since the last review included the following:

- more effective recording and tracking of grievances;
- engagement of Boreal-IS to operationalize a Project-wide, web-based grievance recording and tracking system;
- commencement of training to the L&CA team (as primary community interface) on grievance recording and response; and
- decision to use the Environmental Law Centre as a third party mediator in the event disputes cannot be resolved directly.

Thirty-seven training sessions on grievance recording and management reaching some 276 EHL staff had been completed at the time of the IESC review.

Figure 5.5 shows a breakdown of grievances by category for the period up until 5 October 2010. In total, 100 grievances had been received. The majority were related to compensation (40%), recruitment (13%),

business opportunities (13%) and land (11%). About 50% of grievances originated from the Komo area. During the next visit, the IESC will review the effectiveness of recording, tracking, corrective actions and close-out of grievances.

EHL has chosen to record two types of complaint or submission from the public: (i) 'issues' or general concerns expressed by a community member or other stakeholder that have not yet resulted in an incident or actual damage, but which might have the potential to do so; and, (ii) 'grievances' defined as incidents that have resulted in actual harm to an individual or community.

The IESC welcomes this innovation, but cautions that the effective management of grievances should not be obfuscated by overly elaborate definitions and distinctions. Experience from analogous projects has shown that EHL and its contractors could well have to manage upwards of 200-300 complaints per month during the peak construction period. The workload and resources needed to address this level of complaints is considerable. A 'keep it simple' philosophy is advised.

The IESC recommends that the Project-wide grievance management system should also record and track the grievances received by construction contractors. This will provide the Project management team with a more complete picture of the Project's overall social performance as well as of the relative performances of its contractors. This will require extending grievance training to contractors. It will also require some reinforcement to contractors' managements that receiving grievances does not attract any kind of blame but that, like a construction defects tracking system, the objective is to effectively address and close them out.

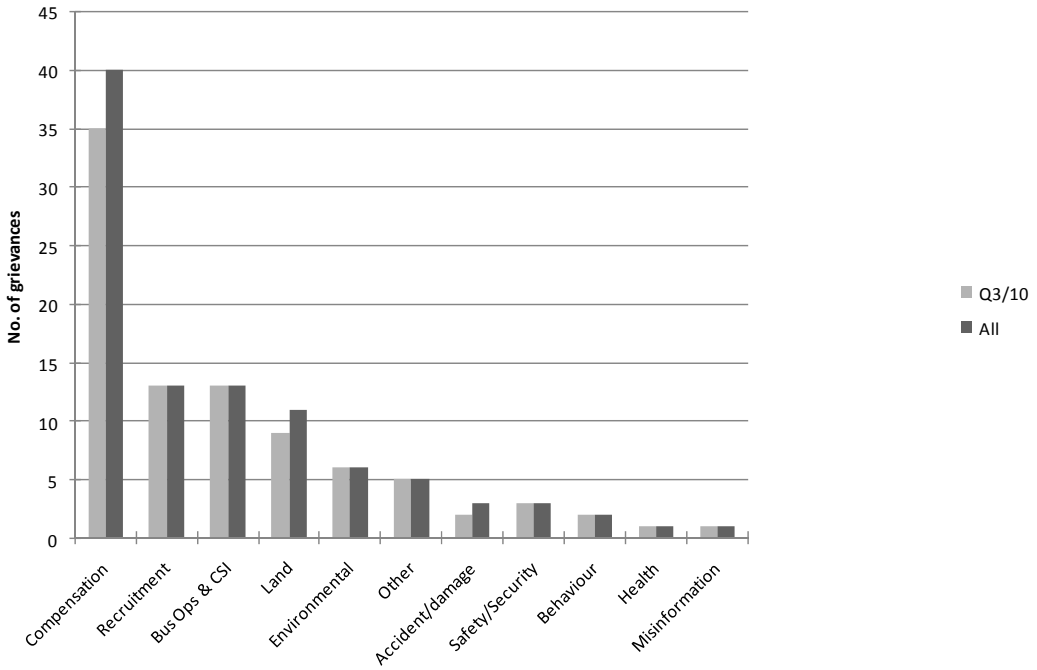

Figure 5.5: Breakdown of Grievances by Category, up until 5 October 2010

5.15.3 Recommendations

1) Trial the parallel recording of 'issues' and 'grievances' but be prepared to discard 'issues' management promptly if it detracts from timely and effective grievance redress.

2) Incorporate contractor grievance recording and tracking into the Boreal-IS system as early as practicable.

3) See also recommendation on establishment of a worker or employee grievance mechanism in Section 5.13.3.

5.16 GENDER

5.16.1 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,
- 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.

5.16.2 Observations

Several issues related to gender were raised in the IESC's last report (May 2010 site visit). During this site visit, we took a more structured approach to investigating this topic. Approximately 19 female employees (PNG nationals only) were interviewed at three different camps (Nogoli, Kopi, Moro B). Questions were focused on camp conditions, bed availability and security, and the interviews were conducted on an anonymous basis. The results dispelled some of the issues raised in the former IESC report and focused the spotlight on others. Since the last site visit, EHL has articulated their intentions to more formally address gender-related issues.

By far the biggest complaint amongst the women interviewed was related to bed availability in the Upstream Project Area, especially near Hides. Women repeatedly expressed concerns about their ability to effectively participate in the Project given the chronic lack of bed space. According to in-field resettlement teams, the difficulty for women in obtaining bed space has stymied resettlement activities, and in particular, livelihood restoration, where methods are being developed for sweet potato crops, which are cultivated by women. The Environmental Law Center (ELC) has also requested that one bed be made available for their use at all times. Currently ELC independent monitoring activities, which are in part carried out by women, have been frequently interrupted as the women cannot be guaranteed regular accommodation.

According to feedback obtained during this visit, women felt safe on camps, even late at night. They were satisfied with the basic security requirements (e.g., curtains on windows, peep holes, duress alarms), and they considered the men on camp to be their colleagues and friends. Whilst violence appears to have occurred at camps in past projects located within the Kikori River Basin (as reported in the last IESC report), the interviewed EHL employed women did not voice this concern. The basic rules however, such as men not allowed in women's quarters (and vice versa) and same sex sharing of bathrooms, were appreciated by almost all.

Well Pad A camp does not include any accommodations for women due to the reported difficulty of the contractor to implement EHL's additional security requirements for women's accommodations. The MCJV Komo camp provides a public restroom for males only. These discrepancies in camp accommodations are non-conformant with Mitigation 24.027 of the Camp Management Plan and with PS2. As mentioned in the IESC's last report, some security requirements appear excessive and have the potential to compromise women's participation on the project (e.g., separate metal fence surrounding women's facilities). We also believe that erecting such overt physical barriers around women's sleeper units might have the potential to send the wrong message to men as well as to women (i.e., men are dangerous and cannot be trusted). Since the IESC's last site visit, a large metal enclosure with lockable doors that had been fixed over the women's sleeper units at Moro B for security purposes (and was impeding both ventilation and sunlight passage) has been removed. All women interviewed at Moro B were happy with its removal.

The condition of the female accommodations with respect to male accommodations was not raised as a significant issue amongst the interviewees. This observation is in contrast to the IESC's previous understanding of the situation as raised in our last report. Laundry accommodations appear to be offered on equal terms to both men and women EHL employees, although the Project should remain cognizant of this issue as locally-hired men are reportedly not disposed to laundering female garments due to cultural reasons. Women should be granted equal opportunity to bed space at the newer EHL camps in the Hides area. The currently all-male accommodations at Well Pad A, where EHL overflow staff at Nogoli will likely be transferred, makes this more difficult. In the meantime, some women staying at the Nogoli camp

did request minor improvements to their common area, such as a kettle and microwaveable bowls. Small improvements at this site would likely be worth their return in terms of worker morale.

Women (including representatives of local women's groups) interviewed in the villages adjacent to the LNG plant explained that for most of them this was their first ever opportunity for paid employment. They made a plea that they not be overlooked in allocating jobs.. As an indication of women's commitment to obtaining work, to date, no female job applicant has tested positively for drugs and none has missed an appointment for a physical examination. Equivalent project pre-employment screening for men has resulted in 13% failing initial screening due to testing positive for drugs and 5% for failing to appear for a physical examination.

The IESC's previous remarks on increasing emphasis on the modification of men's behavior as a means to improve the safety and security conditions for women on project sites, and on the importance of establishing additional measures to recruit women into the Project, are still relevant.

With respect to all of the above issues, and given the complex cultural landscape in which the Project is located, the IESC will continue to monitor gender conditions in future visits.

5.16.3 Recommendations

1) Conduct a Project wide assessment on the availability of women's accommodations in the Upstream Project Area and ensure that women have equal access to newer EHL camps.
2) Conduct a full review of the necessity for extent of security provisions for women's quarters currently required by the Project based on a contemporary understanding of security risks within EHL camps.
3) Ensure that all EHL and contractor camps have accommodations for women and that public bathrooms are available for women as well as men.
4) A gender component should be included in training/inductions at all levels (e.g., as part of relevant environmental and social modules at Juni and PomTech training facilities; during worker and camp inductions; and, during toolbox talks, as needed). Among other aspects, the following points should be specified: (i) harassment based on gender in addition to race/ethnicity/religion is not tolerated; (ii) EHL Rules and Regulations with respect to non-discrimination based on gender apply to EHL worksites; (iii) men should be made aware of penalties for misconduct towards women; (iv) appropriate dress should be equally emphasized and enforced for all staff – women and men (e.g., special "baggie clothes" requirements for women is inappropriate); (v) women should be encouraged to report acts of misconduct.
5) Adopt specific measures to enhance the level of participation of women in the Project workforce as spelt out in the previous IESC report.

5.17 OTHER ISSUES

5.17.1 Observations

5.17.1.1 Recruitment of Village Functionaries and Key Social Service Providers

A number of village leaders interviewed by the IESC raised their concern about teachers, health professionals and village court officers being recruited by PNG LNG or its contractors. Project jobs, while potentially relatively short in duration, can pay wages at several multiples of a teacher's or paramedic's government salary. The Project needs to be mindful of the impact of its recruitment on such important local service providers. A dual approach is recommended to promote job retention in socially critical positions:

- so far as possible, the Project should adopt a policy of avoiding recruitment of teachers, medical staff and village court officers from local villages. It should also instruct its contractors to follow a similar policy; and,
- through its community investments in health, education and village courts, EHL might seek to provide training, materials and equipment, or improvement of housing directed at improving the morale and conditions of key village service providers.

5.17.1.2 Memorandum of Understanding with Delta Clans

EHL entered into a Memorandum of Understanding with eight tribal groups who hold customary interests in waterways of the Omati delta used by EHL for barging. The Memorandum of Understanding was signed on 10 September 2010. The agreement was reached with the following tribes: Porome, Urama, Paiaa, Kibiri, Rumu, Morigi, Kerewo and Omati. Selected provisions of the Memorandum of Understanding include the following:

- the tribal groups will establish a Waterways Committee in order to communicate effectively with EHL;
- an undertaking that the tribal groups shall try their best to facilitate safe and secure transportation by EHL through their area;
- an undertaking by EHL that it shall ensure that barge operations and other ancillary operations are conducted in accordance with best practices regarding health, safety and environmental protection; and,
- an undertaking that EHL will provide funding for community investment projects in the affected areas and the tribal groups will each appoint one representative to a committee which shall liaise with EHL for the purpose of agreeing upon projects which are to be funded by EHL for the benefit of the affected tribal groups.

The IESC considers that the Memorandum of Understanding is a satisfactory response to the concerns raised by the affected tribes upon the commencement of barging, and establishes a framework for the affected tribal groups to receive non-cash benefits for the impact on their customary interests.

5.17.2 Recommendations

1) So far as possible, EHL should adopt a policy of avoiding recruitment of teachers, medical staff and village court officers from local villages. It should also instruct its contractors to follow a similar policy.
2) Through its community investments in health, education and village courts, EHL might seek to provide training, materials and equipment, or improvement of housing director that improving the morale and conditions of key village service providers.
3) EHL to undertake an assessment of the potential social and environmental impacts on Kido (off-shore fishing grounds, on shore transportation) and determine the need for baseline studies. All measures as specified in the ESMP should be implemented.

6 HEALTH AND SAFETY

The PNG LNG Project has a well developed program to manage both occupational health and safety of workers, as well as a community health and safety program. The Health Group focuses on both worker and community health issues, whereas the Safety Group focuses primarily on occupational safety of workers. Community Safety is managed primarily through the SELCA organization 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.

6.1 COMMUNITY AND WORKER HEALTH

6.1.1 Project Strategy

Project health commitments are defined in the Community Health and Safety Management Plan (to be implemented via Contractor Implementation Plans) and the Company Community Health, Safety and Security Management Plan and the Community Impact Management Plan (to be implemented via Contractor Implementation Plans). Health planning specifically for worker health is defined in the Project Health Plan. The over-riding objective is to avoid or reduce risks to and impacts on community health during the project life cycle from both routine and non routine circumstances (see Section 5.7).

6.1.2 Observations

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

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

Prioritization and Implementation Plans for mitigations strategies started Q3 2009 and have continued. Procedures to identify and mitigate against malaria continue to be implemented. The multifaceted program has been conceived with several carefully selected national partners including the PNG Institute of Medical Research and the School of Medical Health Sciences (University of PNG) as well as NGOs (including PSI, BAHA, ADRA, SalvaBon Army, ECPNG, AT Projects, FHI and Susu mama) who are delivering sanitation, hygiene, and health education services to high risk rural populations. In particular, the relationship with the IMR led to the development of a PNG IMR integrated Demographic Health Social Surveillance System (iDHSS) and the establishment of a number of key locations for health services to communities in the Hides Area (Para and Komo/Malanda Clinics) and Juni Clinic (OSL supported), along the pipeline route (Kopi Clinic and Kikori Hospital - under construction), and at the LNG Plant area (Papa/Lae Lae, Porebada clinics) and along the Highlands Highway through a number of emergency response assessment capability facility at all key locations. The program is focused on 10 different areas of intervention that includes: Maternal and Child Health (MCH), sexually transmitted infections including HIV/AIDS, malaria and other vector-borne diseases, water sanitation, TB, education, gender issues, health systems strengthening, non-communicable diseases and workplace/community interface.

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. Local health issues include tuberculosis, which is a national

priority in PNG and has been treated by the Project through a comprehensive screening and awareness programs.

6.1.3 Recommendations

None arising from the October 2010 IESC review.

6.2 WORKER SAFETY

6.2.1 Project Strategy

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

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

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

6.2.2 Observations

Different organizations within EHL have responsibility for various aspects of worker safety. The Safety Group is directly responsible for occupational worker safety and maintains accident statistics that demonstrate good Project performance. Worker safety continues to be a primary focus of EHL and the EPC contractors. Safety statistics presented by EHL, in particular the occurrence of only one Lost Time Incident (LTI) described in the IESC report for the May 2010 site visit and a low Total Recordable Incident Rate (TRIR) of 0.83 demonstrate the overall concern for safety. A positive indication of the success of the overall safety program is that the TRIR has had a downward trend for the past 10 months.

Based on field observations, good use of personal protective equipment (PPE) was observed. The IESC also attended several early morning toolbox meeting where safety was observed to be a primary topic where lessons learned at work sites were reviewed with the workforce. 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. Safety is also managed through the application of security protocols and countermeasures to address the local environment.

6.2.3 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.

7 CULTURAL HERITAGE

7.1 PROJECT STRATEGY

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

The CHMP contains the following objectives:

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

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

7.2 OBSERVATIONS

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

Cultural heritage surveys are being conducted consistent with the CHMP. Internationally recognized procedures have been followed through the efforts of experts who are experienced with the cultural heritage of PNG. Affected communities who use, or have used within living memory, the cultural heritage for longstanding cultural purposes have been consulted to identify cultural heritage of importance.

Cultural heritage sites identified prior to construction have been effectively managed. For the archaeological sites that could not be avoided this has been with excavation (mainly at the LNG Plant site and HGCP area). LNG Plant excavations were concluded in March 2010 and excavated material is being analyzed at Monash University in Melbourne. Excavations at the HGCP site started in February 2010 and are to a large degree complete, but working constraints including available accommodations, social, security and landowner issues forced the demobilization of the archaeological salvage team and alternative strategies for completing the work are being evaluated. Sacred sites or other types of sites with modern cultural significance including burials have been for the most part identified and avoided where practical. For the modern sites that could not be avoided, heritage and social specialists have worked with impacted communities and the PNG Government to make sure that the mitigations are culturally appropriate and consistent with PNG legal requirements.

Ongoing archaeological activities at the time of the site visit related mainly to pre-construction surveys and the management of chance finds. In the case of the pre-construction surveys, archaeologists and cultural heritage specialists are involved with the environmental, social and topographic/engineering teams to characterize land in advance of construction. From April to October 2010 32 pre-construction surveys were undertaken with results reported. More than 200 sacred sites including burials were encountered on the basis of interviews and field observations. No archaeological sites were identified from any of these

surveys, a situation that suggests that archaeological surveys might not be effective where the land has not been previously cleared.

Chance finds are currently taking place at the Komo Airfield worksites and at many locations along the Komo Heavy Haul Road where 21 findings have been made. Most of the findings have been graves not identified during the pre-construction survey (in one case because graves were only two weeks old), but there have also been seven archaeological findings where stone tools were found. The documentation for the findings indicates that the Chance Finds Protocol was properly implemented.

7.3 RECOMMENDATIONS

1) Consider identifying places where local populations could view artifacts uncovered in their communities before their eventual curation at the National Museum, assuming this could be managed with their permission.

APPENDIX A

IESC 2ND MONITORING VISIT – TRIP SUMMARY AND DOCUMENTS PROVIDED

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TRIP SUMMARY

***October 5**:*

IESC Environmental Team - EHL Offices in Brisbane:

Presentations on:

- Construction update;
- Status of Milestone Schedule;
- Status of ESMP;
- Status of Preconstruction Survey Program, Hides Ridge Preconstruction Survey Methodology;
- Status of pipeline Row Preconstruction Surveys;
- Review of ESMP comments;
- Update on status of NC4 (waste management);
- Associated Facilities;
- Summary of non-conformance and Incidents;
- E&R Resources and Organization;
- MOC- Status and Review (including LERS Lender reporting process).

***October 6**:*

IESC Environmental Team – travel from Brisbane to Port Moresby and review of pre-read material.

***October 7**:*

IESC Environmental Team – Travel from Port Moresby to Lae and return and visit to Agility 11 Mile laydown area.

IESC Social & Biodiversity Specialists - EHL Offices in Port Moresby:

Presentations on:

- SELCA Roles & Responsibilities;
- Stakeholder Engagement;
- Resettlement;
- Project Induced in Migration Study results and Management phase;
- Contractor Management Progress;
- Camp management;
- L&CA – Grievance Procedure.

***October 8**:*

IESC Environment and Social team:

Presentation on:

- National Content Update;
- Security;
- Health;

- Information Management System;
- Hides Landfill discussion (reference NC8);
- CSDP and CSSAP;
- Status of Non conformance Actions and Responses.

LNG Plant Site orientation and site visit:

- Overview of ongoing activities;
- EPC 3 Scope of Work;
- Site inspection.

***October 9**:*

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

- Biodiversity presentations;
- Women's economic empowerment programs and human rights training program;
- Travel to Moro: inductions.

***October 10**:*

IESC Environmental & Social Team – Highlands:

- Visit to Juni Training Facility and site inspection;
- Visit to Kobalu Camp and operations.

***October 11**:*

IESC Environmental & Social Team – Highlands:

- Visit to CCJV Camp at Well Pad A;
- Visit to HGCD area and Q2 Quarry
- Social Team: resettlement, visit to resettled households and also households currently being negotiated.

***October 12**:*

IESC Environmental & Social Team – Transfer to Komo:

- Visit to MCJV Pioneer Camp at Komo: status of EPC5 construction activities, site visit;
- Social Team: resettlement, visit to resettled households and also households currently being negotiated;
- Visit to Komo Airstrip Construction Site and Q1 Quarry.

***October 13**:*

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

- Visit Oyarip Camp;
- Visit Bridges ME-16 (reinstatement), MR-01, MR-02;
- Visit Tilum, Stone Market, and Megi quarries.

***October 14**:*

IESC Environmental & Social Team – Transfer to Gobe:

- Site visit at CCJV Gobe Camp;

- Travel to the Mubi River/ferry;
- Visit Kinori River Bridge (North and South).

***October 15**:*

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

- Status of C1 constructions and site inspection (Shore Base/Quarry Pinnacles 1 & 17);
- Visit of Spiecapag Camp at Kopi;
- Social Team: Omati Memorandum of Understanding.

***October 16**:*

IESC Environmental & Social Team –.Kopi:

- EPC5: discussion at Kopi;
- Visit to Kopi Shore Base (EPC5);
- Visit to Kopi Spiecapag Scraper Station plus beginning RoW;
- Travel to Kantobu /Mubi River and site visit;
- Transfer to Moro.

***October 17**:*

IESC Environmental & Social Team – Moro:

- Visit to Ridge camp by-pass road;
- Visit to CPF by-pass road;
- Visit to Kutubu Central Processing facility;
- Visit to Samo Quarry.

***October 18**:*

IESC Environmental & Social Team – Moro to Port Moresby:

IESC Environmental & Social Team: pre-read material and Closeout preparation.

Presentations on:

- Fisheries:
- Highlands Highway:
- Lancos.

Social Team visit to the following villages located near the LNG site:

- Lea Lea:
- Porebada:
- Boera:
- Papa.

***October 19**:*

IESC Environmental & Social Team – Port Moresby: pre-read material and Closeout preparation

***October 20**:*

IESC Environmental & Social Team – Port Moresby:

- Close out Meeting;
- IESC Social expert travel home;
- IESC Environmental team transfer to Cairns.

***October 21**:*

IESC Environmental Team – Transfer from Cairns to Brisbane and back home.

DOCUMENTATION RECEIVED

On-site documents:

- *Upstream Onshore pipeline and infrastructure map with camp details* – Doc. No.PGHU-EH-YDMAP-000007;
- *C1 Upstream InfrastructureEPC4 Earthworks Status Overview* – .ppt presentation;
- *General Arrangement Blk Earthworks HGCP Site* – Doc.No. PGHU-EO-CDLAY-410500;
- *Cultural Heritage site clearance – Komo heavy haul road¸ Report Form* - ref. doc. dated 2010.04.08;
- *Cultural Heritage site clearance – Komo airport camp, Report Form* – ref.doc. dated 2010.05.10;
- *Cultural Heritage Site Clearance Komo Airport Northern Access Road, Report Form* – ref.doc. dated 2010.05.24;
- *Cultural Heritage Chance Finds Protocol* – ref. doc. dated 2010.06.01;
- *Cultural Heritage Site Clearance Komo Airport - Southern Lay-down Area* – ref. doc. dated 2010.06.02;
- *Cultural Heritage Chance Finds Protocol, Report Form* – ref. doc. dated 2010.07.10;
- *Cultural Heritage Chance Finds Protocol, Report Form* – ref. doc. dated 2010.07.14;
- *Chance Find Report Earthwork Monitoring Komo Airport Construction, Southern Highlands, PNG* – ref. doc. dated 2010.07.27;
- *Cultural Heritage Chance Finds Protocol, Report Form* – ref. doc. dated 2010.07.27;
- *Archaeological finds Komo International Airport Camp Site Early earthworks Monitoring* – ref. doc. dated 2010.08.14;
- *Archaeological finds Komo International Airport Camp Site Early earthworks Monitoring* – ref. doc. dated 2010.08.21;
- *Cultural Heritage Chance Finds Protocol, Report Form* – ref. doc. dated 2010.08.21;
- *Cultural Heritage Chance Finds Protocol, Report Form* – ref. doc. dated 2010.08.30;
- *Cultural Heritage Chance Finds Protocol, Report Form* – ref. doc. dated 2010.09.03;
- *Cultural Heritage Chance Finds Protocol, Report Form* – ref. doc. dated 2010.09.07;
- *Cultural Heritage Chance Finds Protocol, Report Form* – ref. doc. dated 2010.09.13;
- *Cultural Heritage Site clearance – Komo heavy haul road* – ref. doc. dated 2010.09.13;
- *Cultural Heritage Site clearance – Komo Airport southern fence* – ref. doc. dated 2010.09.16;
- *Cultural Heritage Chance Finds Protocol, Report Form* – ref. doc. dated 2010.09.16;
- *Chance Find Report Earthwork Monitoring Komo Airport Construction, Southern Highlands, PNG* – ref. doc. dated 2010.09.19;
- *Cultural Heritage Chance Finds Protocol, Report Form* – ref. doc. dated 2010.09.19.

PRE CONSTRUCTION SURVEYS REPORTS:

- *Coffey Environments Australia Pty Ltd, Transmittal note No.T137* – ref. doc. dated 2010.04.16;
- *Coffey Environments Australia Pty Ltd, Transmittal note No.T138* – ref. doc. dated 2010.04.16;
- *Coffey Environments Document Number: CR 1284 "Pre Construction Survey results and mitigation Measures" rev. 0* – ref. doc. No. PGHU-EN-SRZZZ-510001;
- *Coffey Environments Document Number: CR 1284 "Pre Construction Survey results and mitigation Measures" rev. B* – ref. doc. No. PGHU-EN-SRZZZ-510001;
- *Coffey Environments Australia Pty Ltd, Transmittal note No.T1066* – ref. doc. dated 2009.11.26;

- *Coffey Environments Document Number: CR 1284 "CCJV Bridges TA06 & TA07, Pre Construction Survey Results and mitigation Measures"rev.0*– ref. doc. No. PGLN-EN-SRZZZ-950066;
- *Coffey Environments Document Number: CR 1284 "CCJV Bridges TA06 & TA07, Pre Construction Survey Results and mitigation Measures" rev. C*– ref. doc. No. PGLN-EN-SRZZZ-950066;
- *Coffey Environments Document Number: CR 1284 "CCJV Bridges TA06 & TA07, Pre Construction Survey Results and mitigation Measures" rev. B*– ref. doc. No. PGLN-EN-SRZZZ-950066;
- *Coffey Environments Australia Pty Ltd, Transmittal note No.T155* – ref. doc. dated 2010.11.03;
- *Coffey Environments Document Number: CR 1284 "CCJV Bridge TA08, Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGHU-EN-SRZZZ-420039;
- *Coffey Environments Australia Pty Ltd, Transmittal note No.T158* – ref. doc. dated 2010.11.03;
- *Coffey Environments Document Number: CR 1284 "Mubi River Bridge, Ferry and Laydown, Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGHU-EN-SRZZZ-490013 & PGHU-EN-SRZZZ-490014;
- *Letter from Department of Environments and Conservation (Papua New Guinea) dated 2010.06.28*;
- *Coffey Environments Australia Pty Ltd, Transmittal note No.T161* – ref. doc. dated 2010.11.03;
- *Coffey Environments Document Number: CR 1284 "Bridge MR02, Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGHU-EN-SRZZZ-420012;
- *Coffey Environments Australia Pty Ltd, Transmittal note No.T64* – ref. doc. dated 2010.11.03;
- *Coffey Environments Document Number: CR 1284 "LNG Facilities Offshore Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGLN-EN-SRZZZ-900011;
- *Coffey Environments Document Number: CR 1284 "LNG Facilities Onshore Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGLN-EN-SRZZZ-900012;
- *Location of bridge MR03 Extent of Ecology /Weeds & Cultural Heritage Surveys & Key Findings - Map*;
- *Coffey Environments Document Number: CR 1284 "Bridge MR03, Pre-Construction Survey Results and Mitigation Measures" rev.1* – ref. doc. No. PGHU-EN-SRZZZ-530003;
- *Coffey Environments Document Number: CR 1284 "Bridge MR03, Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGHU-EN-SRZZZ-530003;
- *Coffey Environments Document Number: CR 1284 "Bridge TA02, Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGHU-EN-SRZZZ-810002;
- *Coffey Environments Document Number: CR 1284 "HGCP to Hides Quarries Road, Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGHU-EN-SRZZZ-420040;
- *Coffey Environments Document Number: CR 1284 "Bridge TA01 Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGHU-EN-SRZZZ-810001;
- *Coffey Environments Document Number: CR 1426 "Kopi Scraper Station Site Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGHU-SC-SRZZZ-000001;
- *Coffey Environments Document Number: CR 1426 "Kopi Shore Base to Kopi Scraper Station Road Pre-Construction Survey Results and Mitigation Measures" rev.0 and rev. 2* – ref. doc. No. PGHU-SC-SRZZZ-000003;

- *Coffey Environments Document Number: CR 1284 "Bridge TA03 Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGHU-EN-SRZZZ-810003;
- *Coffey Environments Document Number: CR 1284 "Bridge TA04 Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGHU-EN-SRZZZ-810004;
- *Coffey Environments Document Number: CR 1284 "Kwill Creek Bridge and Laydown Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGHU-EN-SRZZZ-560039;
- *Coffey Environments Document Number: CR 1284 "Bridge MR05, Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGHU-EN-SRZZZ-530012;
- *Coffey Environments Document Number: CR 1426 "Pre construction Survey Report for Upstream Pipeline RoW: Kaiam Transit Camp – KP 226" rev.0* – ref. doc. No. PGHU-SC-SRZZZ-000002;
- *Coffey Environments Document Number: CR 1284 "Kantobo to Mubi River Road (0-3 km), Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGHU-EN-SRZZZ-560040;
- *Coffey Environments Document Number: CR 1284 "Bridge TA05 Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGHU-EN-SRZZZ-810005;
- *Coffey Environments Document Number: CR 1284 "Hides Quarries HQ1 and HQ3, and HQ£ Access Road, Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGHU-EN-SRZZZ-420041;
- *Coffey Environments Document Number: CR 1426 "Pre construction Survey Report for Upstream Pipeline RoW: KP 260 to KP 278" rev.0* – ref. doc. No. PGHU-EN-SRZZZ-000004;
- *Coffey Environments Document Number: CR 1284 "Bridge TA09 Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGHU-EN-SRZZZ-810008;
- *Coffey Environments Document Number: CR 1284 "Kantobo to Mubi River road (8 to 11 Km), Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGHU-EN-SRZZZ-560041;
- *Coffey Environments Document Number: CR 1284 "Bridge TA11 Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGHU-EN-SRZZZ-810009;
- *Coffey Environments Document Number: CR 1284 "C-2 Upgrade Road Quarry, Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGLN-EN-SRZZZ-990001;
- *Coffey Environments Document Number: CR 1284 "Bridge TA10 Pre-Construction Survey Results and Mitigation Measures" rev.0 and rev. B* – ref. doc. No. PGHU-EN-SRZZZ-810011;
- *Location of Bridge TA10, extent of ecology/weeds and cultural heritage surveys and key findings: map*;
- *Coffey Environments Document Number: CR 1284 "Bridge HP03 Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGHU-EN-SRZZZ-810014;
- *Coffey Environments Document Number: CR 1284 "HGCP to Hides Quarries Road Spoil Site, Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGHU-EN-SRZZZ-420042;
- *Coffey Environments Document Number: CR 1284 "Bridge KB02, Pre-Construction Survey*;
- *Results and Mitigation Measures" rev.0* – ref. doc. No. PGHU-EN-SRZZZ-810015;
- *Coffey Environments Document Number: CR 1284 "Kantobo to Mubi River road (3 to 8 Km), Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGHU-EN-SRZZZ-560042;
- *Coffey Environments Document Number: CR 1284 "CCJV Kopi Quarries, Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGLN-EN-SRZZZ-950053;

- *Coffey Environments Document Number: CR 1284 "CCJV Kopi Shore Base, Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGLN-EN-SRZZZ-950054;
- *Coffey Environments Document Number: CR 1284 "CCJV Kobalu Camp, Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGLN-EN-SRZZZ-950057;
- *Coffey Environments Document Number: CR 1284 "CCJV Juni Training Facility, Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGLN-EN-SRZZZ-950058;
- *Coffey Environments Document Number: CR 1284 "CCJV Moro Parker Camp, Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGLN-EN-SRZZZ-950059;
- *Coffey Environments Document Number: CR 1284 "CCJV Gobe Construction Camp, Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGLN-EN-SRZZZ-950060;
- *Coffey Environments Document Number: CR 1284 "CCJV Mendi Construction Camp, Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGLN-EN-SRZZZ-950061;
- *Coffey Environments Document Number: CR 1284 "CCJV Bridge MR04, Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGLN-EN-SRZZZ-950063;
- *Coffey Environments Document Number: CR 1284 "CCJV Bridge MR01, Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGLN-EN-SRZZZ-950064;
- *Coffey Environments Document Number: CR 1284 "LNG Facilities, Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGLN-EN-SRZZZ-950065;
- *Coffey Environments Document Number: CR 1284 "LNG Facilities-Weeds, Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGLN-EN-SRZZZ-950066;
- *Coffey Environments Document Number: CR 1284 "CCJV Bridge ME16, Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGLN-EN-SRZZZ-950067;
- *Coffey Environments Document Number: CR 1284 "LNG Facilities-Weeds, Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGLN-EN-SRZZZ-950074;
- *Coffey Environments Document Number: CR 1284 "CCJV Gobe to Mubi River Road, Pre-Construction Survey Results and Mitigation Measures" rev.0 and rev. 1* – ref. doc. No. PGLN-EN-SRZZZ-950076;
- *Coffey Environments Document Number: CR 1284 "CCJV Hides Wellpad A Camp, Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGLN-EN-SRZZZ-950077;
- *Coffey Environments Document Number: CR 1284 "CCJV Kutubo CPF Bypass road, Pre-Construction Survey Results and Mitigation Measures" rev.1* – ref. doc. No. PGLN-EN-SRZZZ-950078;
- *Coffey Environments Document Number: CR 1284 "CCJV Ridge Camp Bypass Road, Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGLN-EN-SRZZZ-950079;
- *Coffey Environments Document Number: CR 1284 "CCJV IDT10 Camp, Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGHU-EN-SRZZZ-510001;
- *Coffey Environments Document Number: CR 1284 "CCJV Kantobo, Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGHU-EN-SRZZZ-490001;
- *Coffey Environments Document Number: CR 1284 "CCJV Kinori River Bridge & Road Deviation – South of the river, Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGHU-EN-SRZZZ-490002;
- *Coffey Environments Document Number: CR 1284 "CCJV Kinori River Quarry QA32, Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGHU-EN-SRZZZ-490003;

- *Coffey Environments Document Number: CR 1284 "CCJV Kinori River Quarry QA33, Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGHU-EN-SRZZZ-490004;
- *Coffey Environments Document Number: CR 1284 "EHL HGCP to Komo Airport Heavy Haul Road, Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGHU-EN-SRZZZ-490006;
- *Coffey Environments Document Number: CR 1284 "CCJV Bridge ME14, Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGHU-EN-SRZZZ-490007;
- *Coffey Environments Document Number: CR 1284 "CCJV Kinori River Bridge & Road deviation – North of Kinori River, Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGHU-EN-SRZZZ-490008;
- *Coffey Environments Document Number: CR 1284 "CCJV Bridge ME15, Pre-Construction Survey Results and Mitigation Measures" rev.1* – ref. doc. No. PGHU-EN-SRZZZ-490009;
- *Location of Bridge ME14, map*;
- *Kinory River Bridge – North of Kinori River – Archaeology & Cultural Landscape Survey* - doc. Dated February 2010;
- *Gobe to Mubi River Road Location, Weed Survey Extent and Water Quality sampling Site, map*;
- *Komo Preconstruction Survey and related attachments*;
- *Coffey Environments Document "Komo Airport and Access roads, Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGHU-EN-SRZZZ-420001;
- *Coffey Environments Document Number: CR 1284 "Komo Airport and Access roads, Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGHU-EN-SRZZZ-420001;
- *Coffey Environments Document Number: CR 1284 "hides Gas conditioning Plant Site, Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGHU-EN-SRZZZ-420002;
- *Coffey Environments Document Number: CR 1284 "EPC1 Upstream Telecommunications Sites, Pre-Construction Survey Results and Mitigation Measures" rev.0* – ref. doc. No. PGHU-EN-SRZZZ-000040.

PRESENTATIONS:

- *Associated Facilities Flowchart*;
- *PNG LNG Project update October 2010* – .ppt presentation;
- *EPC5A Onshore Pipeline Preconstruction Survey Progress and Status* – .ppt presentation dated 2010.10.05;
- *E&S Milestone Status* – .xls file dated 2010.10.01;
- *Associated Facilities Review* – .ppt presentation dated 2010.10.05;
- *IESC Comments to rev 1 ESMP*-.xls file dated 2010.10.01;
- *May IESC Monitoring Review Tracking* – .xls file dated 2010.10.16;
- *May IESC Monitoring Review Tracking* – .xls file dated 2010.09.03;
- *Non conformance & incident Summary* – .ppt presentation dated 2010.10.05;
- *Hides Ridge Survey Methodology* -.ppt presentation dated 2010.10.05;
- *Pre construction Survey & Reporting Status* - .ppt presentation dated 2010.10.05;
- *Project Environmental Incident Register 209*-2010 – .xls file;
- *PNG LNG Management of Change Process* - .ppt presentation dated 2010.10.05;
- *Environmental & Social management Plan status* - .ppt presentation dated 2010.10.05;
- *PNG LNG Worksite Classification Register*;
- *IESC Visit: project Induced in Migration Updated*- .ppt presentation dated 2010.10.07;
- *Q3 L&CA Activities* – .ppt presentation dated 2010.10.07;
- *Community Support* - .ppt presentation dated 2010.10.08;

- *Implementation of project Social Management Plans* – .ppt presentation dated 2010.10.07;
- *The community Support Strategy Action plan* – .ppt presentation dated 2010.10.07;
- *Community Health Management Program execution Update* – .ppt presentation dated October 2010;
- *EPC3 – LNG plant site* – .ppt presentation dated 2010.10.08;
- *National content Overview* – .ppt presentation dated October 2010
- *Para School* – .ppt presentation dated 2010.10.07;
- *SELCA and E&R Information Management System (IMS)* – .ppt presentation dated October 2010;
- *Stakeholders Engagement: Overview and Update* – .ppt presentation dated 2010.10.07;
- *Q3 Lenders – Security Report –*. ppt presentation dated October 2010;
- *SELCA Welcome & introduction* – .ppt presentation dated October 2010;
- *Lenders' Group Brief* – .ppt presentation dated 2010.10.07;
- *Project overview EPC5B, Komo Airfield* – .ppt presentation dated October 2010;
- *Hides induction* – .ppt presentation dated October 2010;
- *Project overview EPC5B, Komo airfield* – .ppt presentation dated October 2010.
- *Lanco Acceleration – Status and Plans- ppt presentation dated October 2010*

SOCIAL DOCUMENTS;

- *Compensation at full Replacement Value, Comparison of Compensation Approaches*;
- *Environmental and Social Management Plan Appendix 33: Social Monitoring Plan* – ref. doc. PGGP-EH-SPENV-000018-033;
- *Community Development Support Plan* – ref. doc.PGGP-EH-SPSEL-000001;
- *Community Support Strategy Action Plan* – ref.doc. PGGP-EH-SPSEL-000002.

WASTE MANAGEMENT:

- *Monthly waste inventory Kopi Logistic Camp September* – .xls files;
- *Monthly waste inventory Kopi Scraper Station September* – .xls files;
- *Construction Waste management Review, Status Summary* –.ppt presentation dated 2010.10.05;
- *Hides Waste management Area (WMA) Site Selection Report* – .ppt presentation dated 2010.10.08;
- *IESC Tracking Spreadsheet* – .xls file;
- *Construction Waste Incinerators – Criteria & Monitoring* – .ppt presentation dated 2010.10.05;
- *MCJV Waste record Gobe, Hides, Kantobo, Kopi, Mendi,* .xls files;
- *Environmental and Social Management Plan Appendix 2: Air Emissions Management Plan* – ref. doc. PGGP-EH-SPENV-000018-004;
- *Letter from Department of Environment and Conservation (Papua New Guinea) dated 2010.09.22*;

OTHER:

- *PNG-LNG EPC5A Project – Environmental Management Plan* – ref.doc. PGHU-SC-SPENV-000006;
- *Onshore pipeline PNG LNG EPC5A project Waste Management Plan* – ref.doc. PGHU-SC-SPZZZ-000152;

- *Onshore pipeline PNG LNG EPC5A project Raw Materials Management Plan* – ref.doc. PGHU-SC-SPZZZ-000169;
- *Onshore pipeline PNG LNG EPC5A project Environmental Plan to Commence Works*– ref.doc. PGHU-SC-SPZZZ-000172;
- *PNG LNG project – Induced Access Register* – .xls file;
- *Journey and Traffic Management procedure* – ref. doc. No. PGHU-EN-SPZZZ-000002;
- *Environmental and Social Management Plan Appendix 28: Environmental Monitoring Plan* – ref. doc. No. PGGP-EH-SPENV-000018-032;
- *Environmental and Social Management Plan Appendix 31: Quarantine Management Program*– ref. doc. No. PGGP-EH-SPENV-000018-035;
- *Environmental Standards* – ref.doc. no.PGGP-EH-SSZZZ-000002;
- *PNG LNG Project organization chart.*

Post-mission documents:

- *Fisheries & MOU Updates IESC Visit*, ppt presentation dated 2010.10.18;
- *EPC2 – E&S Implications of Omati Shallow Water Installation Strategy*, ppt presentation confidential;
- *Omati Landfall and Barge Route*, map;
- *Environmental and Social Responsibility Information Management System* - ref. doc. Borealis Information Strategies dated April 2010;
- *Memorandum of Understanding* – doc. dated 2010.09.10;
- *Environmental and Social Management Plan Appendix 6: Spill Prevention and Response Plan – ref.* doc. No. PGGP-EH-SPENV-000018-004;
- *Environmental and Social Management Plan Appendix 2: Air Emissions Management Plan – ref.* doc. No. PGGP-EH-SPENV-000018-008;
- *Workforce data for Q3* – .xls file.
- *Komo Access Road RAP* PGGP-EH-SPENV--000018-030 October 2010
- *Heavy Haul Road RAP*, PGGP-EH-SPENV--000018-030 October 2010