DRAFT REPORT OF THE:

INDEPENDENT ENVIRONMENTAL & SOCIAL CONSULTANT

ENVIRONMENTAL & SOCIAL COMPLIANCE MONITORING

PAPUA NEW GUINEA LNG PROJECT

Site Visit: November 2011

Prepared for

Export-Import Bank of the United States

Export Finance and Insurance Corporation

Japan Bank for International Cooperation

Società Italiana di Assicurazione dei Crediti all'Esportazione

Export-Import Bank of China

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D'APPOLONIA

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ACRONYMS

BOD	Biological Oxygen Demand
Borealis	The Project's Information Management Platform
BSA	Benefits Sharing Agreement
CBI	Chicago Bridge and Iron
CBIC	Chicago Bridge and Iron & Clough JV (EPC4)
CCI	Contractor Compliance and Interface team
CCJV	Clough Curtain Brothers JV (C1)
CEA	Cumulative Effects Analysis
CHMP	Cultural Heritage Management Plan
CI	Conservation International
CIC	Contractor Interface and Compliance
CIP	Contractor Implementation Plan
CJJV	Chiyoda JGC JV (EPC3)
CLS	Core Labor Standards or "Enabling Rights"
COD	Chemical Oxygen Demand
CPF	Central Processing Facility (Kutubu – OSL)
CRP	Communal Resource Plan
CSS	Community Support Strategy
CSSAP	Community Support Strategy Action Plan
CTA	Common Terms Agreement
CTF	Construction Training Facility
DEC	Department of Environment and Conservation
DLIR	Department of Labor and Industrial Relations
DLPP	Department of Land and Physical Planning
DPE	Department of Petroleum and Energy
EBRD	European Bank for Reconstruction and Development
EHL	Esso Highlands Limited
EIS	Environmental Impact Statement
ELC	Environmental Law Centre
EMDC	ExxonMobil Development Company
EMP	Environmental Management Plan
EMPC	ExxonMobil Production Company
EPC	Engineering – Procurement - Construction
ESIA	Environmental and Social Impact Assessment
ESMP	Environment and Social Management Plan
ESMS	Environmental and Social Management System
FOC	Fiber Optic Cable
GFE	Gobe Field Engineering
HGCP	Hides Gas Conditioning Plant
HH	Highlands Highway
HWMA	Hides Waste Management Area
IBBM	Institute of Banking and Business Management
IESC	Independent Environmental and Social Consultant
IFC	International Finance Corporation
iHDSS	Integrated Health and Demographic Surveillance System
ILG	Incorporated Land Groups
ILO	International Labor Organization
ILO 1998 Declaration	ILO Declaration on Fundamental Principles and Rights at Work (1998)
ILS	International Labor Standards
IMR	Papua New Guinea Institute of Medical Research

IR	Industrial Relations
IWSF	Interim Waste Storage Facility
KP	Kilometer Point
KPI	Key Performance Indicator
LBBSA	License-Based Benefit Sharing Agreement
LBSA	License Area Benefits Sharing Agreement
L&CA	Land and Community Affairs
MCH	Maternal and Child Health
MCJV	McConnell Dowell CC Group JV (EPC5B)
MOC	Management of Change
MOF	Marine Offloading Facility
MOH	Medical &Occupational Health
MoU	Memorandum of Understanding
MSDS	Material Safety Data Sheet
MTPA	Million Tons per Annum
MWMA	Mobile Waste Management Areas
NAQIA	National Agriculture Quarantine and Inspection Authority
NCD	National Capital District
NCDC	National Capital District Commission
NGO	Non-Governmental Organization
NLB	Northern Logistics Base
OCN	Other Country National
OSL	Oil Search Limited
Para.	Paragraph
PCS	Pre-Construction Survey
PMA	Program Monitoring Activity
PNG LNG	Papua New Guinea Liquefied Natural Gas Project
PNG TUC	Papua New Guinea Trade Union Congress
POEA	Philippines Overseas Employment Agency
PoO	Point of Origin
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
TSS	Total Suspended Solids
UBSA	Umbrella Benefits Sharing Agreement
UNEP-WCMC	United Nations Environmental Program – World Conservation Monitoring Centre
VG	Valuer General
WAA	Waste Accumulation Area
WMA	Wildlife Management Area
WWF	World Wildlife Fund
WWTP	Wastewater Treatment Plant

EXECUTIVE SUMMARY AND CONCLUSIONS

This report represents the fifth 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 from November 2 – 18, 2011 in PNG.

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

EHL has begun the process of commercializing the undeveloped petroleum resources in the Hides, Angore and Juha fields and the associated gas resources in the currently operating oil fields of Kutubu, Agogo, Gobe and Moran in the Southern Highlands and Western provinces of PNG. The gas will be conditioned for transportation by pipeline to an LNG facility twenty kilometers northwest of Port Moresby on the coast of the Gulf of Papua. There, the gas will be liquefied and the resulting LNG product (approximately 6.6 million tons per annum) loaded onto ocean going tankers and shipped to gas markets overseas. At the time of this visit, the main EPC contractors were all working in the field. EPC2 contractor Saipem responsible for the offshore pipeline has completed preparation of the Caution Bay Landfall with trenching and shore pull of the pipeline, and dredging has started in the Omati Delta. The main offshore pipelay is on schedule for starting in Q1 2012. The drilling contractor Nabors is also starting to mobilize in the field and the first rig was about to be transported to the Hides area at the time of the field visit.

One anomaly noted in the development of the Project is that the pipeline route has not been finalized in the Hides area and projected rerouting falls outside of the 1 km corridor defined to enable EHL to progress preliminary land access agreements. This brings up unexpected requirements for new pre-construction surveys, additional community interactions, MOC development, etc.

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

Organization and Staffing

The Environmental and Social (E&S) organizations within EHL are fully established and have continued to expand since the last IESC visit in July-August. The environmental side of the E&S organization is fully functional with occasional gaps associated with only normal turnover, position changes, or with logistical problems and has the appropriate organization to function as planned. The social component (L&CA) of the ESMS organization continues to be experiencing a high turnover of managers, technical specialists and general staff, but a new permanent manager has been recruited and many of the position gaps identified from the July-August field trip have been filled. At the time of the July-August field visit the IESC identified a concern that the absence of stable management and of a fully resourced L&CA team represented an area of risk for the effective operation of the ESMS. This concern has not been entirely alleviated, but the situation has improved over the past four months. In addition, at this stage both the environmental and social organizations need to continue their efforts to increase national content.

During the November field visit the area of labor and industrial relations was followed up based on the initial observations made during the July – August field visit. As described in more detail in the chapter on Labor and Working Conditions, EHL has taken some promising steps in working towards a more

centralized and informed strategy for dealing with the multitude of labor and industrial relations issues. HRM staff responsible for the Operational phase is increasingly assuming responsibility for HRM issues during the construction phase and the team responsible for contractor interface and compliance (CIC) is in the process of developing and rolling out an IR tool across the Project. The composition of the CIC team underwent some changes as well. New EHL staff now covers EPC4, so all main EPC Contractors including Drilling are now being actively monitored by EHL staff. However, the CIC team manager left the Project right after the IESC November field visit, leaving the team with a considerable setback in available expertise. CIC team members and also Business Development team members would highly benefit from upgrading their knowledge and skill set in this area.

A consistent and overall coverage of Project labor and industrial relations issues still seems to be lacking. The Project's main Contractors are all monitored individually and Project response to events such as labor unrest, strikes, work stoppages, etc. varies widely and still depends too much on attitude and the best professional judgment of individuals. Due to very explicit cultural characteristics and a first-time exposure of the workforce to paid employment, workplace relations need a lot of attention and are difficult to manage. Various failures in management of workplace relations have already culminated in security incidents, a situation that is only expected to become more volatile as PNG elections are approaching. So, after having monitored labor issues in greater detail during its last two field visits, IESC strongly recommends for the Project to assign a mobile troubleshooter specialized in this area, who can act above all parties. This person would visit all Project sites on an ongoing basis, monitor labor and IR issues across the Project - also in between IESC missions - and mobilize swift and effective Project responses.

Environmental and Social Management System

EHL's environmental and social management system (ESMS) is fully in place. The ESMP is now developed and the August 24, 2011 public posting of the Community Support Strategy Action Plan and the Community Development Support Plan completes the disclosure requirements from the LESR. Contractor ESMP documents are all fully in place with the exception of the drilling, where their ESMP is currently at the Revision C level and Revision 0 is expected to be finalized during Q1 2012. An MOC process is developed and working. The MOC for the installation of fiber optic cable (FOC) in the offshore area parallel to the offshore pipeline has been approved by the IESC since the last field visit. EHL has been late in developing and implementing a policy for the stewardship of associated facilities and activities, but a procedure is now in place and implementation has started. The requirements of the Milestones Schedule are now complete, except for biodiversity MS 15 and MS 16 where delay is in agreement with IESC recommendations. The procedures for incident reporting, especially social incidents, have taken some time to develop, but a process for identifying and reporting social incidents is now in place and the IESC considers that the overall reporting process to be acceptable. EHL has a functioning 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. EHL has developed an organization capable of implementing the ESMS and future audits will not need to focus on whether or not specific components still need to be developed, but on how EHL implements their current system.

Environmental Management – Waste and Wastewater

The strategies and infrastructure for implementing solid waste management solutions for the construction phase of the Project are essentially developed in line with ESMP commitments. Reliance on third parties facilities has been discontinued except under emergency situations. The only example of use of off-site facilities was Spiecapag's use of the OSL incinerator at Gobe until their Gobe Camp is fully functional. The landfill at the PNG LNG plant was constructed and awaiting the placement of waste. The facility at Hides was nearly constructed, pending installation of only the third pond in the leachate pond system, the leachate pump and the power generation to drive the pump. However, operation of the LNG plant facility was under tendering at the time of the visit and the ITT (Invitation to Tender) package was being prepared for the Hides facility. The individual EPC Contractors continue to effectively track their waste generation and disposal quantities. Progress observed since the last IESC field visit is that incinerators are more uniformly managed in a manner to be able to demonstrate conformance with manufacturers' specifications and additional recycling opportunities have been identified.

Wastewater treatment plants are now in place throughout the Project and municipal facilities are not used, but during this field visit some significant problems were observed with respect to the quality of effluent discharged. Although field test kits are generally used across the Project to expeditiously identify effluent problems and develop control solutions, and also allow for field personnel to overcome sample

dispatch/travel times that often results in exceedance of sample holding/testing times, the only EPC Contractor consistently within Project standards is EPC3. In the upstream area, monitoring has identified a nearly uniform problem with wastewater treatment plant management. A social issue identified during this field visit is that surface water used as drinking water by local communities is often contaminated by fecal coliform bacteria. Contaminated surface water was known to be an issue as part of original environmental baseline studies, but influx of people may be causing this problem to worsen. Accordingly, it is especially important not to contribute to this situation by improper wastewater management. It is recommended that EHL identify sources of surface water contamination, as well as sources of clean water that could be used by communities.

A concern with respect to the possible contamination of surface water was presented by representatives of the drilling team, who noted that drilling through the cavernous limestone has in some cases caused discharge of foam and drill cuttings to the ground surface through caves based on OSL drilling experience. For this reason, as part of the program design, the drilling team undertook a comprehensive review of drilling fluids to ensure fluids selected for the program not only could meet the technical challenges of the formations, but were also benign from an environmental and heath perspective. Nevertheless EHL is developing contingency plans and this is a situation the IESC will want to follow to understand what the response procedures will be, should such situations develop during drilling.

Ecological Management and Biodiversity

A major milestone for EHL's biodiversity management and stakeholder engagement was a well-attended workshop held to discuss EHL's approach to biodiversity strategy, conservation principles and priorities, offsets & the delivery of offset activities, and compensation transaction and funding mechanisms. Version 3 of the Biodiversity Strategy is still under development, as CI assist EHL in the development of a technical rationale for their biodiversity offset delivery. The Offset Delivery Plan is currently being drafted, with a first version expected by the end of 2011, and completion anticipated by end 1Q 2012. The Strategy update will also include a revised suite of performance indicators, and should be available 1Q 2012. EHL continues to work with their external consultants on the development and refinement of the Programmed Monitoring Activities, with progress being made primarily on PMA-1 (testing the identification of on-the-ground indirect impacts via remote sensing) and PMA-3(monitoring of forest regeneration by using unaltered plots as benchmarks). The latter may be expanded to include additional fauna rapid assessment surveys. A project-wide monitoring plan is under development, first draft expected end of 2011. The Protocol for the Biodiversity Working Group is still under development.

Pre-construction surveys are progressing in waves along both the lowland RoW (along 289km from the Omati landfall) and along the Hides Spineline (up to Wellpad-C). PCS's are identifying any significant ecological or cultural finds prior to ground-breaking or tree-felling; and, with sufficient time to allow micro re-routing of the RoW to avoid features such as focal habitats e.g. bat caves and sinkhole swamps, as per the Ecological Management Plan requirements. The fact that PCS's are being undertaken in a phased approach, and mitigation measures developed accordingly, has not yet caused any delays to the Project.

One of the biggest concerns for potential environmental impact relates to sidecasting, especially in the sensitive area of Hides Ridge. EHL has developed procedures for road construction to reduce the amount of cut material and has developed a procedure to identify suitable sinkholes for disposal of liquefiable clays, should they be encountered. As of the time of the field visit, competent limestone was being encountered along the Hides Ridge access to a greater degree than at the beginning of the road, but the management of liquefiable clays may still need to be identified and controlled such that the impacts of sidecasting are minimized. The current issue relates to access road construction, but will also be important when Spiecapag continues with pipeline construction in the Hides area.

Development of the EHL Lake Kutubu Conservation Program is in progress, and will focus on the implementation of a sustainable fisheries program. Species-specific management plans have been developed for the long-beaked echidna, bowerbirds and the tree kangaroo; these will assist in recognition and management of encounters with these species, are now being used by contractor teams.

During this site visit, the IESC was not accompanied by the specialist in freshwater and marine ecological management, but was provided information via presentations and conference calls. Dredging of the Omati started in the middle of October 2011 and is expected to be completed by the end of the year. At the time of the field visit, monitoring had been restricted only to observations by local fishing communities, but EHL agreed to conduct an expanded monitoring scope. IESC has been informed that monitoring of the

dredging has been undertaken on the basis of helicopter flights, but the results of this monitoring and other types of monitoring agreed during the November field visit are not available as of the time of preparation of this report. The reports of fisheries surveys upon which impacts from dredging can potentially be evaluated have not been completed and apparently will not be complete until after dredging operations have ceased (estimated completion mid-February 2012). In Caution Bay, no updates on results of construction monitoring or fisheries baselines have yet been provided. Potential impacts to coral reef systems from Caution Bay trench backfilling warrant close post-construction monitoring.

Induced Access

The process by which EPC5A determines the need for RoW access roads was reviewed, and an updated copy of the road register provided (which needs some further updating). Access-control mechanisms are in place for all project-created and project-used roads, from the Omati Delta up to Hides. Longer-term access issues need to be considered post-construction; where culvert-removal is being relied upon to prevent future induced access, this may not offer a sufficient deterrent to road users wanting continued access, especially if this becomes a political issue and arguments for regional development ensue. Operational requirements may require a temporary road connecting logging roads between Kopi shorebase and the scraper station, previously earmarked for closure and reinstatement, to be left open. If this option is chosen, IESC highlights that this will require long-term induced access control, as per the commitment made in the Induced Access Management Plan. Logging operations still pose a threat in the area, and communities are aware the timber on their land could provide valuable resources to eager buyers.

Reinstatement

The project is carefully managing its growing footprint; numerous examples were observed where designs have been amended and opportunities taken to reduce footprint, thereby eliminating the need for vegetation clearance and reinstatement. For example, the redesign of the airstrip profile at Komo, and incorporation of pipe-laydown areas and vehicle parks within the standard RoW clearance width. However, examples of unnecessary footprint creation were also observed e.g. on-site clearance of forest strips within the Komo airfield boundary that were then deemed not-required for project infrastructure. Forest clearance should be considered a last resort, and only undertaken once infrastructure layout and utility designs are finalized.

EHL Operations are also re-considering plans to make vehicular access permanent from the Kope Scraper Station to the Omati Landfall. IESC highlights that not only will this require extensive engineering and hydrological studies to ensure the connectivity of the mangrove swamp is not compromised, it will also create an issue for future induced access and expand the long-term footprint of the project. The seed-stock nursery is operational at Komo, and soon to be expanded. Detailed reinstatement planning is now underway and will be a key focus area in the next few months; indeed some contractor reinstatement plans have already been approved and are being implemented.

Quarantine and Invasive Species Management

The project is currently experiencing high import volumes as drilling and offshore pipe-laying operations are imminent. NAQIA has been undertaking pre-clearance inspections in Malaysia and Indonesia, and at Port Moresby, Motukea Island and Lae. Data on shipments, number of inspections and the frequency and type of re-fumigation/re-washings undertaken, have been forthcoming from most contractors, although little data has been received or analyzed from contractors who already have the majority of their cargo in-country. A high frequency of inspections, re-fumigations and re-washings have been experienced, and EHL considers this to be primarily due to cargo being originally sourced from the Middle East (NAQIA high risk area) and imported as break-bulk (as opposed to within containers). Future inspections, re-fumigations and re-washings will in future be flagged through the EHL SHE-MS as non-conformances, near-misses, or incidents (through use of a Quarantine Index and a draft incident classification system has also been developed). NAQIA facilities at Motukea Island were visited, where contaminated run-off washes directly into the sea. Although this is acceptable under PNG regulations, it would not be considered acceptable when compared to international best practice standards, e.g. Australia, but IESC acknowledges that this is a public facility, and not run on behalf of the Project. At Hides, the upgraded temporary vehicle wash-down station was deemed inadequate at preventing the transfer of soil, an opinion also raised at the last IESC mission when observing the previous temporary wash-down station. The permanent wash-down facility should be operational by the end of December 2011.

Procurement and Supply

Much of EHL's commitment to improve local business is reflected in the use of Lancos that supply labor and services to the different EPC Contractors. The success of this approach is reflected in the national workforce currently working on the Project. 7,200 PNG nationals are currently employed on the Project, representing about 65% of the total workforce now exceeding 11,000. This total of PNG nationals is much above the original construction target of employing approximately 3,500 PNG nationals out of a total workforce of about 12,000 at peak (~30 percent). Females represent about 8% of the total labor force, of which 92% of which are PNG nationals. An issue with respect to procurement and supply is still extending Project stewardship to organizations and facilities primarily dedicated to serving the Project. The process has started, but is not fully rolled out. IBBM has demonstrated through its monitoring instruments to be capable of monitoring Project-related local businesses in terms of their labor performance. However, IESC still recommends formal reporting on child and forced labor (or lack thereof) for the Project supply chain, in order to be in compliance with IFC PS2.

Land Access

Procedures for land access are generally functioning effectively. The Project Manager confirmed that at the time of the November 2011 review, construction activities were not being delayed by any land access issues. Going forward, the Operations team and the L&CA team need to work closely to identify the above ground facilities, restrictions and rights to land that will be needed to ensure safe operation of the pipeline. This needs to be tackled in a strategic and not a piece-meal manner.

Resettlement

Physical resettlement was estimated by the Resettlement Team Manager to be about 80 percent complete. Nine replacement houses had been completed at the time of the November review, six in Q3, 2011. Delivery of further 60 or so houses will be required. The resettlement team had taken the following measures to address the backlog in housing/ housing materials delivery to resettled families:

- 36 housing agreements were renegotiated to cash in Q3 2011, in cases where the resettler had already built a replacement house equivalent or superior to his/her original house and where the resettler agreed cash was an acceptable substitute;
- self-built replacement houses were checked for quality of the house compared to the original, satisfactory water supply, condition of new gardens and adequate toilet facilities;
- EHL placed an order with PNG Forest Products for 10 kit homes to be delivered by the end of 2011;
- EHL now has two house construction teams constructing 2 houses at once, with each house now taking about three weeks to complete;
- prefabrication of some housing components has been commenced at the Timber and Housing team's laydown area to accelerate house construction at more accessible sites; and,
- going forward, new agreements for linear works (not yet viewed by the IESC) include an incentive for resettlers to self-build their replacement housing.

It was too early to determine whether the measures outlined above will prove effective in reducing the backlog of committed houses within a reasonable timeframe.

The Resettlement team has commenced preliminary planning for the top-up payments to achieve full replacement value. These will be undertaken during the first half of 2013.The IESC was generally satisfied with the progress and efforts being made to address resettlement water supply.

Livelihood Restoration

EHL has designed a conservative agricultural program that draws on 20 year's experience of what has and has not worked in Papua New Guinea. It is being delivered by a PNG and expatriate team of the highest caliber. The team finally has all staff positions filled. Both the livelihood team and its beneficiaries seem enthusiastic and motivated. The Livelihood team is producing regular monitoring reports for each of the resettlement sites. A key indicator for reporting is developed sweet potato garden area per adult equivalent. Monitoring results show quite variable rates of replacement garden development across resettlement sites. Those resettlers that were working better quality soils prior to their relocation appear to more quickly develop replacement garden area equivalent to or exceeding their pre-relocation areas (e.g. Kopeanda,

Timalia) or exceeding the 600 m^2/adult equivalent target for food sufficiency (e.g. Komo airstrip). In other areas, in the short term, focus on agriculture is constrained by:

- shortage of on-farm labor (due to construction work with Lancos); and,
- abundance of cash to buy food as result of off-farm paid employment and compensation payments.

The initial focus of livelihood restoration has been on boosting food production through supply and distribution of (1) pathogen-tested sweet potato vines (up to threefold increase in yield per unit of land compared to low yielding local varieties); (2) corn seed (food supply within 100-110 days in Highlands conditions); and, (3) cassava (for flexible harvest times, high yield in poorer environments and value in enhancing food security). Food security experts on the Livelihood team currently do not foresee any major food sufficiency issues as LNG employment declines.

Community Impacts Management

The improved community safety performance first noted during the March and November 2011 reviews was observed to have continued. The most significant impact raised with the IESC by community members in Highland areas during the November 2011 review was water. Complaints about water had escalated from being an issue confined to resettled families (about access to water) to a widespread complaint about water quality and quantity. The water issue has multiple dimensions and contributing factors. Clearing and earthworks have changed the hydrological characteristics of upper catchments. Changes in settlement patterns and population density brought about resettlement and influx have increased the risk of biological contaminants. Poor sanitation practices were observed by the IESC. Together, these factors increase the risk of a waterborne disease outbreak. It is recommended that EHL engage one or more experienced national water-sanitation NGOs to design and execute a wat-san program in the Hides-Komo area. Recommendations were also made regarding the need for more proactive construction planning to address downstream water impacts, E. coli monitoring and information dissemination to communities to direct them to safe water sources.

Construction of access roads around the Komo airstrip and the HGCP site has started.

Community Security

The Security team reported two serious incidents since the previous review – a serious assault at Komo and vandalism of bridges along the Southern Highlands Highway. During interviews, the IESC also learned of a payback incident reportedly involving burning of local houses carried out by security providers to one of the EPC Contractors. The IESC is concerned that EHL is not exercising sufficient control or oversight over its EPC Contractors and their third party security providers to ensure compliance with the requirements of IFC PS 4, paras. 13 and 15, and the Voluntary Principles. The Voluntary Principles are cited as one of the applicable international standards in the Community Health Safety and Security Management Plan. To varying degrees, in the payback incident, there appear to have been lapses in ensuring principles 1-8 of the Voluntary Principle's "Interactions between Companies and Private Security" are addressed. The incident has worrying similarities to other PNG extractive industry security incidents that have resulted not only in destruction of private property, but loss of life. A level 2 non-conformance has been raised. Amongst other measures, it is recommended that EHL appoint an internationally recognized Voluntary Principles auditor to review Project private security arrangements on a regular basis (e.g. say, six monthly during construction).

Community Support Strategy

As is the nature of community-driven development programs, the processes of community mobilization, training and capacity-building needs and opportunity identification and project design take time. Tangible results are often not evident for at least 18 months. Eighteen months of hard-work by the CDS team are now starting to come to fruition with some very positive results across a range of sectors. Generally, the IESC is comfortable with the current status of the CDS program. Going forward, there are potential synergies and overlapping areas of interest between the CDS program, the Livelihood program, the Biodiversity Strategy and Project Induced In-Migration Management and Monitoring Plan. As each of these other areas develops, opportunities may arise for greater cooperation among programs.

Stakeholder Engagement and Consultation

Dredging has commenced on the Omati Waterways. The process of information disclosure, consultations, agreement negotiations, compensation disbursement and a ceremony at Goare was assessed to have been

thoroughly planned and execution had gone smoothly. Given the logistical challenges and some division within the Kerewo tribe, this was a significant accomplishment for the EHL team.

During the last 12 months, the stakeholder engagement program has made substantial progress in implementing the strategies defined in the Stakeholder Engagement Plan. Some achievements observed by the IESC during the present review include the following:

- four community representative committees have been established for Upstream North and two community committees have been established for Upstream South (Omati Waterways Committee and the Barging Route Committee) to provide for a for regular interaction between EHL management and local communities;
- a Homa/Paua community committee and a community forum for the LNG plant site are in the process of being established;
- in the period July-October 2011, some 119 engagements were completed reaching 42 communities and over 10,000 participants;
- drama has proved a powerful communication tool both for community engagement and also worker safety training;
- alignment of Community Affairs engagement activities with the project construction schedule is working well; and,
- a Community Observation and Interaction Report card (similar to EHL's Safety OIR card) was in the process of being rolled out to promote more regular and systematic recording of community interactions and engagement activities.

Strong community demand for more information about when training courses will be commenced at the Juni Training Centre was noted by the IESC. This needs to be addressed before hopes turn to frustration.

Grievance Management

The IESC was pleased that its recommendation for Area Construction Managers to take ownership of grievance management has been fully implemented, with a dramatic improvement in the allocation of responsibility and resources for grievance close-out. Together with the focus on internal training that has occurred during the last four months and the pending internal roll-out of 'grievance cards' much progress has been made in operationalizing the grievance management system. The number of complaints being received (around 60 per month for Q3 2011) is quite small for a project of this scale with multiple work fronts. This may reflect good social performance or the still developing awareness of grievance reporting both internally and amongst community members. There are relatively few complaints from the Southern Highlands Highway. From recent blockages along the highway, there is clearly value in systematically publicizing avenues for making a complaint and ensuring there are resources to address complaints when they arise. A number of recommendations for further strengthening the grievance mechanism are provided in the text of the report.

Labor and Worker Conditions

The IESC report for the July – August field visit noted that the Project should work towards a more centralized and informed strategy in terms of dealing with the multitude of labor and industrial relations issues (labor unrest, strikes, work stoppages, etc.) and given the speed of developments and local specifics, the Project should not solely depend on home-office support. During the November mission the IESC noted that promising steps in this regard have been taken. An ExxonMobil home-office IR specialist has reviewed the Project in the field and EHL staff members responsible for HRM during the operational phase are now also involved with HRM for the construction phase. The CIC team has developed a Project-wide IR strategy; equally an IR strategy will be developed for Operations.

In terms of understanding the need for improved labor and IR management, the main Lancos, LABA and HGDC seem to be making progress. IBBM may be playing an important future role as they are in the process of recruiting an HRM advisor, who will be delivering IR capacity-building for Project commercial suppliers, including Lancos. The Business Development Team would have its own role to play in these matters, but could still benefit from upgrading their skills in this field, e.g., a train-the-trainer program on labor and IR.

The quality and effectiveness of calculations and payment of wages by Lancos have improved. To achieve this, contractors across the Project have substantially intensified cooperation with Lancos and to a certain

extent coached them on payroll issues. Nevertheless, the topic needs ongoing attention. IESC did receive complaints from PNG workers across the Project about two specific issues: lack of pay-raise after the probation period and absence of workers' appraisal systems. IESC also foresees a possible future problem with Nasfund refunds, particularly among unskilled, de-mobilized workers outside the POM area. PNG citizens are eligible for a pension refund after one year of unemployment, but Nasfund has no clear system in place for tracking down these refund candidates, especially in the more remote areas. Although it is not the Project's responsibility to track down such cases, there will be a risk that eligible former workers will lay their discontent at the wrong doorstep.

IESC looked more closely at OCN recruitment practices and noted that contractors and sub-contractors have highly diverse policies and procedures. The main trend is to employ OCNs directly and only pay the recruitment agency a fee per worker. Attention is needed for the high contingencies of Philippinos across the Project (no company can employ more than ten Philippinos directly; any surplus needs to be recruited through Philippine agencies) and for those OCNs from other countries that are on the payroll of agencies in the countries of origin.

The last IESC report recommended that EHL should consider a commitment to the intent of the UN International Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families, henceforth referred to as the UN Migrant Workers Convention or Convention. PNG is not a signatory to the Convention, but it is one of the nine core international human rights treaties and some countries that provide (sizeable) contingencies of workers to the Project are signatory, e.g. Colombia, Egypt, Indonesia, Philippines. Governments of States that have ratified the UN Migrant Workers Convention undertake to ensure that migrant workers whose rights have been violated may seek an effective remedy. It is then at EHL's discretion to verify that no such rights are violated across the Project and avoid possible future workers action. Also, it would simply be a matter of following suit to international best practice. IESC therefore still recommends for EHL to at least review the content of the Convention and screen Project performance against it.

EPC3 is making good progress with its pilot Workers Council for PNG workers. Contractors in the Hides area (EPC4 and C1) are hesitant to initiate workers councils due to fear of violence when dealing with local PNG workers in groups. However, the Project is working with the Huli workforce to develop constructive and positive interactions. Hides Contractors indicate that they will not be establishing a worker committee. Efforts were made last November to establish a group, which proved unsuccessful. In order to manage IR issues CBIC has taken actions to address them on an individual worker basis through strengthening the role and capacity of supervisors. Issues and worker grievances are being addressed in the workplace when they arise or elevated higher when necessary. This approach has proven successful over the past 4 months. The onshore pipeline and Komo contractors (EPC5A and 5B) do not have such workers councils in place, or plans in that direction. A full review was undertaken for EPC5A Project management, but due to the complexities of the workforce (workers are recruited from more than 56 minor Lancos), management decided not to adopt this process as it was deemed to be unworkable. The offshore contractor (EPC2) has not been contacted yet by IESC, as they have only recently started their operations.

OCNs still lack access to workers' councils across the Project, although at Komo fortnightly meetings with OCNs are held that are reported to have produced improved workplace relations. Grievance mechanisms are in place at most Contractors, but are still poorly communicated to OCNs and unfortunately most Contractor staff appears to see tool box meetings as the main and appropriate channel for worker grievances. OCNs have on occasion forced forms of collective bargaining after security incidents, demanding an end to their contract and repatriation.

With a local workforce now totaling about 9,000 people, consisting largely of a workforce that is not only newly exposed to formal employment and a monetary reward system, but also displays vast cultural differences on how to handle conflict, there are bound to be workplace issues. The IESC did identify a possible pattern of failures in workplace relations – perceived or real - resulting in security incidents of a magnitude that warrants concern for setting an undesired precedent or invoking a downward cycle. This was substantiated not only during the Security presentation at the end of the mission, but also by anecdotes and on the ground experience of security staff.

In terms of overtime, the IESC noted that OCNs at EPC5A remain at a disadvantage due to unpaid, extensive commutes between camps and work locations along the pipeline. Also, working hours for OCNs at EPC5A with a 7-day workweek and a 20/2-rotation-schedule are exceptional compared to other Contractors, whereas working conditions on the pipeline are among the harshest on the Project.

With respect to demobilization IESC observed that EPC5B is in need of developing a demobilization strategy as soon as practical. On the other hand, when EPC5A mobilizes into the Hides area, they will need to negotiate an agreement with HGDC that is,likely to differ from the two that HGDC currently has with C1 and EPC4. This situation will need to be carefully managed to ensure that any differences do not cause confusion within the Hides workforce, or lead to misunderstandings and discontent.

Gender

In follow up to IESC's observations during the July – August 2011 field visit, EHL updated the IESC in November on its work with the World Bank to develop a potential capacity-building partnership focused on women's livelihoods in the Project impact area. This would include financial education. Community investment criteria for these gender empowerment programs are in alignment with Corporate Signature Investment programs, PNG National Action Plans, and the UN Millennium Development Goals. The program works through strategic partnerships with established, capable donors like the World Bank and NGOs. The PNG LNG workforce is engaged where possible, including through a *'Women in Energy Network'* that was launched in 2011.

Examples of key women's empowerment community investments are the *'Building Women's Self Reliance Program'* (2011 – 2012), the *'Global Women in Management Program'*, and the *'Urban Youth Employment Project'* (2010 – 2012), which, if successful, might be expanded to the Hides area with a specific focus on female participants. The Project also engages in key policy dialogue in the context of the *'PNG Country Gender Assessment'* (2010 – 2011) and the *'Pacific Women's Policy Dialogue'* (2011).

Despite these commendable initiatives, IESC did note that there are still some Project-wide gender issues that remain to be addressed. It still recommends the Project to centrally drive development of tailor-made HRM and IR solutions for women workers' needs and of women-specific grievance mechanisms.

The Community Health Program is conducting a successful 'marriage and relations counselling' program at the community level. IESC sees a great opportunity for this program to support the aspects of the Project with gender workplace issues by developing a specific focus on violence issues related to women-in-employment. This view was actually shared and validated by program staff, as they are also aware of the fact that confiscation of wages by male family members and (violent) domestic implications for women employed by the Project are widespread. This issue is further discussed in the Health and Safety section, under Community Health.

Camp Management

Camp management is an important component of the PNG LNG Project. Camp construction is progressing to schedule, both at the LNG Plant site as well as in the Hides area. There is however a continued need for EHL to rigidly implement, monitor and evaluate all risk mitigation measures proposed in the risk assessment reports for personal-space-reduction at EPC3 and in the Upstream Area. One major issue observed during the July - August and again during the November field visit, was the lack of ventilation in most of the low rank, and thus more densely inhabited rooms. All rooms do have secured windows that can be opened, but both habitants as well as maintenance staff after cleaning keep windows closed, which leads to unhealthy and unhygienic air conditions and enhances chances for the spread of airborne diseases, such as TB.

Communication on the camp grievance mechanism towards OCNs generally remains unclear and is therefore deemed inadequate. Improvements are being noted, however. In the Hides, for example, EPC4 has included its camp grievance procedure in the induction process and provides a grievance form in English, Pidgin and Tagalog – the main language in the Northern half of the Philippines.

Still there are no women-specific grievance mechanisms in place except incidentally and informally. For example EPC5B's subcontractor IPI employs a secretary who has informally taken up the role of women's confidante. Her role in a sexual harassment case proved vital to diffuse possible retaliation from male family members towards the Project. However, as large contingencies of unskilled and semi-skilled women from local communities work at either Alliance or IPI subcontractors, suitable grievance mechanisms and capable confidantes need immediate placement across the Project.

Health and Safety

The Project has a well-developed program to manage both occupational health and safety of workers, as well as a community health and safety program. The Health Group focuses on worker and community health issues, whereas the Safety Group focuses primarily on occupational safety of workers.

Worker Health: Occupational health continues to be a major focus, in particular with respect to malaria control measures after an increase in serious malaria cases in the first quarter of 2011. By the end of September 2011, the malaria case incident rate was about 25% of what had been recorded in March 2011. Over the same period the rate of serious cases has not declined, however, but part of the situation might be that some cases have been mis-diagnosed. The Malaria Chemoprophylaxis Compliance Program is being effectively implemented with unannounced testing of the entire vulnerable workforce revealing only 0.9% not taking the chemoprophylaxis medicine. Another communicable disease affecting project personnel is Tuberculosis (TB). EHL has placed greater emphasis on tuberculosis diagnosis and testing since the last IESC field visit and the Tuberculosis Case Incident Rate is slightly lower than at the beginning of 2011.

A health issue the IESC suggests to further investigate is the obesity risk among PNG workers and all obesity-related long-term health risks, including diabetes and cardiovascular disease. An increase in obesity rates may be due to dietary and lifestyle changes, i.e. exposure of PNG workers to Western diet and the abundant availability of food in the camps, as well as a likely Melanesian genetic predisposition to store fat. Community Health Program staff do share this concern. With regards to the Highlands people it is unknown whether they are similarly genetically disposed or not. IESC suggests looking into this situation with a dietician specialized in Melanesian obesity issues.

Worker Safety continues to be a primary focus of EHL and the EPC contractors. Safety statistics presented by EHL show a continuing decrease in the Total Recordable Incident Rate (TRIR), down to 0.52 from the 0.67 from the March 2011 field visit, but the Project also recorded its third fatality, this time involving the death of a worker for MCJV at the Komo airfield caused by an excavation collapse on October 6, 2011. This accident is different from the two previous unusual accidents in that the collapse of an excavation is generally identified as a common hazard associated with earthmoving, for which there is extensive training and procedures to be followed. Well-known rules had to be broken for this accident to take place. EHL has conducted a Fatal Risks Workshop with Project-wide participation focusing on enhancing the job safety analysis (JSA) program and re-emphasizing individual safety commitment/accountability, as well as improving oversight for excavation activities and the process for assigning job tasks in support departments. MCJV has also reinforced their individual safety expectation statement or charter understood and signed by all persons acknowledging Safety Golden Rules (life-critical safety rules) and has defined a policy whereby the consequence for willfully violating safety procedures will result in termination. Tighter workplace safety procedures have also been initiated by MCJV.

Community Health: the community health program has evolved into an Integrated Health and Demographic Surveillance System (iHDSS) that covers the topics of health delivery services, communicable diseases, STIs and HIV/AIDS, and non-communicable diseases implemented through NGOs. The Health team has started the census fieldwork in the Hides area with the Karkar control site census. The program also offers clinical service at the LNG Plant villages and the overall status of the community health program is that it is ongoing and the components involving rapid implementation are happening now. IESC strongly encourages EHL not to modify this program, as it is unique and has the potential for community and reputational benefits possibly beyond any other aspect of the Project. An aspect of community health directly related to the Project is dust. Although dust is not normally a problem due to rain, it was observed to be a community issue during this field visit in the Hides area. Another aspect of community health directly or indirectly influenced by the Project is water quality, in particular that population influx is causing surface water contamination from fecal coliforms. Some intervention by the Project to identify safe drinking water sources, flag problem areas, and include personal hygiene within community outreach programs is recommended. As already pointed out in the Gender section, the program is also conducting a successful 'marriage and relations counselling' program among Project impacted communities, with an objective to reduce domestic violence. IESC strongly recommends developing a specific focus on violence issues related to women-in-employment. As pointed out in the previous IESC report, confiscation of women's wages by male family members and (violent) domestic implications for women employed by the Project is widespread. Dealing with these unforeseen impacts of the Project that are so intricately related to endemic cultural norms and values seems outside the scope of the Project, but the community health

program through its marriage-counselling program offers a realistic and constructive avenue for addressing these issues.

Community Safety: Community Safety outreach programs in the Hides - Komo area are managed primarily through the L&CA organization and the individual EPC contractors utilize field staff, including traffic control personnel and spotters to protect the local community. The issue of community incursion into Project workplaces is still an issue, but since the last IESC visit unauthorized access into the Komo Airfield site has been reduced with the construction of vehicle access tracks around the southern and northern ends of the site to encourage travel around the perimeter rather than through the worksite and local residents are being employed to patrol and repair the perimeter fence to discourage incursion. The L&CA team has also helped set up a Community Issues Committee, where one of its mandates is to reduce the risk of local residents cutting the fence and trespassing.

Cultural Heritage Management

Cultural heritage continues to be well managed. Ongoing archaeological activities at the time of the site visit continue to be related mainly to pre-construction surveys and the management of chance finds, being encountered primarily along the wellpad access road and the pipeline ROW. One salvage program was initiated near Tamadigi for EPC5A. An issue yet to be resolved is that artifacts from salvage work in the HGCP area transported to Port Moresby in late April 2011 and inspected by PNG Museum, still have not received an Archaeological Loan Permit such that they can be analyzed by Monash University. This is a priority for EHL in the near future.

1 INTRODUCTION

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

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

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

The above Terms of Reference (TOR) requirements refer to an evaluation of Project "compliance", whereas the reporting requirements of the TOR state that the reporting will include a "list of non-conformance findings". Within this report the terms "compliance" and "conformance" are considered to be equivalent. In general, issues to be resolved are identified as non-conformances, but one of the requirements of the IESC is to identify any "material non-conformances" within the context of the CTA. The IESC believes that a "material non-conformance" within the context of the CTA would need to be a Lender decision, but for the purposes of this report a potential "material non-conformance" would be a Level III non-conformance or repeated Level III non-conformances as defined in the Section 2 Issues Table. It is emphasized that a Level III non-conformance is not necessarily equivalent to a "material non-conformance" and that extensive discussions among EHL, Lenders and the IESC would need to take place before any "material non-conformance" is identified.

IESC's review has included the environmental and social (E&S) and health and safety (H&S) management activities of EHL and the individual Engineering, Procurement and Construction (EPC) Contractors and infrastructure and "early works" contractors currently active in the field. Emphasis has been placed on evaluating conformance based on written information provided by EHL and observations made in the field including discussions with EHL and Contractor personnel. Most of the findings identified in this report have been based on field observations and interactions with the individuals actually responsible for the field implementation of the ESMP, as well as meetings with stakeholders. The CEO of the Helas Transitional Authority was interviewed during this trip.

[1] *IESC Team members in the field: Giovanni Battista De Franchi (Team Leader – Environmental Specialist), Robert Barclay (Social Development Specialist), William J. Johnson (Earth Scientist/Cultural Heritage Specialist), Amber Frugte (Labor Specialist, andLouise Johnson (Biodiversity and Natural Resource Management Specialist). IESC Team member not in the field: 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 except for the offshore pipeline is well underway and all of the EPC Contractors are mobilized in the field. Their overall responsibilities and current construction status are as follows:

- *C1 – Upstream Infrastructure (Clough Curtain Brothers JV - CCJV)*: responsible for Kopi Shore Base; Southern Supply Route; Highlands Highway upgrades; HGCP access road and site preparation; Hides well pads and access roads; construction of the Hides Waste Management Area (HWMA); and associated work camps. Current activities relate to earthworks and site preparation at the HGCP site, construction of the Hides Waste Management Area and constructing well pads and the associated access road up Hides Ridge. Earthworks are still ongoing, but the HGCP site is partially turned over to EPC4 and plant construction has started. The HWMA is essentially ready to accept waste and the handover to EPC4 is tentatively scheduled for Q2 2012. The Hides Wellpad Access Road has been constructed to a point close to Wellpad C;
- *Red Sea Housing*: Current work undertaken by Red Sea Housing is the construction of the main construction camp for the LNG Plant (EPC3). The constructed bedspace (4300) at the main camp exceeds demand (2700) and construction of the camp is expected to be complete by Q1 2012;
- *EPC 1 – Telecommunications (TransTel Engineering)*: occupation primarily of sites already used by Oil Search for c*ommunications towers.* This construction effort started Q1 2010 and at the time of the field visit the last communications tower at the HGCP site was under construction. Completion is expected for Q1 2012;
- *EPC 2 – Offshore Pipeline (Saipem)*: This contract is for the 407 km of offshore pipeline that begins at the Omati River landfall and extends to the marine facilities located at the LNG Plant site, the construction of which has now started. Trenching of the Caution Bay section has taken place and the shore pull of the pipeline was completed in October 2011 and deep water pipe lay commenced. Dredging for the Omati River section of the pipeline was started on October 10 and is expected to be completed in Q1 2012. Engineering for the offshore pipeline is reported to be at the 98% Design Review stage. Linepipe manufacturing and coating is complete and coating is ongoing. The first load of offshore pipe was sent out from Kuantan, Malaysia on September 10, 2011 and shallow waterpipelay is expected to start on schedule Q1 2012. A Management of Change whereby the scope of EPC2 would be expanded to install fiber optic cables in the offshore area parallel to the offshore pipeline was certified by the IESC on September 20, 2011;
- *EPC3 – LNG Plant and Marine Terminal (Chiyoda JGC JV - CJJV)*: This joint-venture EPC contract between Chiyoda and JGC Corporation, both engineering and construction firms headquartered in Yokohama, Japan, is for construction of the 6.6 million tons per annum (MTPA) LNG plant, with two 3.3 million trains, including facilities for inlet processing, treating, liquefaction, storage, and the marine terminal. All major subcontractors have been awarded (site preparation works; camps; marine jetty; LNG Tanks; buildings, etc.). Significant progress is being made and construction is reported to be ahead of schedule. Construction of the LNG tanks and the main processing buildings is underway and the jetty construction with the driving of permanent jetty piles, both working from the shore and also from offshore barges, is nearly half complete. The main EPC3 construction camp is being constructed with more than 4,300 beds already available, well ahead of the projected manpower needs and completion is expected in Q1 2012;

- *EPC4 – Upstream Facilities including Hides Gas Conditioning Plant (HGCP) and Well Pads (CBI Clough JV - CBIC)*: this joint venture of Chicago Bridge & Iron Company (CBI) from Amsterdam, Netherlands and Clough Limited from Perth, Australia is responsible for the design and construction of the HGCP, the HGCP Industrial Park, HGCP Rotator Housing Community, the construction camp and the Hides well pads. As noted above, C1 handover to EPC 4 has started and pile driving for the plant foundations was underway at the time of the field visit. EPC4 has taken over the main construction camp site from CCJV and construction of the permanent rotator housing has started;
- *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 292 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. Heavy rains and flooding have continued to hamper progress, especially in the month of September, but ~ 35% of pipeline ROW has been cleared with pipe installed in the ground over about 10% of the ROW. All of the linepipe has been delivered to the Kopi shore base. Pre-construction surveys continue as the pipeline route is still being finalized in the Hides area. Currently, Spiecapag partially occupies Camp 1 (Kopi Scraper Station), fully occupies Camp 2 (Kaiam) and has started to expand and occupy the existing CCJV Gobe Camp to serve as Camp 3 and prepare a pipe laydown area;
- *EPC5B – Komo Airfield (McConnell Dowell CC Group JV - MCJV)*: A joint venture of McConnell Dowell Corporation Limited (Victoria, Australia) and Consolidated Contractors Company (Athens, Greece) will construct the Komo airfield, which will be 10 kilometers southeast of the HGCP. The design of the airfield has been modified to optimize earthworks requirements for pavement and airfield facilities, but still be suitable for an Antonov 124 heavy cargo airplane capable of flying in 70 ton loads of equipment and supplies. The new design reduces earthmoving from about 9 million cubic meters to 7 million. An area approximately 5 km long and 1 km wide is fenced. The heavy haul road from the Komo airport to the HGCP site is currently under design review and the overall access concept may be modified. Bulk earthworks are ongoing and progress in the field is evident. Aggregate is no longer being obtained from quarry QA1 in favor of high quality aggregate from Tamalia Quarry TB-1;
- *Drilling - Nabors Drilling International Limited*: Currently the detailed well design and technical specifications for the drilling program are being finalized with an integrated execution being planned with the Project. The current workscope is to drill 10 high-rate gas wells (8-Hides; 2-Angore) with two produced water disposal wells. The first of two drill rigs planned for the work (Rig 702) departed Houston for PNG on September 26th and arrived in Lae Oct 27th. The second rig is being manufactured at the HongHua America construction yard in south Houston and construction is at the 80% level. Mobilization of the first rig will be along the Northern Logistics Route and was about to start at the time of the field visit.

In terms of current workforce as of the end of September, EHL reports that more than 7,200 PNG nationals are currently employed on the Project, representing about 65% of the total workforce now exceeding 11,000. This total of PNG nationals is much above the original construction target of employing, approximately 3,500 PNG nationals out of a total workforce of about 12,000 at peak (~30 percent). Females represent about 8% of the total labor force, 92% of which are PNG nationals. During production the goal is for PNG nationals to represent 80 % of the total workforce (950 of 1,200 at steady state).

1.2 SOURCES OF INFORMATION

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

1.3 REPORT ORGANIZATION

Subsequent sections of this report are organized as follows:

Section 2.0 – Issues Table;

Section 3.0 – Environmental and Social Management;

Section 4.0 – Environment;

Section 5.0 – Social;

Section 6.0 – Labor and Human Resources;

Section 7.0 – Health and Safety;

Section 8.0 – Cultural Heritage.

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

2 ISSUES TABLE

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

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

N°	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
Environment and Social Management							
[2]M3.4	March '11		Procedures for identifying third-party facilities and activities have been defined such that the Project can initiate stewardship. Stewardship has not yet started and needs to be initiated.	I	Various parts of the ESMP to comply with IFC Performance Standard 1, Paragraph 5	Open	The Project has made good progress in terms of implementing the "Procedure for the Categorization and Management of Third Party Facilities & Services" such that the Level II non-conformance has been reduced to a Level I. The non-conformance is not completely eliminated, because the process has not been applied at all locations where it has been found to be applicable.
M3.5	March '11	Nov. '11	Incidents of a serious nature are being inconsistently reported to the Lenders under the procedures defined in the LESR.	IESC Observation	LESR	**Closed**	Reporting has continued to improve and the Project now has a basis for defining and reporting social incidents.
M3.7	March '11	Nov. '11	There is no evidence that EHL (and Contractor) are monitoring actions specified in the 'Management and Monitoring' tables of 'outside of the fence' SMPs are being undertaken.	II	Community Impacts Mgt Plan; Company Community Health Safety and Security Mgt Plan; Community Engagement Plan; Community Infrastructure Plan	**Closed**	The Project now has in place functional 'outside of the fence' monitoring that is in conformance with relevant SMPs.

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

N°	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
M4.1	Jul-Aug. '11		The social component (L&CA) of the ESMS organization continues to experience a very high turnover of managers, technical specialists and general staff. Many L&CA staff positions remain unfilled. The IESC considers that EHL's inability to provide stable management, fully resource the L&CA team and retain key specialists represents an area of risk for the effective operation of the ESMS.	II	Performance Standard 1, ESMP	Open	Provide stable leadership, effective human resource management and fully resource the L&CA team to enable it to meet the demands for securing and maintaining land access, mitigating work stoppages and developing a social license to operate as construction activities escalate. See update on Project actions to achieve full resourcing in Section 5.2.2.2.
M4.2	Jul-Aug. '11		Central management responsibility for labor and industrial relations (IR) issues within the Project organization is insufficient to date. The Project could benefit from centralized and informed strategizing in terms of dealing with the multitude of labor and IR issues at a Project wide level - labor unrest, strikes, work stoppages etc.	IESC Observation	ESMP in general	Open	Make a senior management member responsible and accountable for labor and IR issues at a Project wide level. Recruit specialist staff or specialized third party assistance to strategize and manage labor and IR issues at a Project wide level. Conduct an internal review to ascertain if labor management is fully consistent with EHL's own commitments and expectations. Review labor practices at contractor level as not all contractors seem to have the same practices, resulting in project wide inconsistencies.
M4.3	Jul-Aug. '11		Labor and IR data are not monitored at a Project wide level and a tracking system within an Information Management System has not been designed.	IESC Observation	ESMP in general	**Closed**	Indicators for labor have been prepared and progress reported.
M 5.1	Nov '11		EHL has taken some promising steps in working towards a more centralized and informed strategy for dealing with the multitude of labor and industrial relations issues. Still, a consistent and overall coverage of Project labor and industrial relations issues seems to be lacking. The Project's main contractors are all monitored individually and Project response to events such as labor unrest, strikes, work stoppages, etc. varies widely and still depends too much on attitude and best professional judgment of individuals.	IESC Observation	ESMP in general	Open	IESC strongly recommends for the Project to assign a mobile troubleshooter specialized in labor and industrial relations, who can act above all parties. This person would visit all Project sites on an ongoing basis, monitor labor and IR issues across the Project - also in between IESC missions and mobilize a swift and effective Project response. Offer capacity building for CIC team members on labor and industrial relations, or bring in new specialized staff if this would overwhelm their existing workload.

N°	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
Environmental Issues – Air Quality							
M2.2	Oct. '10	Nov. '11	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	**Closed**	IESC has observed that EHL has worked closely with the Contractors to ensure that their incinerators are properly operated and fulfill the monitoring requirements included in the Project Air Emissions Management Plan.
M3.8	March '11	Nov. '11	The location of the incinerator at the Kobalu camp at a lower level with respect to the accommodation units, under certain wind blowing conditions could pose a health hazard for both camp residents and nearby villagers.	IESC Observation	Air Emissions Management Plan	**Closed**	Situations similar to Kobalu have not been repeated. Incinerators have been moved to minimize potential impact to camp residents.
Environmental Issues – Wastewater Treatment							
M5.2	Nov. '11		WWTPs at all of the EPC Contractors except EPC3 have shown persistent discharge compliance problems.	I	Water Management Plan	Open	There is a general problem with the performance of wastewater treatment plants at most Project locations. This is an area where EHL needs to be more proactive in working with the EHL Contractors in a manner similar to the issue of incinerator air emissions, which has been resolved.
Environmental Issues – Biodiversity and Ecological Management							
M2.4	Oct. '10	Nov. '11	Senior EHL environmental staff should be in the position to critically review contractors' proposals for access roads, and a baseline of access roads should be established from which additional contractor requests are subject to evaluation.	IESC Observation	Performance Standard 6	**Closed**	The process by which RoW access roads are approved by EHL has been presented and deemed acceptable. Although identification of access roads is done on a piece by piece basis as RoW construction moves upstream, the road register serves as a spatially-evolving baseline. If the process articulated by EHL environmental management staff is followed thoroughly, then non-essential access road construction and use should not occur.

N°	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
M3.10	March '11		Reinstatement, erosion control and induced access control commitments along access roads in the 'interim period' after Spiecapag's initial reinstatement efforts (during construction phase) and before operations, when EHL will assume full responsibility, are not defined.	IESC Observation	Performance Standard 6	Open	EHL are considering the development of interim management plans ('handover punch-list' as discussed), plans to counter any transitional gaps that might potentially occur during periods of site handover (from Contractor to Company, or Contractor to Contractor). These should focus on issues such as reinstatement, erosion control and induced access, to ensure that a consistent management focus is retained during the handover period.Such temporary interim plans should ensure that roles and responsibilities are clearly defined, and include some form of monitoring to ensure effective mitigation is maintained during such transitional periods.
M5.3	Nov. '11		The vehicle wash-down facility at KP 3.3 at the start of Hides Ridge is still not functioning in a manner to prevent the transfer of potentially contaminated soil.	I	Weed, Plant Pathogen and Pest Management Plan	Open	Although conditions are improved from what was encountered in July 2011, they are not yet consistent with commitments from the Weed, Plant Pathogen and Pest Management Plan.
M3.11	March '11		An adequate fisheries baseline for both the Omati River and for Caution Bay still has not been established. The project committed to fisheries surveys on a quarterly basis, but results are far past due.	II	Performance Standards 1 and 6	Open	This non-conformance can be resolved with submission of survey reports that are currently past due and monitoring that demonstrates a lack of significant environmental impact through the dredging – trenching process.
M4.4	Jul-Aug. '11	Nov. '11	Based on information provided in the Caution Bay Revised Pipeline Burial Modeling Report, it is not obvious that coral resources identified in subsequent marine surveys have been accounted for.	IESC Observation	Performance Standard 1	**Closed**	Monitoring is planned for the coral resources in question and EHL has accounted for the information gathered subsequent to the modeling effort.

N°	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
Social Issues – Land Access							
M3.12	March' 11		Social and physical/economic displacement impacts are not being addressed in site selection studies and pre-construction surveys. Social impacts, health and safety risks are thus not being identified and requirement contained in SMPs (RPF, Community Impacts Management Plan; Company Community Health Safety and Security Management Plan; Community Engagement Management Plan; Community Infrastructure Management Plan) are not being met.	II	Performance Standards 1, 4 and 5	Open	Since the last review, EHL has developed a site selection procedure. The procedure has yet to be adopted on a project-wide basis. There is still a lack of clarity as to who is responsible for social assessment and screening for site selection. See Section 5.3.2. The required deliverables ahead of the March 2012 visit are: (i) a team or department mandated and resourced to undertake social assessments and define SMP requirements during site selection studies and pre-construction surveys; (ii) documented evidence of robust social assessments having been completed as part of site selection/pre-construction surveys.
Social Issues – Resettlement							
M3.13	March '11	Nov. '11	EHL commenced work on the LNG plant jetty prior to having prepared and disclosed the LNG Site/Downstream Fisheries RAP (RFP, Table 7, Item 13).	II	RPF	**Closed**	Adraft Caution Bay CRP was received for IESC review after the July-August 2011 visit.
M1.16	May '10	Nov. '11	Provision of resettlement agreements in English is inconsistent with the objective that displaced people be fully informed prior to signing and with the requirement that "…the client will tailor its consultation process to the language preferences of the affected communities…" (PS 1, para 21).	II	Performance Standards 1, 5 and 7	**Closed**	A Huli translation of the standard agreement is now being used. Variations from the standard contract template are not being added to the Huli version. Contracts need to be translated into other languages as appropriate to comply with PS, para. 21.

N°	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
M3.14	March' 11		IFC PS 1 and PS 5 require that particular attention be paid to vulnerable people at each stage of the resettlement process. While vulnerable households are noted during RAP preparation, there is limited evidence of systematic monitoring or follow-up of their circumstances post-relocation.	II	Performance Standards 1 and 5	Open (escalated to Level II)	Prepare a consolidated register of vulnerable households from the records of the Environmental Law Centre, the Livelihood team and the Census and Survey team. Undertake a rapid audit of all recorded vulnerable households to determine their current condition and any urgent need for assistance. Establish a program of regular monitoring to ensure that vulnerable households are visited monthly, or other frequency commensurate with their circumstances, until their living standards have been restored. Where cases of hardship are encountered, determine additional support requirements on a case by case basis. Limited action had been taken since theMarch'11Observation. Two cases of vulnerable families under extreme duress were observed, without any assistance being provided. This is escalated to a Level II non-conformance. See Section 5.4.2.10. Deliverables expected prior to the March 2012 review are as follows: - substantive assistance delivered to improve living conditions to the 2Hides hardship cases observed by IESC in November 2011; - consolidated and verified register of vulnerable households; - completed audit of current status of VPs with list of corrective actions arising; - time-bound VP monitoring plan& tracking system for going forward; and, - lessons learned from investigation of failure to respond to vulnerable cases interviewed by IESC.

N°	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
M4.5	Jul-Aug. '11		12-18 months is not a fair and reasonable time frame for families to wait for replacement housing packages nor is consistent with timely delivery of compensation entitlements as required by IFC PS 5.	II	Performance Standard 5	Open	The Project has started implementing measures to monetize housing entitlements and also accelerate housing delivery. Waiting times before families receive house packages are still unclear. See Section 5.4.2.1. Deliverables expected prior to the March 2012 are as follows: - Completed 8 no. project built and 10 kit houses (subject to logistics and security conditions); and, - Schedule for delivery of balance housing packages in the Hides-Komo area (within, say, 6 months).
M4.6	Jul-Aug. '11	Nov. '11	The IESC highlighted the need to install access roads around the Komo airstrip and HGCP sites to meet the IFC PS 5 requirement for 'adequate housing on the first IESC review mission. Sixteen months later, the construction of such roads has not been commenced.	II	Performance Standard 5	**Closed**	Construction of replacement access roads has commenced.
M4.7	Jul-Aug. '11		Due to the montmorillonite clays and their liquid properties, Hides quarry road earthworks have extended well beyond the area defined and compensated under the Hides Quarry Road and HQ 1-3 RAP. Additional land area and users have been affected.	II	Hides Quarry Road and HQ 1-3 RAP	**Closed**	A RAP addendum to describe the unforeseen physical and economic displacement impacts has been completed. Census and survey are complete and compensation payment.
M4.8	Jul-Aug. '11		Resettlement officers are sometimes making ad hoc changes to template resettlement contracts without overview by a legal professional. Errors in law and inconsistencies with the RPF or RAPs may have occurred. Commitments made in resettlement agreements are not being systematically tracked.	IESC Observation	National law, IFC PS 5, RPF and RAPs.	Open	Appoint a resettlement contracts administrator or local external legal counsel to be responsible for contracts review and tracking compliance with contractual commitments.

N°	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
Social Issues – Community Security							
M5.4	Nov. '11		EHL has not undertaken any monitoring or activities to assure itself that its EPC contractors were compliant with Project standards including the Voluntary Principles. In the HSS payback incident, to varying degrees, there appear to have been lapses in ensuring principles 1-8 of the Voluntary Principle's "Interactions between Companies and Private Security" are addressed.	II	IFC PS 4, Voluntary Principles, Community Health, Safety and Security MP	Open	Commission an internationally recognized Voluntary Principles auditor to review Project private security arrangements on a regular basis (e.g. say, six monthly during construction). Consider extending the audit to cover arrangements with the RPNGC. Undertake a proper investigation of the HSS incident and determine what remedies should be extended to the victim/s and perpetrators – provide a report on findings to the Lenders/IESC. Review contractual provisions in agreements with EPC and other relevant contractors to ensure that EHL is able exert due influence with respect to adherence to the Voluntary Principles. Make a register of all contractors and third parties providing security services to the Project and regularly monitor that there is documented evidence of: (i) reasonable inquiries having been made to ascertain that those providing security are not implicated in past abuses; (ii) adequate training having been provided to security personnel on applicable international guidelines; (iii) detailed investigation into allegations of abusive or unlawful acts, including procedures for reporting allegations to relevant local law enforcement authorities when appropriate; and, (iv) regular monitoring by EPC contractors of Voluntary Principles compliance.

N°	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
Social Issues - Project Induced In-Migration							
M4.9	Jul-Aug. '11		Ad hoc observations presented by the Project to date do not satisfy the requirement of Commitment ID 23.027 for active assessment, via monitoring or other means, of in-migration. They also fall short of the measures advocated in the Project Induced In-Migration Management and Monitoring Plan.	II	ID 23.027	Open	Fully resource the PIIM team so that Commitment ID 23.027 can be complied with and the Project Induced In-Migration Management and Monitoring Plan can be implemented. Develop a work plan (schedule, budget, resources) for completing the PIIM action plans within a reasonable timeframe.
Social Issues – Procurement and Supply							
M4.10	Jul-Aug. '11		The Project provides substantial effort to offer technical support to its supply chain and its (future) work force. Although these efforts include stringent occupational safety and health protocols, the Project could benefit from improvements in terms of monitoring and addressing the basic requirements of IFC Performance Standard 2 (such as worker-management relations, child and forced labor in the supply chain, etc.).	IESC Observation	Procurement and Supply Management Plan	Open	Consider an initial risk assessment on core labor standards for new PNG suppliers.
M4.11	Jul-Aug.'11		From a point of view of extending the Project's environmental and social standards to subcontractors/suppliers, it appears that the capacity and skill building efforts of local business – including Lancos, do not include any reference to IR management or to basic worker rights, i.e. the ILO core labor standards as defined in IFC PS2.	IESC Observation	Procurement and Supply Management Plan	Open	Build on first steps taken by IBBM Enterprise Center to include capacity building and skill development on (i) workers' rights, i.e. the ILO core labor standards and (ii) worker-management relations, i.e. industrial relations for the Project's supply chain.
Labor and Human Resources - Labor and Worker Conditions							
M4.12	Jul-Aug. '11		Except for a pilot Workers Council for PNG workers at EPC3, no structural, organized and proactive worker-management dialogue is in place at contractor or sub-contractor level, nor any collective bargaining mechanisms. Whereas Lancos seem to play the role of organized labor, they more often have a counterproductive role in managing work place relations.	IESC Observation	Labor and Workers Conditions Management Plan	Open	Evaluate Workers Council at EPC3 and discuss possible roll out with other Project contractors, preferably mixed PNG national/OCN/Expat workers councils (similar to the Workers Safety Champion Councils). Have all major Lancos attend the Industrial Relations course delivered by the new IBBM HRM advisor. Develop tailor-made HRM and IR solutions for PNG women workers' needs at Project level and roll out to Project contractors (this is also a gender issue).

N°	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
M4.13	Jul-Aug. '11		An overall lack of awareness, understanding and data is apparent at (sub) contractor level regarding OCN recruitment policies and practices of intermediate agencies in countries of origin. And even though the majority of OCNs are hired directly by the Project's (sub) contractors. However, diligence is still required with respect to those OCNs who are hired indirectly.	IESC Observation	Labor and Workers Conditions Management Plan	Open	Carry out a rapid risk assessment at subcontractor level for those contingencies of OCNs that are still hired through recruitment agencies in their countries of origin in terms of the agencies' policies, practices, and reputation.
M4.14	Jul-Aug. '11		Existing demobilizing arrangements at contractor level may prove inadequate to prevent unrest when large contingencies of PNG workers are facing demobilization, regardless of all expectation management measures taken.	IESC Observation	Labor and Workers Conditions Management Plan	Open	Develop a project-wide demobilization strategy at Project level and roll out to Project contractors. Prepare for mobilization and demobilization issues especially along the pipeline and at the HGCP site.
M5.5	Nov '11		Encouraging first steps have been taken with regard to the Industrial Relations Strategy. However, the Project needs to ensure not loosing this momentum, especially given the fact that the CIC team manager has left the Project. The Project would benefit from ongoing monitoring and oversight of labor and industrial relations issues by a mobile troubleshooter with a short communication line to EHL management.	IESC Observation	Performance Standard 2	Open	Ensure adequate and effective follow up on first steps taken with regard to the Project's Industrial Relations Strategy, both within EHL and towards all Contractors and subcontractors. Assign a mobile troubleshooter specialized in labor and IR, who can act above all parties and have this person visit all Project sites on an ongoing basis in order to monitor labor and IR issues across the Project, and enable this person to mobilize swift and effective Project responses.
Labor and Human Resources – Camp Management							
M4.15	Jul-Aug. '11		Although most of the other issues with women facilities and accommodation have been solved, and general grievance mechanisms are available, there is currently no outlet for women to express sensitive grievances that may be difficult to report to male staff. Another point of attention is communication on and accessibility to camp grievance mechanisms for OCNs. They are hardly aware of their existence and do not make use of it.	IESC Observation	Camp Management Plan	Open	Make women-only grievance mechanisms available at all (sub) contractors and camps through appointing a competent 'confidante' and proper communication on this mechanism, and follow suit to the approach taken by CJJV in December 2011 (this is also a gender issue). Improve communication on accessibility to camp grievance mechanisms for OCNs in relevant languages and cultural appropriate ways.

N°	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
M5.6	Nov '11		There is a continued and pressing need for EHL to rigidly implement, monitor and evaluate all risk mitigation measures proposed in the risk assessment reports for personal-space-reduction at EPC3 and in the Upstream Area. These risk assessment reports and the mitigation measures they contain have been instrumental in lifting the Level 1 Non Conformance during the IESC July review and are therefore critical to implement.	IESC Observation	Footnote [3]	Open	Rigid implementation, monitoring and evaluation of risk mitigation measures to manage reduced space/person at the LNG plant site and in the Upstream Area.
Labor and Human Resources – Gender							
M4.16	Jul-Aug. '11		Women seem to be facing two major gender specific issues. One is the lack of avenues for getting their issues and grievances addressed, at both the camp level, and Lanco level. Within the PNG cultural context and more specifically the Huli cultural context most Lancos are run almost entirely by men. Consequently, women feel that those (Huli) men at Lancos simply dismiss women with their complaints. The other major issue is the impact of women's changed status to 'women-in-employment'. Across the Project, but especially in the Hides women often suffer (violent) domestic implications for being employed by the Project. This is further worsened because 'women's-control-over-income' is culturally challenged. In the Huli cultural context women face incredible pressure to hand in their earnings due to (male) community demands. This facilitates men in accessing alcohol and weapons and resorting to more violence. All women expressed a desire to have access to bank accounts.	IESC Observation	Labor and Workers Conditions Management Plan + Camp Management Plan	Open	Develop tailor-made human resource management and industrial relations solutions for women, especially for Huli women in the Hides area at the Project level - including concise instructions for (sub) contractors and Lancos. Most immediate attention is to focus on getting women's work place issues out in the open and safeguarding women's control over earnings. Make women-only grievance mechanisms available at all (sub) contractors and camps through appointing a competent 'confidante' and proper communication on this mechanism, and follow suit to the approach taken by CJJV in December 2011. The Community Health Program is conducting a successful 'marriage and relations counseling' program at the community level. IESC sees a great opportunity for this program to support the aspects of the Project with gender workplace issues by developing a specific focus on violence issues related to women-in-employment. This view was actually shared and validated by program staff.

[3] *Risk assessment reports for personal-space-reduction at EPC3 and in the Upstream Area; Camp Management Plan; Labor and Workers Conditions Management Plan; Minimum Health Requirements for Project Execution; Health Inspection Guidelines*

N°	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
Workers Health and Safety							
M4.17	Jul-Aug. '11		Safety impacts of excessive working hours/structural overtime, lack of adequate breaks and rotation schedules at the level of the Project's (sub) contractors are potential risks. This is especially the case for workers along the pipeline.	IESC Observation	Various Project Health and Safety Plans	Open	Improve monitoring (excessive) overtime issues at Contractor and subcontractor level, mainly for OCNs along the pipeline.
M4.18	Jul-Aug. '11		A significant health issue is the obesity risk among PNG workers and all obesity-related long-term health risks, including diabetes and cardiovascular disease. An increase in obesity rates may be due to dietary and lifestyle changes, i.e. exposure of PNG workers to Western diet and the abundant availability of food in the camps, as well as a likely Melanesian genetic predisposition to store fat. Community Health Program staff do share this concern.	IESC Observation	Various Project Health and Safety Plans	Open	Consult with a dietician specialized in Melanesian obesity issues, to re-think the menus offered in camp canteens as well as the food packages issued to PNG workers.

3 ENVIRONMENTAL AND SOCIAL MANAGEMENT

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

The basic observation with respect to environmental and social management is that the Environmental and Social Management System (ESMS) is now fully in place across the Project.

- the ESMP is fully developed and publicly disclosed;
- monitoring and evaluation programs are in place;
- an MOC process is developed and working;
- associated facilities/activities policy has been developed and implementation has started;
- requirements of Milestones Schedule from the beginning of the construction phase are now fulfilled, except for biodiversity MS 16 where the IESC has agreed that it no longer needs to be part of the Offset Delivery Plan, which removes it from being a Milestones Schedule requirement.
- an organization is in place to implement the ESMP.

In accordance with the above observations, the discussions associated with environmental and social management are somewhat abbreviated when compared to previous reports.

3.1 ENVIRONMENT AND SOCIAL MANAGEMENT PLAN

3.1.1 Project Strategy

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

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

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

3.1.2 Observations

The ESMP is fully developed and publicly disclosed. As previously noted, the IESC expects that at this stage the implementation of the ESMP will be based primarily on working procedures that capture the requirements of the Management Plans, but that there will be no additional modifications to the plans themselves. Should any changes be proposed to the basic plans, 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. It is expected that future audits will not need to focus on whether or not specific components of the ESMP still need to be developed. The monitoring will focus on how they are being implemented.

The ESMP sets the minimum performance requirements of Contractor Implementation Plans (CIPs) that are sometimes referred to as Environmental Control Plans (ECPs) or sometimes with the same or similar titles to the Management Plans that are part of the ESMP. These CIPs may also be grouped in terms of Environmental Management Plans (EMPs) or Social Management Plans (SMPs), together constituting ESMPs. All EPC ESMPs Rev 0 are in place, with the exception of the drilling. The drilling ESMP is currently to the Revision C level and is expected to be finalized Q1 2012, before drilling starts.

Environmental and social monitoring and evaluation programs have been developed between EHL and the contractors. The mechanics of monitoring and evaluation are incorporated within a computerized Information Management System (IMS) integrated with the Project Geographic Information System (GIS) such that observations in the field can be tracked as to the exact locations where findings are made. Tracking and reporting formats vary across the Project dependent on subject matter and the preferences of the individual EPOC Contractors, but the system functions adequately such that the overall environmental and social performance of the Project can be tracked.

The EHL environmental team (formally designated as the Environmental and Regulatory organization) has maintained a stable structure for most of the past year and is fully functional with occasional gaps associated with only normal turnover, position changes, or with logistical problems and has the appropriate organization to function as planned. During the July-August field visit the social component (L&CA) of the ESMS organization was found to experience a very high turnover of managers, technical specialists and general staff with many L&CA staff positions unfilled. A Level II non-conformance was raised to reflect the concern that the absence of stable management and a fully resourced L&CA team represented an area of risk for the effective operation of the ESMS. The situation is improved from what was encountered during the last field visit, although the organization still continues to be strongly affected by turnover. The non-conformance is reduced to Level 1.

During the November field visit the area of labor and industrial relations was followed up based on the initial observations made during the July – August visit. As described in more detail in the section on Labor and Working Conditions, EHL has taken some promising steps in working towards a more centralized and informed strategy for dealing with the multitude of labor and industrial relations issues. HRM staff responsible for the Operational phase is increasingly assuming responsibility for Construction phase HRM issues and the team responsible for contractor interface and compliance (CIC) is in the process of developing and rolling out an IR tool across the Project. The composition of the CIC team underwent some changes as well. New EHL staff now covers EPC4, so all the main EPC Contractors including Drilling are now being actively monitored by EHL staff. However, the CIC team manager left the Project right after the IESC November field visit, leaving the team with a considerable setback in available expertise. CIC team members and also Business Development team members would highly benefit from upgrading their knowledge and skill set in this area.

A consistent and overall coverage of Project labor and industrial relations issues still seems to be lacking. The Project's main Contractors are all monitored individually and Project response to events such as labor unrest, strikes, work stoppages, etc. varies widely and still depends too much on attitude and the best professional judgment of individuals. Due to very explicit cultural characteristics and a first-time exposure of the workforce to paid employment, workplace relations need a lot of attention and are difficult to manage. Various failures in management of workplace relations have already culminated in security incidents, a situation that is only expected to become more volatile as PNG elections are approaching. So, after having monitored labor issues in greater detail during its last two field visits, IESC strongly recommends for the Project to assign a mobile troubleshooter specialized in this area, who can act above all parties. This person would visit all Project sites on an ongoing basis, monitor labor and IR issues across the Project - also in between IESC missions and mobilize a swift and effective Project response.

A cornerstone of environmental and social management required by the Lenders is regulatory compliance. The three main institutional entities responsible for regulating environmental and socio-economic aspects of the Project are the DEC, the Department of Petroleum and Energy (DPE) and the Department of Land and Physical Planning (DLPP). As previously reported, to be able to track compliance with local regulations EHL has developed a Regulatory Framework Database, "RegFrame". Although we did not interview Government representative for confirmation, EHL reports that the Project is currently compliant with local regulatory requirements. Evidence for this positive interaction was provided through a wide variety of documentation including those related to the permitting process with DEC, security interactions, working with Government health programs, interactions with the National Museum for cultural and archaeological programs, etc.

With respect to labor, the main government institution in PNG is the Department of Labor and Industrial Relations (DLIR). This Ministry, together with the PNG Employers Federation and the PNG Trade Union Congress (PNG TUC), signed a Decent Work Country Program[4] (DWCP) for PNG with the ILO on 28 November 2008 for the years 2009-2012 and endorsed the following four priorities.

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

During the November visit the IESC discussed the development of the DWCP with a senior representative of the PNG Employers Federation. There is a *'White Paper'*[5] now, which after 13 years of debate was approved in May 2010. So now, PNG is in the process of developing new labor legislation. The previous one was outdated, as it was based on the 1920 British Employment Act, which was adopted by the State of Queensland in Australia and was subsequently applied in PNG in the 1960s. Upon independence PNG adopted this act integrally as its 1975 Employment Act, which was complemented by the 1975 Industrial Relations Act, the 1975 Occupational Safety and Health Act and the 2004 HIV/AIDS Act. There is also a legal instrument that discerns urban from rural labor law, the *'Common Rules'*. Employment conditions under the Common Rules are more generous and apply to urban centers only. However, when the Employment Act is silent on certain issues for rural areas the Common Rules are applied there as well. The new legislation will provide for a National Grievance Committee, a registrar that formally has to approve of a strike only after all other possibilities to resolve the issues have been exhausted.

The PNG TUC is very active in the mining, maritime and sugar sectors, but not in the oil and gas sector yet. However, several Lancos already expressed an interest in setting up trade unions. At the LNG Plant site the Maritime TU and a local consultant have approached the Lancos as well as PNG LNG workers. During the next visit the Lead Government Interface Advisor of the Project will introduce the IESC labor specialist to the Secretary of Labor and Industrial Relations.

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4 *Decent Work Country Programmes have been established as the main vehicle for delivery of ILO support to countries. The Decent Work agenda of the ILO consists of the following four pillars:*
Creating Jobs – an economy that generates opportunities for investment, entrepreneurship, skills development, job creation and sustainable livelihoods.
Guaranteeing rights at work – to obtain recognition and respect for the rights of workers. All workers, and in particular disadvantaged or poor workers, need representation, participation, and laws that work for their interests.
Extending social protection – to promote both inclusion and productivity by ensuring that women and men enjoy working conditions that are safe, allow adequate free time and rest, take into account family and social values, provide for adequate compensation in case of lost or reduced income and permit access to adequate healthcare.
Promoting social dialogue – Involving strong and independent workers' and employers' organizations is central to increasing productivity, avoiding disputes at work, and building cohesive societies.

5 *"White Papers are used as a means of presenting government policy preferences prior to the introduction of legislation"; as such, the "publication of a White Paper serves to test the climate of public opinion regarding a controversial policy issue and enables the government to gauge its probable impact". Policy makers frequently request white papers from think tanks or universities to assist policy developers with expert opinions or relevant research.*

3.1.3 Recommendations

1) Both the environmental and social organizations have reached a stage of maturity such that the framework is set to allow for a much greater involvement of PNG nationals. Although some progress has been made, more is needed and EHL should continue to increase national content in these organizations (repeat recommendation).
2) As the above is not yet the case for labor and industrial relations, IESC strongly recommends for the Project to assign a mobile troubleshooter specialized in this area, who can act above all parties. This person would visit all Project sites on an ongoing basis, monitor labor and IR issues across the Project - also in between IESC missions and mobilize a swift and effective Project response.
3) Offer capacity building for CIC team members on labor and industrial relations, or bring in new specialized staff if this would overwhelm their existing workload.

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 EHL Quarterly Construction Environmental and Social Report;
- Table of Contents for EHL Semi-annual Environmental and Social Reports (Operations);
- Table of Contents for EHL Annual Reports (Operations);
- Lender Group Management of Change;
- Process for evaluating Associated Facilities;
- Consolidated list of all documentation required to demonstrate conformance to Lender Group requirements.

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

3.2.2 Observations

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

3.2.2.1 Management of Change

The LESR has requirements for the Project to communicate changes to Lenders on the basis of significance. This process continues being implemented and the MOC classifications assigned since the July-August field visit appear to be appropriate. Since the July-August field visit EHL has initiated a single Class II change, which relates to a newly proposed safety zone around the drilling wellpads. The determination of this safety zone was based on radiant heat, gas plume and noise modeling. The MOC is to supply and install fencing around the exclusion zone (~220 m x 160 m) around each wellpad to prevent non-Project personnel from entering the exclusion area. An issue to be clarified with the IESC is whether

or not it will be necessary to cut the forest within this area to assure protection of local the community. Given that the wellpads are in remote areas, it is not expected that local residents will need to cut through the fences to pass through these areas as has been the case with the Komo airstrip, so it is not expected that trees will need to be cut.

The MOC for the installation of Fiber Optic Cable (FOC) in the offshore area parallel to the offshore pipeline received the required IESC certification on September 20, 2011.

A significant upcoming MOC relates to the re-routing of the main onshore pipeline in the Hides area. The route was defined to be within a one-kilometer corridor for planning purposes to enable EHL to progress preliminary land access agreements such that Spiecapag could be provided with land access consistent with their Contract. Spiecapag has found that unfavorable geotechnical conditions inconsistent with the FEED (front-end engineering and design) require significant re-routing to avoid landslides and other geohazards such that the route will have to pass outside the planned corridor. Spiecapag must obtain prior EHL approval if they wish to route the pipeline outside of the one-kilometer corridor to enable EHL to process preliminary land access agreements in the new areas. The re-routing is not simple to define in terms of what should constitute the MOC. The new routes are within the general area covered by the EIS, but were not the focus of EIS studies (and the EIS does not refer to a 1-km corridor). It is expected that the environmental and social baseline surveys currently underway will serve to fill the gap, but EHL will need to demonstrate that environmental and social baselines are well defined and appropriate mitigation measures are in place.

In terms of the LESR, the re-routing of the pipeline in terms of an MOC Class is not straightforward. Although the intent of the LESR was that a major-reroute would be a Class I change, the actual requirement for a Class I change would be a re-route that ".. falls outside EIS and Pre-construction Survey study area and will require substantial additional environmental and social assessment and mitigation measures to ensure that it does not irreversibly impact important resources." As pre-construction surveys will be undertaken for the new routes, the pipeline will never be routed away from where there is a pre-construction survey. EHL currently plans to assign this MOC as a Class II. Another potential issue is with respect to Government requirements. Government permits do not refer to a 1-km corridor, but the Benefit Sharing Agreement was based on 5-km distance from the original pipeline centerline.

3.2.2.2 Associated or Related Facilities and Activities

Another requirement of the LESR is for the extension of EHL environmental and social stewardship to third-party facilities and activities where the Project is responsible for construction on a third-party site or the sharing of facilities with a third-party. Such cases are identified within the LESR as Associated Facilities and the implementation of ESMP protocols established on the basis of a risk assessment. EHL finalized a "Procedure for the Categorization and Management of Third Party Facilities & Services" consistent with the requirements outlined in the LESR at the time of the last IESC field visit. Implementation of this Plan is underway, although the classification process appears to be more difficult than originally anticipated. IESC was provided with a Register of Worksites, Facilities and Services containing 346 entries: 227 classified as Tier 1 (requirements of ESMP apply); 44 Tier 2 (ESMP is not directly applicable, but key environmental and social risks need to be identified and mitigated); 73 Tier 3 (not stewardable, but engagement will be undertaken for positive social and environmental outcome on an as-needed basis); and 2 not yet classified. As examples, the Kikori Bridge would be a Tier 1 facility, because it is operated by the Project, whereas the ME-16 bridge was stewardable during construction, it is now essentially a bridge operated by the Government, so it is now a Tier 3 facility.

Tier 2 facilities are subject to less certainty in the classification. Whereas, Quarry QA-2 in the Hides area has been re-occupied by CCJV as a Project quarry and classified as Tier I, the Kokore Hill Quarry used for providing the LNG Plant with aggregate is classified as a Tier 2. This difference is not important given that the Kokore Hill Quarry is no longer being used and was left in a safe condition, but the IESC does consider it important that appropriate stewardship be applied. In the case of the Tagari River Quarries being developed by MCJV along a 6 km stretch of the Tagari River between the existing OSL Nogoli Camp and the HWMA at Kopeanda, the quarries have been classified Tier 2, but Tier 1 standards are being applied. IESC would have classified these quarries as Tier 1, but as long as Tier 1 standards are applied the end result is acceptable. More problematic are Lanco camps. The HGDC Camps in Hides and Komo are both considered Tier 2, but stewardship still needs to be defined, although it is noted that MCJV already takes waste and wastewater from the HGDC Camp at Komo. Another problematic situation is with respect to the

permanent EHL offices such as EHL HQ Bravo in Port Moresby, classified as Tier 1. It might be possible to manage the solid waste from this office, but it might not be practical to collect and treat the wastewater, particularly since EHL does not own the building.

The Project has progressed such that the non-conformance has been reduced from a Level II, but not eliminated. More work is needed. It is clear that the process is in place, but more effort is required to fully roll out it to the numerous locations and organizations that have been identified. The non-conformance can be eliminated when it is possible to go down the list of situations and demonstrate what actions are being taken.

3.2.2.3 Public Disclosure

Public disclosure of key Project documents has been flagged as an issue in all of the previous IESC reports, but at this stage is no longer an issue. Ongoing disclosure requirements are associated with RAPs, as addressed in Section 5.4.

3.2.2.4 Incident Notification

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

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

The notification requirement is that the Intercreditor Agent be informed within three business days. Our observation is that the process is working about as well as can be expected. The LESR does not define what constitutes a social incident, but EHL has developed a classification acceptable to the IESC and is providing Lenders with information on incidents with a social component.

3.3 MILESTONES SCHEDULE

As previously described, the Milestones Schedule was prepared as Appendix H3 to the CTA to reflect twenty additional time-bound commitments for Lender environmental and social management compliance that were not practical for EHL to fulfill at the time of Financial Close in February 2010. EHL has effectively fulfilled the requirements of the Milestones Schedule. Pending items still remaining are MS 15 and MS 16 that relate to biodiversity and, although timeframes have slipped, the IESC considers that the Project is not delinquent on these items. With respect to MS 15, IESC has agreed that in the interests of undertaking adequate stakeholder dialogue on the Biodiversity Strategy and offset options, the delivery date of the draft Offset Delivery Plan be changed to the end of Q 2 2012. Regarding MS 16, the IESC has agreed that it was not practical to complete this milestone in advance of the MS 15 and the Project's decision to change the completion indicator to "Operator finalizes design of programs in the Lake Kutubu Wildlife Management Area" and re-set the delivery date to the end of Q2 2012 is acceptable. This agreement effectively separates programs related to the Kutubu Wildlife Management Area from the Offset Delivery Plan (and its timing is therefore de-linked from MS 15). The Milestone now focuses on EHL contributions to the development of the EHL Lake Kutubu Conservation Program, currently in progress (further detail in Section 4.7.2.2.).

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.

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

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

The Water Management Plan is in turn supported by the Project Standards document that defines the effluent discharge standards associated with the operation of wastewater treatment plants (WWTPs).

4.1.2 Observations

Waste Management

The Project has continued to implement activities consistent with the full Project-wide waste management review undertaken in Q3/Q4 2010 where the main challenges in terms of waste generation, storage and final disposal were identified. The Project has evolved from an interim waste management approach whereby there was reliance on third-party facilities and the focus was on secure storage pending the development of permanent waste management solutions to permanent solutions that can transition to Operations. Emphasis has been placed on developing waste management infrastructure (incinerators; landfills); achieving self-sufficiency; maintaining secure storage; engaging qualified waste services providers; and developing a process to transition to Operations.

At the LNG plant site, additional progress since the last field visit has been the commissioning of the second waste incinerator; commissioning of the Bio-digester (composter); identifying improved recycling solutions; development of a program to transfer clean, re-usable wood to local villages; and initiate a training program for the operation of the landfill that was constructed at the time of the July-August 2011 field visit. The landfill startup is pending only the delivery of an industrial compactor to reduce the waste volume before the Ecocare Transpacific Australia joint venture assumes responsibility for operations. This compactor is expected to be delivered before the end of November.

In the upstream area, the Hides Waste Management Facility (HWMF) that is also called the Kopeanda Waste Management Facility is constructed and the first cell is nearly ready for waste, pending construction of the third pond in the leachate pond system, installation of the leachate pump and the power supply for the pump. After personnel training, the HWMF is expected to be partially turned over in Q2 2012 and to be turned over to EPC4 by Q3 2012. A waste laydown area has been constructed at the HWMF and the first container of waste for eventual landfilling was sent there in September 2011. The other planned waste management facility was to be constructed by EPC5A at Gobe. However, EPC5A has installed waste management infrastructure designed to reduce waste volumes, including:

- tire de-beader;

- industrial shredder;
- aerosol can punching equipment;
- drum washer and crusher;
- metal, plastic storage; and
- used oil storage.

Given that all processing infrastructure is in place and reduced waste volumes are less than half of what was originally forecast Spiecapag indicated that they do not see the need to construct a waste management facility at Gobe. EHL is considering this request in light of the possible need for this facility to serve Operations.

The other individual upstream EPC Contractors continue to make progress with their waste management programs. Three new high-temperature incinerators have been installed since the last field visit at the HGCP site (EPC4), the Komo Main Camp (EPC5B - MCJV), and, as mentioned above, the LNG Plant (EPC3). Waste storage and segregation facilities have also been started by EPC4, EPC5B and EPC2. CCJV (C1) has transferred the incinerator from Kantobo to the C1 Camp at the HGCP site and with repairs to the damaged incinerator completed in October, the total waste destruction capacity at C1 Camp with four operating incinerators is 250kg/hr. The incinerator brought from Kantobo will be used only for incineration of restricted wastes (oily and medical wastes) to aid in separation of restricted/non-restricted ash.

All of the contractors were found to have implemented awareness training programs for their incinerator operators and supervisors to operate consistent with manufacturers' specifications by optimizing waste loads to achieve required burn temperatures and to monitor and record this information systematically. Incinerators were all found to be well-managed consistent with the Air Emissions Management Plan. The only case where documentation was not provided was the single case where a third-party (OSL) incinerator at Gobe was being used to incinerate the small amounts of waste being generated at the startup of the new EPC5A Camp.

EPC1 (Telecommunications) has relied on other EPC Contractors to manage the relatively small amounts of wastes they have generated in the construction of the communications towers. One issue that they do need to resolve, however, is that they currently have 77 tons of faulty gel acid batteries (hazardous waste) that they are trying to return to the manufacturer.

EPC 2 (Saipem) is currently incinerating food waste offshore and disposing of the ash according to MARPOL standards. Inert waste (wood/plastics) is being sent to EPC3 for disposal. Hazardous waste is kept on board for return to the country of origin. Scrap metal will eventually be returned to shore for recycling in PNG.

Recycling remains one of the biggest challenges for waste management in PNG. Since the last visit, EHL engaged a third party company to undertake waste management audits at eleven third-party waste facilities to determine whether they currently operate at standards that are acceptable for EHL to engage them to receive the Project's primary waste streams, including medical waste, hydrocarbon waste, metals, plastics and paper. Four of the 11 were found to offer potentially acceptable solutions for the management of metals, batteries, paper, cardboard, ink and toner cartridges, and waste oil, oily water and fuels.

Wastewater Management

The infrastructure for wastewater management is generally in place, but performance lags behind solid waste management. One difficulty has been that some plants have been transferred from one EPC Contractor to another, as has been the case with CCJV transferring the Gobe and Kantobo WWTPs to Spiecapag. Another difficulty with the wastewater treatment process is that in many cases new treatment plants are being installed and in some cases old plants have been moved to new locations, where difficult startups are commonplace. For example, during the startup of WWTP at Camp B at the LNG plant site in August 2011, a strong wind coupled with an accidental spill of chlorine caused a sludge foam overflow from the aeration tank with an end result that waste water quality was not stabilized. Effluent standards were exceeded for pH, insoluble residue and phenols content. This situation was quickly managed and subsequent testing has demonstrated discharge within Project standards and other WWTPs have shown compliant discharge. The overall performance of EPC3 is considered to be good with respect to wastewater treatment.

Other EPC Contractors have been less successful.

- *C1 (CCJV) – C1 Camp and Wellpad A Camp WWTPs* –August and September test results show discharges at both WWTPs exceeding Project standards for TSS, BOD, COD and Ammonia;
- *EPC4 (CBI Clough JV)* – The only laboratory test results available are for the WWTP at the Pioneer Camp reported in October 2011 where the results show discharges exceeding Project standards for potassium, phenols, lead, selenium, TSS, BOD, COD and fecal coliforms, where the fecal coliforms were recorded at 1,500,000 colonies when the limit is 200. Samples taken from the fly camp WWTP being commissioned have also showed fecal coliforms are above the 200 colony limit and BOD was above the 25 mg/l standard at 40mg/l apparently due to improper chlorine dosing. Nevertheless, field tests show generally good test results from the Tokaju Camp and the Phase 1 Construction Camp WWTP is off to a good start;
- *EPC5A (Spiecapag) – Various Camps* – Most effluent tests show conformance with Project standards, but the acquisition of the existing facilities in Gobe does not appear to be going well, as there are persistent exceedances of TSS, COD and fecal coliforms at the old Gobe C1 WWTP and also the Gobe GFE plant exceed Project standards for TSS, COD and fecal coliforms. The Kopi Logistics Camp WWTP also has exhibited exceedances with respect to BOD, COD and fecal coliforms in August and September. The main camp WWTPs for Camp 1 and Camp 2 are generally well managed, but have had occasional excursions of fecal coliforms since June;
- *EPC5B (MCJV) – HGCP Pioneer Camp and Main Camp – WWTP1 at Pioneer Camp and WWTP2 at Main Camp*: WWTP1 test results for July show discharges exceeding Project standards for BOD, COD, TSS, and fecal coliforms with the note that results are expected to improve with the removal of sludge on August 5 while WWTP2 discharges are within limits; WWTP1 test results for August show discharges exceeding Project standards for TSS and fecal coliforms while WWTP2 discharges are within limits; WWTP1 test results for September show discharges exceeding Project standards for COD and fecal coliforms while WWTP2 discharges exceed standards for pH and fecal coliforms; WWTP1 and WWTP2 test results for October both show discharges exceeding Project standards fecal coliforms (the issue with fecal coliforms at the Main Camp WWTP was determined to be associated with the type of detergents being used, which have now been discontinued).

Although the Project does not discharge WWTP effluent directly into surface water bodies, the issue of effluent discharge quality is especially important given the overall issue of community water quality, that local communities as discussed in Section 5. Population influx with new settlers has in some areas caused sanitation problems in drinking water resources and the Project needs to take care that effluent from the WWTPs is not contributing to the problem. A water pollution grievance has already been raised in the general area of the Moro B WWTP where there are multiple water users. As the situation stands it is a general non-conformance.

4.1.3 Recommendations

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

1) Now that all Contractors have in place their own waste registers, consider consolidating the information in a single database to allow tracking all wastes produced throughout the Project locations (repeat recommendation).

2) Continue the due diligence process and risk assessments for third-parties facilities receiving Project wastes and provide stewardship/support to improve their performance, when needed (repeat recommendation).

3) Significant improvements needed in management of WWTPs. Plants need dedicated operators and controls should be established on the basis of field test kits. With respect to the test kits, the kits should reflect conformance parameters. It was noted that EPC4 reports the quality of effluent discharge on the basis of some parameters that are not necessarily diagnostic of conformance with standards and it is suggested that EPC4 conduct an internal review to ensure all parameters (including those additional to ESMP requirements) are adding value to diagnostic performance monitoring.

4) Identify technical solutions for the WWTPs to avoid the discharge of non-compliant effluent (consider installation of holding tanks with valves and pipes to allow for the recycling of effluent that does not meet Project standards; consider tertiary treatment with reed beds at semi-permanent locations, etc.).

4.2 HAZARDOUS MATERIALS MANAGEMENT AND POLLUTION PREVENTION

4.2.1 Project Strategy

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

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

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

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

4.2.2 Observations

EHL has worked closely with the EPC Contractors to improve spill prevention performance as measured both as number of spills and also as number of spills in relation to man-hours worked (spill rate). One of the programs managed by CCJV in the Upstream area is the Spills Nogat! (No Spills) campaign. As a consequence of this and the Project-wide effort for pollution prevention, the number of incidents and the total amount of spills has been dramatically reduced since the last IESC field visit. During the period July – September 2011, a total of 48 incidents, of which 44 were hydrocarbon spills averaging five liters per spill, representing 52 less than in the previous quarter and nearly half the average amount per spill. The largest hydrocarbon spill was about 100 liters of waste oil and there was one incident of a spill of about 80 liters of paint related to vandalism or attempted theft, both of which were contained and did not enter the environment. This emphasis on spill prevention represents the lowest spill rate since January 2010. Spill records are properly maintained by both the Project and the Contractors with results included in the environmental monthly reports.

In terms of ability to respond to spill events, all active EPC Contractors have Tier II spill response arrangements in place. Since the last IESC field visit in July, oil spill response drills have been conducted by CCJV in the upstream area and similar drills have been conducted at the LNG plant and by the Marine Facilities contractor.

The main fuel storage area at the HGCP under construction at the time of the last IESC field visit is now fully operational. The area includes 33 sheltered tanks equipped with valves to isolate each tank in case of leakages. In addition, several manned shut down valves are located throughout the facility. The heavy and light vehicle refueling areas and the tanker unloading area are paved, bunded and connected to two treatment units for runoff collection and treatment. A robust fuel management plan is in place and at the time of the IESC visit the facility was not used as a pump station but as refueling area for authorized refueling tankers only.

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

4.2.3 Recommendations

1) Evaluate the option to locate mobile spill pollution response trailers throughout selected project locations to allow prompt intervention in sensitive areas.

2) Continue the training of EHL field supervisors to routinely check the location of fire extinguishers and spill kits and verify that shelters/areas where hazardous materials are stored are provided with appropriate ventilation, especially at the new Project locations.

4.3 AIR QUALITY

4.3.1 Project Strategy

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

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

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

Other sources of air emissions, including greenhouse gasses, are associated with gaseous emissions from the operation of diesel generators, vegetation clearance, and vehicular exhausts, although considered to be minor, localized and transient in nature at this stage of the construction. These emissions are commonly mitigated through proper operation and maintenance of equipment and through the location of fixed and mobile equipment as far as practical from local villages or worksite accommodations. Air emissions from waste incineration will be controlled by installing high temperature dual combustion burners commensurate with proposed waste inventories, through proper maintenance and by considering ad hoc emissions monitoring plans to detail emissions composition and monitoring criteria. Specific provisions in terms of management and operation criteria of incinerators have been addressed in the updated review of the Air Emissions Management Plan (Rev.2). By developing site-specific air emissions monitoring plans the Contractors are responsible for the implementation of all measures to limit/control air emissions and for proper maintenance of construction equipment and incinerators to ensure compliance with the applicable emissions criteria.

4.3.2 Observations

During this field visit dust was observed to be an issue. It is apparent that dust generation is limited due to the high annual rainfall, but there are times when dust control is needed. Dust was observed to be a particular problem to people walking along the roads in the Hides – Komo area, especially from Juni-Nogoli intersection to QA1/2 quarry access roads. Water spray trucks used for dust suppression were observed at the LNG plant site, but similar vehicles were not observed in the upstream portions of the Project. EHL reports that some sections of the road between the HGCP and Komo Road turnoff were sealed during Q3 2011 to help mitigate against dust generation, but more work is needed.

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

One aspect that has been stressed by the IESC since the first visit relates to the performance of the incinerators and their monitoring to ensure their consistency with the ESMP. This is a subject that has been addressed by EHL with the development and implementation of a Project-wide SOP to optimize incinerator operations. Training on air emission control through proper incinerator operations is ongoing, jointly managed by EHL and the different contractors. CCJV has developed a draft "Burn Optimization Incineration Procedure" that will be implemented in the Project Waste Incinerator SOP, should it prove to be effective. As observed in the field, the incinerators were found to be well-managed with records of materials burned, combustion temperatures recorded, and optimization procedures provided as posters to remind operators as to the operational requirements to minimize the potential for air pollution. EHL's Environmental Team is verifying Contractor's operations and the data they report to demonstrate conformance with the new SOP to ensure that ESMP goals are being met.

Greenhouse gas emissions continue to increase with the expansion of construction activities as a consequence of the increased fuel consumption associated with the operation of both stationary and mobile equipment. Marine operations are now being factored into the total amount generated, which in Q3 2011 reached a total of 34,127 tons of carbon dioxide equivalent, close to double what was generated in Q1 2011.

4.3.3 Recommendation

1) Improve dust suppression procedures, either through increase use of water bowsers or improved sealing of susceptible roads. One option to be investigated is to hire the local Lancos to water the different roads sections to prevent dust formation.

4.4 NOISE AND VIBRATIONS

4.4.1 Project Strategy

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

4.4.2 Observations

Noise being generated by the Project continues to be mainly within camps associated with the diesel generators and with earthmoving equipment and truck traffic associated with the construction activity. Blasting associated with quarries and with road upgrades is expanding such that the potential for community effects is increasing. Noise monitoring results are now being reported by all of the EPC Contractors with operations near communities. The only persistent exceedance of measured noise continues to be at MCJV's Pioneer and Main camps at the Komo airfield where noise exceeds the daytime limit of 55 dBA. EHL reports that these anomalous values are being investigated. Only one community grievance associated with noise or vibrations (related to nighttime truck traffic near the LNG Plant site) has been recorded since the July field visit. EHL is working with the PNG Department of Works to develop solutions (such as speed bumps) to control traffic and minimize noise.

Vibration monitoring has yet to start along the pipeline as construction has reportedly not taken place next to sensitive receptors.

4.4.3 Recommendations

1) EHL should conduct a Project-wide review of how the individual EPC Contractors actually implement the Project Noise and Vibration Management Plan. In particular, we have observed that some active quarries are close to communities, but we did not see evidence of blast monitoring (repeat recommendation).

2) Reporting of noise and vibration monitoring needs to be presented in terms of where the measurements are being made with respect to receptors. It is not sufficient to say a measurement was made at a "camp" without specifying where in the camp – next to a diesel generator? or in a sleeping area? This should also be part of a Project-wide review (repeat recommendation).

4.5 RAW MATERIALS MANAGEMENT

4.5.1 Project Strategy

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

A requirement of the LESR and also of the RMMP is for the extension of EHL environmental and social stewardship to quarries and borrow pits where the Project requirements lead to extraction at a third-party facility or shares the site with a third-party. As discussed in Section 3.2.2.2, EHL has finalized a "Procedure for the Categorization and Management of Third Party Facilities & Services" that is consistent with the requirements outlined in the LESR. This document contains a flow chart whereby a process is defined for identifying the third-party aggregate or rock sources where the ESMP should be directly enforced or where there at least needs to be Project stewardship on the basis of a risk assessment.

4.5.2 Observations

Construction at the HGCP site and the Komo airfield requires more aggregate that was originally anticipated and both CCJV and MCJV have had difficulties in identifying sufficient quantities of good-quality aggregate. MCJV no longer operates Quarry QA1. The site is benched and slopes have been stabilized such that the quarry is safe and could be re-occupied should this be required in the future. MCJV is also now operating the Timalia River Quarry/Borrow Pit - designated TB1 within requirements of the ESMP. MCJV has undertaken Pre-Construction Surveys for five potential quarry sites located along a six km stretch of the Tagari River between the existing OSL Nogoli Camp and the HWMA. The proposed quarries are known as Kopija Quarry, Haguai Quarry, Ware-Imini Quarry, Tameya Quarry and Taguali Quarry, collectively the Tagari River Quarries. Although these quarries, should they be developed, will be by third-parties, EHL has indicated that ESMP requirements will be applied.

One of the observations from the March and July – August field visits was that Quarry QA2 (serving CCJV for the C1 Contract), originally used as an aggregate source for the construction of HGCP facilities, was not left in a condition consistent with good stewardship. This situation has been resolved with its reoccupation by CCJV and it is currently being operated in a manner consistent with Project commitments. CCJV continues to operate quarries along the Well Pad Access Road. Quarries HQ3, HQ4 and HQ5 are all producing aggregate. Quarry HQ1 has been discontinued and is being reinstated to serve as a laydown area for Drilling. The quarries appear to be appropriately managed, but it is noted that all produce unusable mudstone that needs to be spoiled to a greater degree than was planned and all of the quarries have produced large amounts of spoil material that has needed to be disposed in sinkholes. These sinkholes are progressively filling up. Potential consequences of filling up sinkholes, such as the appearance of muddy water or mud from springs connected to the subsurface cave system, have not been reported.

At the LNG Plant site the main quarry used for supplying aggregate for the preparation of working surfaces at the LNG Plant site (Kokore Hill Quarry) has been discontinued, but EHL has verified that it has been left

in a stable condition. EHL was able to verify that the source of aggregate for the batch plant currently operating at the LNG Plant site does not need to fall under the umbrella of the ESMP, as it is a major aggregate supplier for much of PNG and the LNG Plant is taking only 13% of the production of this source.

A quarry operated by Spiecapag at KP 276 along the ROW was re-visited. Conditions of this quarry are the same as was encountered during the July – August field visit, where leaving the quarry as a single highwall is not consistent with good reclamation practice.

4.5.3 Recommendations

1) The final configuration of the KP 276 quarry should be reviewed with Spiecapag, as it was not obvious in the field how a good reclamation was going to be achieved (repeat recommendation).

4.6 EROSION AND SEDIMENT CONTROL

4.6.1 Project Strategy

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

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

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

4.6.2 Observations

Erosion and sediment control are critical components of construction activities. At the time of the March 2011 field visit, the mudflow to the Tagari River along the path of the Akara Creek was the most significant issue. This area is recovering naturally, although mud that still accumulates at the Komo road crossing is still a safety hazard should someone try to walk off of the road into the muddy area.

Significant effort continues to be placed on controlling erosion and generally good success was encountered. Although MCJV's field environmental manager left the Project, erosion and sediment controls at the Komo Airfield still appeared to be functioning well. At the HGCP site a major sediment control dam for containing liquefiable soils was nearly complete, representing a major effort to contain runoff.

The biggest concern we have seen continues to be sidecasting along the Hides Wellpad Access Road, but it is recognized that EHL has expended considerable effort to minimize the impacts of sidecasting. From the initial design, the cut to spoil volumes have been reduced from 2.128 million m^3 to 1.55 million m^3, a reduction of 578,000 m^3. On Hides Ridge, beyond the permanent vehicle wash location, no sidecasting into sink holes less than 50 meters deep which contain swamps is permitted and sidecasting is controlled to the extent that any liquefiable soils encountered are placed only into approved sinkholes. As work progresses along Hides Ridge it is our impression that competent limestone will be encountered such that the impacts of sidecasting are minimized (as has been the case to the extent of construction), but if liquefiable clays are encountered, mitigations will need to be carefully planned.

A concern with respect to the possible contamination of surface water was presented by representatives of the drilling team, who noted that drilling through the cavernous limestone has in some cases caused discharge of foam and drill cuttings to the ground surface through caves based on OSL drilling experience. Along Hides Ridge the drillers expect to have to drill through about 200 meters of cavernous limestone. It is difficult to predict in advance if drilling fluids will be lost through the cave system and appear at the surface, but this has happened in the past. For this reason, as part of the program design, the drilling team undertook a comprehensive review of drilling fluids to ensure fluids selected for the program not only

could meet the technical challenges of the formations, but were also benign from an environmental and heath perspective. Nevertheless EHL is developing contingency plans and this is a situation the IESC will want to follow to understand what the response procedures will be, should such situations develop during drilling.

4.6.3 Recommendation

1) We strongly recommend that EHL develop some contingency plans should drilling cause impacts to surface water from the loss of drilling fluids through the cavernous limestones at the start of drilling.

4.7 BIODIVERSITY AND ECOLOGICAL MANAGEMENT

4.7.1 Project Strategy

The Project's strategy for biodiversity and ecological management is illustrated in several management plans that appear as appendices to the ESMP and in EHL's Project-wide Biodiversity Strategy document. Mitigation measures within the Ecological Management Plan, the Weeds, Plant Pathogens and Pest Management Plan (which covers alien invasive species; herein referred to as the 'Weeds Management Plan'), the Induced Access Management Plan, the Reinstatement Management Plan and the Erosion and Sediment Control Management Plan, will be implemented by contractors during the construction phase, and, in some cases by EHL. Mitigation measures are often specific to each of the three project areas (Upstream Project Area, Marine Project Area and LNG and Marine Facilities Site), and are sometimes site-specific (e.g., the Ecological Management Plan contains a section on Hides Ridge). In addition, EHL has developed a Quarantine Management Program (QMP), which is a Project-wide document designed to prevent the importation and spread of pests, plant pathogens or disease (including invasive species) via Project personnel and cargo.

Central to the Ecological Management Plan and the Weeds Management Plan is the 'pre-construction survey' (the PCS), which seeks to identify through on-the-ground investigation a number of ecological attributes including:

- pinnacles that contain bat colonies;
- potential Bulmer's fruit bat (*Aproteles bulmerae*) colonies;
- bird-of-paradise and bowerbird display grounds and trees;
- areas of *Pandanus* swamp forest;
- sinkhole swamps less than 50-m deep, and
- Nothofagus (beech) forest that requires special hygiene measures due to risk of dieback as caused by pathogens such as Phytophthora cinnamomi.

The PCS is undertaken either by EHL with their designated staff/consultant experts, or by Contractor teams that undertake surveys for their scope of work: Spiecapag (EPC-5A) for the pipeline ROW and MCJV (EPC-5B) for the Komo airfield and facilities associated with construction of the airfield, such as quarries.

The Biodiversity Strategy has been developed to address long-term mitigation of biodiversity for both the construction and operation phases within the Upstream Project area. This 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. In alignment with the Biodiversity Strategy, EHL will develop the actual Offset Delivery Plan, which will be a detailed document on offset design and management.

The Biodiversity Monitoring Program is currently comprised of five Programmed Monitoring Activities (PMAs), which are as follows:

- PMA-1, 'Remote Sensing of Indirect Impacts', designed to monitor forest loss and degradation in the entire Upstream Project Area as caused by project-related indirect impacts;
- PMA 2, 'Aerial ROW Surveys' designed to monitor focal habitats and the potential spread of invasive species and disease along the ROW;

- PMA-3, 'Regeneration Surveys', which gathers in-field data on forest succession and faunal communities and the condition of forests adjacent to the ROW, roads and facilities using a biodiversity benchmarking system;
- PMA-4, 'Road Record Assessment', designed to monitor potential third-party use of Project roads during operations; and
- PMA-5, 'Efficacy of Offset Projects', which will be tailored to monitor the outcomes of each biodiversity offset project.

4.7.2 Observations

TheIESC's biodiversity specialist did not join the team during the previous site visit; therefore observations recorded here provide a detailed update from Mar 2011. A new biodiversity specialist joined the IESC for this visit. The freshwater/marine issues specialist did not attend either missions, but did participate in teleconferences with EHL.

4.7.2.1 Biodiversity Strategy

Strategy implementation

The current Biodiversity Strategy (the Strategy) was publicly disclosed at the end of 2010 and the IESC considers it to be in line with current best practices in biodiversity management. During 2011, EHL has made progress in implementing several areas of the Strategy, for example through undertaking many Pre-Construction Surveys and groundwork in development of the PMA's.

The IESC has commented in the last two field visit reports on the development of an updated Strategy document, version 3. This revision has yet to be finalized, as biodiversity issues are being further considered, both within EHL and with key stakeholders as highlighted above. However, EHL advises that the new version will include an updated suite of indicators to better assess the success of mitigation actions in avoiding or managing impacts on biodiversity. It is expected that the Strategy v.3 will be finalized during Q1 2012, and thus it is expected that an overview of key improvements can be provided as part of the mission report following the next IESC field visit. The IESC encourages EHL in their development of a suite of performance indicators that will specifically relate to the objectives of the Strategy, yet remain specific, measurable, achievable, realistic and time-bound.

An EHL Steering Committee and a Technical Advisory Group were established during 2011 to oversee the implementation of the Strategy (replacing the original single Biodiversity Working Group structure). A Biodiversity Strategy Working Group Protocol is under development; when finalized, this will provide information on the objectives and scope of the Protocol and will state the general provisions for how the groups will be run, their membership, the frequency of meetings, and the roles of those with oversight and responsibilities for implementation of the Strategy. It will also detail the schedule of implementation of the Strategy, the future requirements with regard to the Biodiversity Offset Delivery Plan, and the roles and responsibilities for the future development of the Biodiversity Monitoring Plan. The draft version shared with the IESC during the mission did not contain the Charter for the aforementioned groups or the schedule for implementation of the Strategy. The Protocol has been under development for several months and is currently awaiting senior management endorsement.

EHL continues to work with their external consultants on the development of the Biodiversity Monitoring Plan and the implementation and expansion of the Program Monitoring Activities (PMAs). The sub-contractors assisting with PMA-1 are awaiting a field testing opportunity to validate their remote sensing desktop feasibility studies, as their plans to visit the field during Sept 2011 were thwarted due to heavy rains and aircraft being grounded due to a recent air accident. The sub-contractors working on PMA-3 to assess regeneration performance through the use of benchmarking sites are hoping to send a field-team into the Upstream area during the latter part of Q4 2011. Following review, PMA-3 may be expanded or supplemented with an additional PMA; this may take the form of more detailed fauna studies, perhaps in the form of rapid assessment surveys, to be undertaken at specific locations across the project area. The benefits of having species presence/absence data are being considered, especially with regard to their value to future biodiversity offset delivery projects. Considering the high conservation value of much of the Upstream area and the relative dearth of species-specific information, the IESC commends any such studies that would both contribute towards EHL's data gathering for efficient offset design and also contribute to expanding scientific knowledge on PNG fauna/flora distribution. In this regard, EHL may wish to consider

liaising with the UNEP World Conservation Monitoring Centre (UNEP-WCMC) (see recommendations). The PNG LNG project is in a unique position to expand scientific knowledge of the area whilst ensuring negative impacts are managed effectively. A draft overarching project-wide monitoring plan is anticipated by end of 2011.

A previous IESC recommendation (IESC second field visit, Dec 2010) called for the bolstering of internal full-time senior level technical capacity to manage biodiversity issues in a more integrated manner. IESC commends the decision to add an additional senior technical staff member to the Port Moresby office to provide integrated support for environmental issues across the Project. However, the development of the Biodiversity Offset Delivery Plan and the Biodiversity Management Plan will primarily be supported through provision of external specialists, and managed by senior EHL staff.

Stakeholder engagement

The primary conservation NGO currently advising the project is Conservation International (CI) which has a good reputation in supporting the development of biodiversity offsets around the world. The partnership Terms of Reference was agreed in June 2011, defining the following primary activities for Phase 1 lasting until end of 1Q 2012:

1. A review of the PNG LNG Biodiversity Strategy and related documents in the context of offset design;
2. Development of the technical rationale for offset selection;
3. An initial scoping of potential offset areas and/or activities;
4. An initial assessment of offset implementation feasibility; and
5. Development of a multi-year partnership implementation plan.

Although fielding only a small staff in Port Moresby (currently three), CI –PNG also have staff at Milne Bay and are supported by a larger team internationally, especially those in the US and Australia. During the second half of 2011, CI has concentrated their efforts developing a series of recommendations against each of the activities listed above, focusing primarily on the development of a draft technical rationale for offset selection (draft expected by end of 2011; final version towards the end of 1Q 2012), the mapping of conservation priority areas and seeking potential synergies with NGO's to co-ordinate multi-stakeholder partnership input. With regard to the technical rationale for offset selection, CI is currently developing recommendations on how to calculate the anticipated residual impact, plus criteria on how to best identify and select offset areas and/or offset activities. IESC acknowledges that the Offset Delivery Plan will *not* yet identify which areas or activities will be nominated as offset options, and agree it is important to clearly and transparently identify how these will be prioritized, and consult on that, prior to then choosing which areas/activities may be most appropriate for offset consideration.

Consultation with external stakeholders on biodiversity issues has been on-going during the second half of 2011. A key milestone in October 2011 was the coordination and hosting of a multi-stakeholder workshop at the Port Moresby Technical College for organizations and individuals with an interest in the development of the Biodiversity Offset Delivery Plan. After provision of general background to the LNG project, the 2-day agenda focused on the background and status of the Biodiversity Strategy and the Biodiversity Offset Program guiding principles and conservation priorities. Following presentations, the approach widened to roundtable discussions so that EHL could not only gain feedback on their chosen principles and strategies, but also learn from participant's expert knowledge. Discussions were held on the various types of relevant conservation transactions, key steps to achieving community managed Conservation Areas, ways to achieve meaningful capacity building, and mechanisms/models for conservation funding. The workshop was attended by approximately 25 people, from a wide variety of stakeholder organizations and institutions,[6] representing both national and international interests. The multi stakeholder meeting will be repeated in 2012 once the Biodiversity Offset Delivery Plan has been

[6] *Including: DEC, Oil Search Limited, Mama Graun Conservation Trust Fund, Partners with Melanesians, The Nature Conservancy, WWF, Conservation International, Wildlife Conservation Society, PNG Institute of Biological Research, New Guinea Binatang Research Centre, PNG Conservation Forum, Institute for Applied Ecology, University of Canberra, YUS Conservation Area Project, Tenkile Conservation Alliance, Peace Foundation Melanesia, and EHL.*

finalized – the next meeting will focus on implementation issues and mapping a clear path toward NGO participation.

4.7.2.2 Ecological Management

As explained in the third IESC field visit report (when the IESC biodiversity expert last visited), EHL decided to eliminate the completion of the full suite of pipeline RoW Pre-Construction Surveys prior to earth moving activities (as detailed in the Ecological Management Plan). Instead, the EPC5A PCS's are being conducted ***in phases*** prior to ground-breaking, and in general are completed at least several weeks prior to any earth moving activities at any particular location. Currently this phased approach appears to be sufficient for the identification of any ecologically-relevant PCS findings to be reported to contractor management and the local EHL Environmental Advisor, and therefore allows for micro-level alignment changes to occur to pipeline routing. IESC was informed that this phased approach has not yet caused any schedule delays.

EHL confirms that all PCS data are compiled within the EHL GIS system, including site-specific mitigations such as demarcation and avoidance of sensitivities. Maps and mitigation requirements are then used in the field to guide decisions on RoW or road access. Both contractor and EHL subsequently undertake verification and inspection to ensure mitigations are implemented. Observations and examples of this process will be provided in the next report.

On Hides Ridge, where roads and well-pads are being constructed, IESC has been advised that micro-level road routing and site-selection have occurred to specifically avoid:

- sinkholes where these were less than 50m and contained swamps at their base, and where
- bat caves were recorded but in-depth surveys had not been able to adequately access the caves to discount the presence of Bulmers fruit bat. From a pre-cautionary perspective, these caves had been avoided.

The PCSs have greater significance in the Hides area for the pipeline RoW where the alignment changes are not at the micro- level, but where significant re-routing is taking place (see Section 3.2.2.1).

Along the Hides Ridge, PCSs have been undertaken as far as the Wellpad-C site. Due to the aforementioned access problems (rain, flight groundings, etc.), the PCS team has incurred frustrating delays. However, surveying of the area from Wellpad-C along to Wellpad-D (and possibly out to Wellpad-E) is due to commence by end of November 2011. The tree-felling 'front' moving along the Hides Ridge is close to Wellpad-C (at mid-Nov) and was visited by members of the IESC team during this field visit. EHL informed the IESC that prior to any side casting, the contractor verifies the locations of any PCS-identified sinkhole swamps for avoidance during their side-casting assessment. Although side-casting and spoil had been disposed of into several nominated EHL-approved sinkholes along the Ridge, from our position on the roads above none of these appeared to be less than 50m deep with swamps at the base. However, the IESC reiterates the importance of locating and protecting these and other focal habitat features within this high conservation value area. In addition, the IESC recommends that the number of sinkholes used along the Ridge is kept to a minimum, to limit the impacts on permeability that disposing of side-cast/spoil into sinkholes may cause, and to minimize the project footprint. Although filling sinkholes with spoil or side-casting material may cause an increase in the number of sinkholes retaining water (and thereby increasing 'swamp-like' habitat), this is at odds with keeping the project footprint to a minimum. Although sidecasting was considered as part of the overall project footprint in the EIS, the basic concern is that the area will be more extensive than assumed. In any case, the areas covered by side-cast material are being recorded, as these will be accounted for in the biodiversity offset debt calculation.

The Lake Kutubu Wildlife Management Area is the only WMA with which the Project footprint overlaps. Lake Kutubu has been identified as a high priority ecosystem within the Biodiversity Strategy, and has been recognised as a Wetland of International Significance under the Ramsar Convention. The WMA is of high conservation value, not only for the unique assemblages of endemic fish that inhabit the lake, but also for its flora; for example, the high number of orchids already found, with new species still being

discovered[7]. Thus any activities which may adversely impact the catchment area must be very carefully managed. The pipeline tree-felling operations and earth-moving equipment are yet to reach the catchment area, but are expected to commence by Q1 2012 (see recommendations).

Regarding #16 of the Milestone Schedule, although it was originally envisioned that EHL's contribution to conservation in the Lake Kutubu area would fall within the Offset Delivery Plan, an MoC was previously approved to de-couple the Lake Kutubu conservation work from offset delivery. Instead, EHL has been in discussions with OSL with regard to their existing collaborative program in the WMA. EHL anticipates having their Lake Kutubu Conservation Program agreed with OSL by the end of 2011. EHL's contribution will focus on the implementation of a sustainable fisheries program intended to educate the community on the ecological processes of the aquatic habitat necessary to maintain and conserve the endemic fish species, and thereby ensure a continued source of protein and help conserve the fishing communities. A document detailing conservation program elements and their implementation is expected by the end of 2011–delivery of the conservation program will continue to be monitored via the Milestone Schedule (M#16).

One vital ecological communication tool with internal stakeholders is the dissemination and reiteration of company policy to all employees and contractors. For example at Hides, the IESC was shown the upgraded environmental induction presentation for anyone working on the Hides Spineline – EHL and C1 are to be commended on the range of ecological topics included and the depth of detail provided. EHL clearly understands the benefit of visual messaging, and posters highlighting potential safety risks and enforcing good practice are used to great effect through each of the camps visited during the mission. One issue that would benefit from clearer messaging at camp level is the company's policy on protection of local wildlife through reinforcement of the 'no hunting and harassment' message. The Ecological Management Plan seeks to prohibit through mitigation the "disturbance/harassment of wildlife, hunting of fauna, gathering of plants or bush foods, collection of firewood or possession of wildlife products by project workers or contractors while working, travelling in project vehicles, and residing in Project field accommodation". The mitigation focuses on information provided through inductions and general education. As construction activities mature at fixed locations, and also move into new areas along the RoW, reiteration of the no hunting/harassment message clearly to the workforce would be beneficial, ensuring its inclusion in all workforce inductions, and increased visual messaging through use of posters on notice-boards at all camps. (see recommendations).

Regarding the mitigation of impacts on species of conservation significance most likely to be encountered by construction activities, EHL's intention is to develop a series of species-specific management plans. As of November 2011, three species plans have been developed and shared with contractors. These are for:

- long-beaked echidnas;
- bowerbirds;
- tree kangaroos.

The plans contain information such as: details of these species in the Upstream area; descriptions to aid recognition (color images, signs of presence, guide to their calls); distribution and habitat preferences; ways to minimize the impacts on individuals from general interactions, or as a result of specific activities such as vegetation clearance; and guidelines on relocation, if appropriate.

The potential for a temporary ecological management gap was highlighted during mission discussions that could occur during handover of sites from a contractor back to EHL. It was suggested that interim management plans could be developed for such instances, focusing on issues such as reinstatement, erosion control and induced access, simply to ensure that a consistent management focus is retained during the handover period. (see recommendations).

4.7.2.3 Induced Access

Long term control of access to new project roads is a cornerstone commitment of the EIS and Induced Access Management Plan. As reported in the IESC fourth field visit report, there is now a drivable road along the whole Southern Route, from the Omati Delta up to Hides, although stretches of this road are not for general public access and are under EHL access control. Vehicular access is being restricted primarily

[7] *WWF Final Frontier: Newly discovered species of New Guinea (1998 – 2008), WWF Western Melanesia Program Office, 2011*

to project personnel, but also to local communities under controlled circumstances (e.g. right of access to land and/or hunting grounds). Controlled access management measures observed during the mission include:

- counterbalanced manual lifting road barriers on project roads, providing the opportunity for both driver and vehicle details to be logged by a security guard;
- non-barriered checkpoints on project roads, with security guards sitting in road-side shacks, noting passing vehicles; and
- existing OSL guards on OSL-operated sections of road in the vicinity of their facilities.

The management measures listed above will not necessarily prevent vehicular access, but they will deter uncontrolled access. EHL reports that the KPI on number of non-approved vehicles passing through vehicle check points is so far zero.

Post-construction, EHL intends to control access along the new project roads between Kantobo and Gobe through a combination of natural terrain features and removal of culverts. The IESC observed bridges at Kaiam and Mubi, where culverts will be removed; these rivers are intended to act as physical barriers to prevent movement into the area. Although this will likely deter access, if the desire to access a particular area is sufficiently strong, then removal of a culvert would not necessarily be sufficient to prevent access. EHL will need to consider the likelihood of post-construction required access, and the type and level of access monitoring that will be necessary in areas where culverts have been removed, to achieve the objectives laid out in the Induced Access Management Plan (of no public access being permitted). This is particularly important considering the possibility it may become a political issue, with various communities and politicians vying to retain good road access in the name of regional development.

A copy of the induced access register (dated 14/Nov/2011), otherwise known as the road register, was provided to IESC. The register lists all EHL-approved project roads, access tracks and shoo flies, and identifies site-specific potential impacts and a justification for the choice of road location. In response to a request for clarification, an overview was provided of the process by which access roads are identified, assessed and approved by EHL. A brief outline of this process is provided below:

1) Spiecapag identifies within a particular area/region, access roads that they will require to gain access to the RoW. The hierarchy by which they identify their access roads is that wherever possible established tracks or roads are used, in preference to opening up new tracts of land.
2) Spiecapag then undertakes a preconstruction survey (PCS) of the access roads to identify any environmental, social and/or cultural heritage sensitivities.
3) When the need for an access road is identified prior to the RoW PCS being undertaken, the access road area is included within the RoW PCS, and an induced access assessment included within the PCS report. If the need for additional access roads is identified after the PCS for the RoW has been completed, then the PCS information is provided to EHL via a site query.
4) The PCS report and/or site query is reviewed and challenged by EHL. Quite often, during the site query process an EHL representative visits the area where an additional access road is requested to ensure that the contractor's justification is valid.
5) Once EHL is satisfied with the request and is comfortable with the mitigation measures that the Contractor proposes to ensure induced access impacts are reduced, then the PCS report/site query is approved. In the instance of the site query, the PCS information in processed into a PCS report which is submitted to DEC (the PNG Dept. of Environment and Conservation).
6) EHL then updates the induced access register and the Contractor includes the details of the new access roads in their monthly report.

The process duly explained addresses Observation 2.4 in the Issues Table, and the IESC acknowledges that access road identification occurs on a phased approach as progress is made up the RoW. It is now more clear that the choice of access roads requires justification by the contractor, and that the road register itself acts as 'baseline' from which any new roads require specific assessment and approval by EHL. As long as this process is continually observed, then the IESC observation can be closed.

EHL has confirmed that they are not now expecting any more requests for additional roads until the Kutubu Central Processing Facility (CPF), as the existing OSL road follows the pipeline RoW. However, some updates are required to the existing road register; for example, the KP 278 to KP 292 RoW entry

(spreadsheet row 12) still focuses on lower induced access threats due to the push-pull method of bringing the offshore section of pipe ashore at the Omati Landfall. As construction and operational decisions are amended in reaction to changing events, the register should be fully reviewed regularly to ensure it achieves its mitigation objectives (see recommendations).

EHL Operations management presented an option they are considering in relation to a section of new road constructed by Spiecapag, which provides a short cut between the Kopi shore base and the Kopi scraper station. The shortcut connects two existing logging roads, and although currently under controlled access, it was originally earmarked for closure and reinstatement (as per all new project roads). If Operations now wish to retain the road, this will require careful consideration from an induced access perspective and will need adequate long-term controlled access measures to be implemented to ensure compliance with the Induced Access Management Plan (see recommendations).

During discussions between the communities and the IESC Social expert, it has become apparent that logging is still occurring in the vicinity of the project in the Omati/Kikori delta. Local communities report that there are three new logging operations exporting timber out of the Kikori by barge. This not only indicates the ongoing threat from access by logging companies, but also the fact that communities are very much aware of the presence of buyers for timber from their land. Although EHL has implemented their own timber-sourcing policy, the fact that logging operations are now again operating in the area highlights the importance of effective access management, in an area where good roads were rare prior to the Project.

4.7.2.4 Reinstatement

Effective footprint management starts with avoiding the need to reinstate, typically through reduction of surface area and vegetation clearance associated with project activities. Several examples of EPC5A's footprint reduction were observed along the RoW. For example, the design specification for the RoW is for a standard 30m width of vegetation clearance (apart from Hides Ridge which is 18m). Where the RoW shares the same corridor as OSL's oil pipeline (from approximately KP 117.5 to KP 129) the footprint of the OSL pipeline and existing access road provide sufficient width that only 15m of clearance has been required to accommodate the PNG LNG RoW. The 'RoW-width net balance' approach is to be commended, in that every effort is made to minimize footprint at every opportunity (for example, incorporating vehicle parks and pipe lay-down areas within the standard RoW width). In any case, any deviation outside a 30m clearance width by the contractor would require prior approval from EHL.

Local routes of existing access around the RoW have been identified within the PCS process by EPC5A's survey teams. Where existing tracks link the RoW to any road access, these are being used preferentially by the contractor rather than create new access roads. New roads associated with pipeline construction will be reinstated and existing tracks will be reinstated to their original condition. As these roads are still deemed necessary for RoW access and RoW reinstatement, access road reinstatement is yet to commence, but reinstatement management plans are now being developed for EHL approval. Due to weather conditions in the lowlands, some delays have occurred to RoW clearance activities and pipeline construction. Contractor ecological experts are still focusing on undertaking PCSs further up the RoW, but will return to the Omati area to initiate reinstatement activities according to the EHL-approved plans (see recommendations).

In addition to good footprint management measures, examples of unnecessary vegetation clearance were also observed. At Komo airfield, efforts have been made to reduce footprint through changes to airfield layout and airstrip width, but several areas within the boundary fence have already been cleared of vegetation with the intention for use by the project, only for plans to change and those cleared areas no longer being required. A similar situation previously reported was with respect to the size of Spiecapag's Kaiam Camp, where an area intended to be used as a laydown area for pipe was unnecessarily cleared, because an agreement hadn't been reached with CCJV for occupying the laydown area they had constructed. With better front-end planning, these infrastructure layouts should have been finalized and agreed prior to vegetation clearance in this forested environment. This has resulted in areas that will now require sediment control and reinstatement.

Reinstatement has begun at Komo airfield, with some slopes being stabilized and early planting started. A phased approach is anticipated, with soil stabilization and reinstatement starting on any areas no longer required by construction. A seedling nursery was observed at the site, from where in time all airfield replanting stock will be sourced. Local seeds and cuttings were chosen for their fast-growing and soil-stability characteristics. Staff has been sourced from the local Lanco to work the nursery, as they are

knowledgeable about native plant types and soil conditions. The small nursery is currently undergoing expansion to prepare for the volume of seedlings required to reinstate non-operational parts of the airfield. An additional nursery site is being prepared at the Tamalia Quarry, near Komo.

Detailed reinstatement planning is now starting, and site-specific reinstatement management plans are being generated. A few plans have been agreed among EHL and their contractors, and are now being implemented. For example, the C1 spoil dump at Hides, the C1 Kantobo-Mubi road, plus on slopes at the LNG plant where site infrastructure construction has been completed.

As Operations Management teams gear up to lead on certain sections of the project, areas previously defined as temporary access, and thus demarcated for closure and reinstatement, are now being considered as potential options for permanent access. IESC was presented a possible scenario by Operations of their possible need to keep in place access from the Kopi Scraper Station to the Omati Landfall; they state this is due to the need to maintain larger generators to support the pipeline control valves that had not been originally envisaged. Previously, IESC had been advised that ongoing vehicular access to this section would not be required and that the new project road (including spoil, aggregates and bridges) would therefore be removed and reinstatement undertaken. However, if such access was required beyond construction, the existing temporary spoil-aggregate structure would need to be removed. Similarly, the bridges currently in use were installed as temporary structures, and would therefore need to be removed and replaced with permanent bridges. Any replacement road access would require extensive hydrological and engineering design studies to allow for adequate water connectivity in the ecologically sensitive mangrove swamp. In addition, the IESC needs to highlight that not only does a permanent vehicular access option have implications for long-term controlled access (from an induced access perspective), but it also increases the permanent footprint of the project (see recommendations).

4.7.2.5 Invasive Species Management and Quarantine Management Program

Quarantine Management

EHL provided an update on recent quarantine-related activities and findings. The project is approaching the anticipated peak import-volume period (according to the Quarantine Management Plan schedule, dated Nov 2010). Pre-import offshore inspections are a high priority for EHL to avoid the need for in-country inspection and potential in-country washing or fumigation. NAQIA, the PNG National Agricultural Quarantine and Inspection Authority, undertook a pre-clearance inspection visit outside of PNG during August 2011. Their inspections included:

- two Saipem-owned pipe-laying vessels (one in Malaysia, one in Indonesia) intended for project use in the Gulf of Papua between the Omati delta and the LNG Plant, and
- A pipe coating and storage plant in Malaysia, from which project offshore pipes will be sourced.

Their findings related primarily to cleaning of pipes or specific ship areas, removal of items that could carry a biosecurity risk, and further actions the company and crew should take prior to entering PNG waters. It warned that follow up inspections would be undertaken once the ships reach the boundary of PNG territorial waters, which EHL informed IESC did occur. The NAQIA inspection report[8] was provided to IESC following our visit, so there was no opportunity to follow-up on NAQIA's recommendations whilst on mission. IESC did not visit either of the two pipe-laying barges currently residing in the Omati Delta (inspected by NAQIA), but it would be valuable to observe NAQIA undertaking an offshore inspection as part of the next IESC visit to understand the preventative measures they carry out prior to vessels entering territorial waters.

In-country NAQIA inspections have been occurring at Port Moresby, Motukea Island, and Lae. The IESC environmental team visited and inspected the private port facility at Motukea Island. Project related cargo is offloaded at the port, but offloading was not occurring at the time of the IESC visit. The Project stores a certain amount of cargo at the site prior to transportation to various PNG LNG sites. There were no NAQIA officers at Motukea Island to discuss port quarantine procedures, as they are only on site when cargos are being offloaded. The owners of the Motukea Island facility state they do not have any responsibility for quarantine, but are constructing facilities for NAQIA on-site. The IESC team visited NAQIA's newly built quarantine wash-down station and an office facility which should house several

[8] *NAQIA Pre-clearance Inspection of Vessels and Pipes for PNG LNG Project, August 2011.*

NAQIA officers once completed. IESC was informed that the wash-down station was constructed to NAQIA' s specification, which included bricked walls with a small aperture to enter, a concrete floor and run-off holes at the down-dip end of the concrete floor. This was located about five meters from the water's edge. With this drainage setup run-off is directly into the sea with no interceptor equipment included in the design. This non-containment and release of potentially contaminated run-off water would not be considered adequate in meeting international best practice standards. In fact, IESC was informed by the Motukea Manager that this PNG facility attracts many non-PNG vessels requiring haul-out and hull-cleaning because environmental regulations are less stringent than that demanded in neighboring Australia.

EHL is requesting performance indicator information from all contractors on the number of shipments received, the number of inspections undertaken by NAQIA, the reason for inspection (whether due to origin of cargo, whether it was break bulk cargo, or whether the documentation was lacking) and finally the result of any inspections (released, fumigated or washed). However, the majority of cargo required by some contractors (C1 and EPC5B) is already in country; unfortunately this has meant that not all performance data have been reported to date and EHL is seeking to obtain and analyze this data retrospectively.

For those contractors now routinely reporting performance data, it is becoming apparent that NAQIA has required a high proportion of re-fumigation and re-washing of cargo. EHL's metrics are summarized here:

Contractor	No. of shipments	No. of inspections	No. re-fumigations	No. re-washings
EPC3	776	670	106	7
EPC4	197	110	17	1
EPC5A	342	104 (30%)	17 (5%)	0

EHL considers that the high proportion of inspection, re-fumigation and re-washing events are due primarily to the origin of imported cargo (e.g. Middle East, a known NAQIA high-risk location), or because a large majority of equipment is being imported as break-bulk (versus containerized, considered lower risk), and therefore carries a higher risk of potential contamination. On the other hand, such intensive interaction with project cargo indicates that NAQIA do not appear to have a staffing resource issue (one of the risks identified in the earlier Quarantine Analysis). Although some freight clearance might not be as expedient as hoped, there have not been any significant delays to the project due to quarantine hold-up.

Due to the higher than anticipated re-fumigation/re-washing rate, the situation has been escalated to the EHL Safety, Health & Environment (SHE) Dept. The metrics chosen by EHL indicate the level of action taken by NAQIA, but do not provide sufficient detail to establish the success of the actions taken as a result of the Quarantine Management Plan/Quarantine Procedure. For example, the data collected do not distinguish between the re-fumigations/re-washings required due to actual contamination and/or infestation found, versus those required simply because of their import origin or container/break-bulk cargo status.

EHL is now proposing additional information be collected from contractors; quarantine data will in the future be more defined and collected through the non-conformance, near-miss and incident reporting system. This will be implemented through development of a Quarantine Index, which will include reporting from all contractors who should conform under the Quarantine Management Plan. The Quarantine Index will be closely tracked as part of the SHE Management System, and as long as all data is made available in a timely fashion by contractors, it should provide a regular opportunity to review performance at a senior management level. Ideally this system would have been implemented earlier and would have captured information on imports from all contractors, especially as the current peak in import volumes was predicted at least 12 months ago. Nevertheless, IESC commends EHL for their adaptive approach to information gathered so far.

Weeds, Pests and Pathogens (Invasive Species) Management

Weed management continues to be well executed by EHL and their contractors. Activities observed during the mission indicate that weed-surveillance is being approached methodically, and contractor teams undertake monitoring, weed removal by hand and spraying on a daily, weekly or monthly basis depending

on risk. Priority weeds species, such as Spiked pepper (*Piper aduncum*), White Tail Grass (*Pennisetum purpurea*), Giant Cane (*Arundo donax*), Kunai (*Imperata cylindrica*), Kudzu (*Pueraria phaseoloides),*and Bitter Vine (*Mikania micrantha*), have been identified on a stretch of new road at Heartbreak Hill, just up from the Mubi river crossing. A weed collection and drying station was observed on the side of the new road; this allows for locally centralized weed collection prior to burning, and it appeared to be operating well.

A permanent EPC5A wash-down facility to decontaminate vehicles passing through the Gobe to Kantobo area and beyond up to Hides Ridge was planned for the Mubi River area, replacing the original temporary CCJV station. However due to the aforementioned weeds being found to the north of the Mubi River, the wash-down option has now been replaced by more stringent monitoring and treatment mitigations, as described. An expert assessment of weed management will shortly be performed by Biotropica (Australia) and will be a project-wide review of weed management activities to date. Biotropica will offer recommendations on any likely improvements necessary to fully mitigate any risks. Their findings should be available prior to the next IESC visit.

The other priority weed control area requiring vehicle wash-down facilities is at KP 3.3 at the start of Hides Ridge. During the last visit, the team visited this temporary wash-down facility and it was "found not to be functioning at a level to prevent the transfer of soil". This was not listed as a non-conformance by IESC, as it had already been assigned a non-conformance by EHL and therefore likely to be managed back to a state of conformance. Whilst the permanent wash-down facility was still being constructed, an alternative 'upgraded' temporary wash-down facility was provided. However, observations made during this visit deem the 'upgraded' temporary facility to also be inadequate at preventing the transfer of soil; for example, vehicles that were pressure-washed on an aggregate unbunded base, then became re-contaminated with soil as they drove off the aggregate. In addition, although surface run off is directed towards Spoil Dump 9, soil contaminants washed off the vehicles may collect in the vicinity between the temporary station and the spoil dump, and a concentration will build up just outside of the clean-zone that EHL is trying to protect. Therefore this matter has been categorized as an IESC non-conformance (see Issues Table, Section 2).

IESC was informed by EHL that the permanent vehicle wash facility would be in operation by the end of Dec 2011; by that time, one of the two wash bays will have been completed. The permanent facility will be designed as a zero-surface-discharge system. It has been designed by an Australian vendor (with EHL input) with experience in designing vehicles washes for the mining and forestry industry. Wash-water will be recycled avoiding the need for discharge under normal operations and storm water level discharge events are incorporated in the design. Through use of flocculants, sedimentation, sampling / monitoring, and dosing units for fungicide if necessary (plus in a flooding event by use of an oily-water separator and perforated underground water discharge pipe allowing filtering through limestone strata), these design features should ensure that the dispersion of all weed-seed and *Phytopthera* contaminants will be controlled and moved away from the surface environment.

As part of ensuring an effective wash-down management system, the IESC reiterates the importance of ensuring that the vehicle wash-down certification scheme is closely monitored and regularly tested for consistent application.

The Moro B Camp A *Nothofagus* (beech) dieback lab to test samples from EPC5A and other contractors was under construction during the last IESC trip and not visited during this mission; a visit will be included during the next mission.

4.7.2.6 Freshwater Ecology

Prior to the site visit, the IESC requested a summary of responses to findings of the March 2011 IESC report related to freshwater stream studies, and status of any changes or results from this work. In response, the Project specialists reported after the site visit (22 December, 2011) that feeding guild analysis is not sensible without substantial prior knowledge of the fauna involved. In PNG, there is a lack of this prior knowledge, so assigning species or families to feeding groups is a hazardous and error-filled task that is extremely unlikely to give good results. IESC has previously aired the option to look at running these indices with the limited information available, but it should be stressed that this would be a tentative comparison that is more a test of the indices themselves and should not be relied upon for impact assessment. Such a test is also not possible until there are data from some impacted sites, as it relies upon differences between known reference sites and impact sites. None of the sites have yet been impacted, so this comparison cannot be made yet, even with the 2011 samples. Indices will be considered in future

sampling events that contain impacted sites, and will be "on trial" alongside the multivariate techniques currently employed. It is therefore concluded that it is still too early to assess the value of guilds for two reasons: i) not enough ecological information in PNG and ii) no robustly impacted sites surveyed so far.

In the last IESC field visit report, it was mentioned that the Project's freshwater monitoring program currently did not include post-wet season sampling events, and that a post-wet season sampling event would help improve the freshwater baseline and might help enable the Project identify if changes in freshwater ecology that are Project-related. The October 2009 sampling was hampered by high rain and many sites could not be sampled, or not with the same equipment. The 2011 survey was completed in July/Aug, i.e. about a month later than the June /July survey of 2010. Both have been successful in that conditions allowed access and successful sampling using comparative techniques at the majority of sites. One or two sites were missed (for other reasons), but otherwise very successful and comparative. EHL also increased the number of sites to 20. No quantitative results from the 2011 monitoring have been provided yet in report form.

4.7.2.7 Omati River Studies

EHL has completed the first year fisheries field studies, but the IESC has not seen the results, which are months overdue. The limited catch per effort data presented to date has been extremely variable, such that comparisons with baseline, during and post construction monitoring will be impractical.

Life histories of fish resources that will be impacted by dredging and pipe-laying activities have not been documented such that impacts can be predicted. The Omati River fisheries utilization study resulted in documentation of only three species by scientific name and five other general categories of species. It is unknown if any endemic species occur in the Omati. The IESC has requested a comprehensive list of species in the Omati River. EHL did provide historic survey results by Allan Haines, whose sampling sites extended quite a way west from the Purari and included the Kikori and into the Kikori/Era delta, extending to the east to the Newberry River, (an eastern arm of the lower Omati). EHL is waiting for the report of the fisheries team to see what species have been observed in the recent surveys and then will try to compile a list for the Omati.

The situation where impacts from dredging remain uncertain was not resolved prior to the start of dredging in October 2011. Because the IESC recognized that it is no longer practical to establish adequate baseline conditions, negotiations were conducted with EHL to develop and implement a monitoring plan, which ideally would include:

- sediment plume observations from helicopters;
- measurements of dissolved oxygen in plume;
- documentation of community grievances and claims from the quarter and EHL's responses and actions; and
- documentation of the visual monitoring (with photos of species dredged up) of dredging vessels equipment and hopper (i.e. information confirming the level of fish entrainment or impacts to wildlife).

Except for some photographs taken at the mouth of the Omati, specific results of construction monitoring in the Omati have not yet been provided.

4.7.2.8 Caution Bay Studies

EHL has completed the first year fisheries field studies in the four key coastal villages, but the IESC has not seen the results. Data needed to understand potential impact is quantitative information to characterize important fishing places in terms of catch by species by gear, and the value of the catch by species. Such information is not yet available.

Questions about inconsistency of Coral and Fish (CF) monitoring site designations have been resolved. Three sites with the highest hard coral structural complexity are in the middle of the path of suspended sediment plume resulting from the backfilling of the pipeline trench. These sites are also where the highest abundance and diversity of fish were observed in conjunction with the sites of increased coral reef complexity and health. This situation is recognized by EHL and these sites will be the focus of post-trenching impact assessments. EHL will explore possibility of obtaining video recordings of reef sites by the time of the next IESC field visit. It was noted that the existing sites will be sampled consistent with previous surveys; the additional video will increase observational area either side of the jetty and pipeline

areas. EHL has assured the IESC that adequate monitoring will occur during backfilling, but results are not yet available.

4.7.3 Recommendations

1) Consider the potential benefits associated with data sharing with the internationally renowned UNEP-WCMC (the United Nations Environment Program – World Conservation Monitoring Centre[9]) which holds the official World Database on Protected Areas, and hosts the IBAT resource (see website).

2) The IESC reiterates the importance of locating and protecting the sinkhole swamps and other focal habitat features especially within the Hides Ridge high conservation value area. The IESC recommends the number of sinkholes used along the Ridge is kept to a minimum, to limit the impacts on permeability that disposal of side-cast/spoil into sinkholes might cause. This will also minimize project footprint. IESC suggests that EHL seek some consistency in the approach where an area covered by spoil is rightly included within the project footprint, yet area covered by side-casting material is not.

3) The pipeline RoW tree-felling and earth-moving equipment will shortly be working within the catchment for Lake Kutubu, namely the Lake Kutubu Wildlife Management Area. EHL does not anticipate any adverse impacts on the Lake from increased sediment load, if all erosion and sediment control measures are carefully managed. The IESC recommends that EHL actively anticipate the likely risks to the special features of Lake Kutubu (if there were to be any temporary failure in mitigating any sudden, unanticipated increased sediment load), on water bodies and communities downstream of the RoW/road plus on the Lake Kutubu ecosystem itself.

4) There have been several delays to agreeing the Lake Kutubu Conservation Program with OSL (the action determined to address Milestone 16). IESC recommends that urgency be sought in finalizing the Program and initial steps be taken within a timeframe relevant to maximizing the benefit to the community.

5) Posters reinforcing EHL's commitment to no hunting/no disturbance should be incorporated into the company/contractor camp message-board system.

6) IESC recommends EHLs consideration of interim management plans ('handover punch-list' as discussed) to counter any transitional gaps that might potentially occur during periods of site handover (from contractor to company, or contractor to contractor). Such temporary interim plans should ensure that roles and responsibilities are clearly defined, and include some form of monitoring to ensure effective mitigation is maintained during such transitional periods.

7) The induced access register (the road register) should be fully updated on a regular basis to ensure it accurately reflects any changing decisions or circumstances made during construction and operation (and corrections made, as noted earlier in this Biodiversity section).

8) Whilst EHL Operations continue to consider keeping open the new Project road, allowing a shortcut between Kopi shore base and Kopi scraper station, the implications for mitigating any future induced access should be considered and included as part of the decision-making dialogue. The 700m section not previously in existence prior to construction by EPC5A will, if not closed and reinstated, require permanent access control measures.

9) IESC urges the Operations team to reconsider the need for permanent vehicular access from the Kopi Scraper Station to the Omati Landfall. Installing a permanent road structure, requiring the replacement of the existing temporary spoil-aggregate structure and with a structure suitable to allow adequate connectivity of water in the ecologically sensitive mangrove swamps, would require extensive hydrological and engineering design studies. IESC recommends reconsideration of alternative access options to this stretch of RoW including small helipads and/or use of a swamp barge in an attempt to minimize ongoing impacts on the ecology and connectivity of the mangroves.

[9] *www.unep-wcmc.org and https://www.ibatforbusiness.org*

10) A monitoring program of the dredging in the Omati River should be established as recommended by the IESC. Activities include: document the extent and duration of visible plume from the air; verify that anomalous dissolved oxygen (DO) is not associated with the plume at various positions and depths in the plume downstream of the dredging; estimate the number and species entrained in the dredging equipment; record and verify observations provided by community observers; and other measures outlined in Table 11 of the Omati Dredging Report.

11) If significant amount of large woody debris is removed from the Omati channel, the project should consider re-establishing lost habitat features.

12) EHL should perform additional video recording of reef sites by next IESC field visit (note that existing sites will be sampled consistent with the previous surveys; the additional video will increase the observational area either side of the jetty and pipeline areas).

13) The Project should conduct real-time sediment monitoring during backfilling at the LNG site landfall at Caution Bay, and at least two monitoring episodes following completion of the backfilling to assess impacts to the unique offshore coral features.

5 SOCIAL

5.1 INTRODUCTION

5.1.1 Scope of Social Review for this Site Visit

In total, the IESC engaged with some 180 people individually or in groups, including those affected by resettlement and communities living adjacent to Project works areas. The IESC social review included (but was not limited to) the following activities:

- introductory presentations by L&CA in Port Moresby;
- in-field discussions with a range of project personnel including project managers, L&CA officers, the resettlement team, and contractor community liaison and field staff;
- discussion with members of the Environmental Law Centre (independent observers of the RAP process);
- meeting with the CEO of the Hela Transitional Authority;
- meeting with the 'Village Court' auditors (CSS program)
- village meetings with Kopeanda resettlers and community members (2 groups);
- meeting with the Lea Lea Women's Group PIIM Committee;
- meeting with the Papa Fish Committee;
- meeting with the Boera Primary School committee and staff;
- meetings with communities adjacent to the Omati dredging works – Goare and Ai'dio villages;
- meetings with Kutubu High School principal, senior staff and committee members (Kutubu High School is the only high school serving the Highlands/Helas project area);
- informal interviews with displaced families at Hides quarries, the heavy haul road, Kopeanda landfill, the Hides quarries, the spine road and spoil dumps, Hides staging area;
- informal interviews with members of communities in the vicinity of major works areas[10]; and,
- informal roadside discussions at various locations adjacent to project sites and along the pipeline route.

Meetings with some Komo airstrip and HGCP resettler households did not take place due to untimely local/family disputes. Resettlers at Timalia declined to meet until some PNG LNG payment delays were resolved. A requested meeting with the DPE also did not eventuate.

Overall, IESC meetings and exposure to project affected communities was assessed as very satisfactory. With EHL's support, the IESC pursued an approach of more informal and unplanned exchanges and encounters with local people than on previous visits. This was in a large part possible because of the relatively benign security environment prevailing in the Highlands at the time of the IESC visit.

The IESC has yet to visit some of the communities in the mid sections of the pipeline route.

5.1.2 Highlights and Challenges

Highlights of the November 2011 visit for the IESC included:

- Omati Waterways community preparation, agreement negotiation and compensation disbursement was well planned and executed in an environment made challenging by the dispersed and isolated affected communities and a legacy of division within the receiving Kerewo tribe (see Section 5.4.2.9);
- Area Construction Managers had taken ownership of the grievance management process and it is now effectively mainstreamed into day-to-day project management (see Section 5.13); and,

[10] *Sites visited during the July 2011 IESC visit included, but were not limited to: Juni training facility; Kopeanda landfill resettlement; Hides Staging Area resettlement;Well Pad B and spine road resettlement;Hides Quarries 1,2,3 and 4 resettlement; people affected by land acquisition for the Heavy Haul Road; various replacement house & water collection structure sites in the Hides area; Komo Nursery, K; Goare and Ai'dio village adjacent to the Omati dredging; Kopi land fall and Omati waterway; Kopi Scraper Station; and Papa, Lea Lea and Boera villages, near the LNG terminal.*

- Community Development Support programs (see Section 5.11) are starting to bear results including the following:
  - 'Village Court' audit,
  - women's cooperatives fish market at Lea Lea,
  - cashew nut grower program,
  - Barging Route Waterways Committee.

Some of the emerging social challenges observed by the IESC during the November 2011 visit included the following:

- water has escalated from being a largely resettlement-related issue about access to water to being a broad community issue with growing concern about Project impacts on water quantity and quality, particularly in the Hides/Komo area (see Section 5.7.2);
- the particular needs and risks being faced by some vulnerable households have not been adequately identified and responded to by the Project, with some experiencing significant hardship and a deterioration in their standards of living (see Section 5.4.2.10);
- level of control and oversight over EPC contractors' security providers and assurance that their personnel are receiving adequate training to maintain behaviors consistent with the Voluntary Principles;
- legacy issues arising from unresolved dealings with the government for the oil project stymying EHL's land access negotiations for PNG LNG, notably in the Homa/Poua area; and,
- rising community concern that promises and commitments made by the government with respect to improvements in services and infrastructure during the benefit sharing negotiations will not be delivered (Section 5.14.2).

5.1.3 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.

5.2 L&CA (FORMERLY SELCA) ORGANIZATION AND RESOURCES

5.2.1 Project Strategy

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

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

Goal:

- support Project success by mitigating execution risks with community engagement and by developing a 'social license to operate'.

Objectives (refined since the July – August 2011 review):

- secure and facilitate ongoing land access;
- anticipate and mitigate construction and production interruptions;
- develop EHL's Social License to Operate through its relationships with the communities where it works;

- facilitate compliance with company policies & Project socioeconomic commitments; and a new objective has been added,
- develop EHL national staff into the corporations' socioeconomic leaders of the future.

5.2.2 Observations

5.2.2.1 L&CA Organization

The L&CA organization had been changed. The 'Local Content' team had reverted to being under the L&CA umbrella.

Organizationally, the area that now needs streamlining is the L&CA field teams. While the field teams now report to Area Construction Managers, they continue to be organized into 'functional departments'. During one village discussion, the IESC heard references to the following L&CA field roles:

- Land and Community Affairs;
- Resettlement (RIT);
- Livelihoods;
- Business Development;
- Community Development Support;
- Timber and Housing;
- Monitoring and Evaluation;
- Stakeholder Engagement.

For community members, this is a bewildering array of project personnel that they have to deal with. This fosters confusion and does not facilitate building of long-term relationships and trust. From an EHL perspective, this number of departments risks information and inquiries falling between gaps and lends itself to 'buck passing' when things go wrong.

A more typical project field organization might see each community exposed to only 2 or 3 project faces:

- land officer - for land access negotiations, compensation payments, addressing land administrative issues and complaints;
- community relations officer – for information disclosure and consultation (stakeholder engagement), monitoring social impacts and mitigations, monitoring vulnerable people, overseeing community development support, and addressing concerns and complaints; and,
- resettlement officer (for duration of the resettlement program only) - managing resettlement, replacement housing, livelihood restoration and RAP related monitoring and evaluation.

These 2-3 officers should become the relationship managers for the communities to which they are allocated. All project communications and interactions with a given community should be directed through one of these officers. Ideally, one officer might be male and the other female. Such an arrangement would have the following benefits:

- more efficient construction team organization;
- clear accountability in terms of reporting to the construction manager;
- facilitate relationship and trust building with each community;
- provide continuity in managing issues and complaints;
- provide for an easy transition to an operations phase organization; and,
- efficiencies in staffing.

This approach does assume that field staff has skills across a number of disciplines. This will require systematic training of existing staff. Already within the EHL field staff, there are some very highly qualified and experienced individuals who could add greater value with expanded roles.

Another challenge for managing field staff is the conflict of interest that inevitably arises where an L&CA officer is working in his own community. While this brings benefits in terms of local knowledge, it can also leave the L&CA officer in a difficult situation where their corporate responsibilities conflict with local interests or their community role. Senior L&CA officers have also previously spoken to the IESC about

intimidation and threats against their families where interests become crossed. L&CA management should be aware of the issue and promote:

- training and raising of awareness of the different roles an L&CA officer has to balance, what is a 'conflict of interest' and what officers should do when they encounter one; and,
- monitoring and mentoring by senior staff to help field personnel avoid or manage conflicts of interest or allegiance when they occur.

5.2.2.2 L&CA Staffing and Resources

As an outcome of the July – August 2011 review, the IESC expressed concern about the high turnover in L&CA managers and senior project staff and the risks that this posed to effective implementation of the ESMS. A Level II non-conformance was raised. The L&CA team has continued to experience losses of some of its key technical leads including those for stakeholder engagement, resettlement, labor/contractor compliance, infrastructure development support and project induced in-migration. Replacements have been recruited (but have not necessarily commenced their roles) to take up most of these positions. L&CA has made good progress in increasing its national staff hire. The team is now 80% national. It has also reduced the number of vacant positions.

During the November 2011 review, EHL indicated that the following actions were underway to address the IESC's concerns:

- appointment of a senior Exxon-Mobil manager to replace the acting L&CA Manager;
- intensive recruitment with 43 new hires commenced or about to commence since the July-August 2011 review; and
- establishment of 'call-off' agreements with several key technical leads who have left the project so that they can be on call if their advice is needed.

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

National staff	120
Expatriate staff	35
Total	***155***
Unfilled positions	25

Of the 155 current L&CA staff, 66 are based in Port Moresby and 89 are field positions.

The IESC recognizes that EHL has made a concerted effort to try and address the staffing problems that have arisen. The IESC will, however, continue to maintain a close watch on the L&CA staffing and performance. The effective induction of new technical leads while maintaining an outward focus on servicing construction management needs during the pre-election and peak construction period will be challenging. While actions have been taken, it is premature to assess results. The Level II non-compliance is retained and will be re-assessed again during the March 2012 review.

5.2.2.3 Information Management

HSE stop-card type Grievance and Community Observation and Interaction Report cards had been printed and were about to be introduced to improve recording of field observations, meetings, feedback and complaints. Improvement to the information management system templates and reporting are ongoing, but key social management reports are now effectively being produced.

5.2.2.4 L&CA Challenges

Key challenges for the L&CA team in the coming period include the following:

- effective induction of new technical leads while maintaining an outward focus on servicing construction management needs;

- continued aggressive recruiting to fill remaining vacant positions with qualified and experienced candidates;
- streamlining of the field team organization – replacement of functional department approach by multi-skilling field staff to fill multiple roles;
- effective response to the misinformation, rumors and agitation that will arise in the lead-up to the election;
- make further progress towards more systematic community monitoring and reporting as described in the July-August 2011 IESC report; and,
- continued focus on improved level of compliance with Lender Environmental and Social Requirements – reducing level II non-conformances.

5.2.3 Recommendations

1) Continue aggressive recruiting to fill remaining vacant positions with suitably qualified and experienced candidates.
2) Streamline the field team organization – make primary community contacts a land officer, a community relations officer and, in the short term, a resettlement officer. Multi-skill field staff to fill multiple roles.
3) Provide training to L&CA field staff about what constitutes a 'conflict of interest', and what personnel should do when they are faced with such a situation.
4) Design and implement an effective village monitoring program with:
    a. a procedure to be followed in each village or community (dependent on characteristics, level of impact);
    b. a list of key types of people to be engaged with during each event;
    c. a 'stop-card'- type checklist for recording findings (roll-out underway);
    d. a roster setting out frequencies for monitoring visits to all project affected villages/ communities and the L&CA members to be responsible; and
    e. monitoring training for implementers.

5.3 LAND ACCESS

5.3.1 Project Strategy

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

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

5.3.2 Observations

The Project Manager confirmed that at the time of the November 2011 review, construction activities were not being delayed by any land access issues.

The IESC was briefed by the Operations team on its approach to siting above ground facilities. The briefing also provided information on valve station design changes presently under consideration. These changes would result in a need for significantly larger diesel generators than originally planned and increased fuel volumes. Fuel transport was originally planned to be undertaken by air. Access roads to each valve station were required. The Operations team was well aware of induced access issues. The implications of valve station access roads in different situations were discussed.

Arising from the discussion, the IESC recommends greater coordination between the Operations team and the L&CA team to ensure that the two groups fully understand each other's requirements and ESMS obligations. Where not covered by existing landowner agreements, the acquisition of rights to land for additional access roads could be a significant task for the L&CA team. The Operations team also needs to work closely with L&CA to resolve approaches to applying land use restrictions around above-ground facilities associated with the pipeline[11] This needs to be tackled in a strategic and not a piece-meal manner.

The IESC observes as follows:

- the rights to land needed to ensure safe operation of the pipeline need to be defined – these may or may not be satisfactorily covered by existing landowner agreements;
- rights to land are likely to need to cover:
  a) areas that will need to be leased for permanent above ground facilities/ fenced enclosures;
  b) areas beyond fences that will need to be cleared of forest and vegetation for fire management or to prevent physical damage due to falling trees or limbs;
  c) areas outside of fences subject to various types of restrictions (e.g. on excavation, tree felling, fires, use of explosives, dwelling construction, and the like); and,
  d) areas where the project may require a right of access with or without roads for routine inspection, maintenance and repairs or emergency access.
- where the necessary rights to land are not provided for in existing landowner agreements, or where land is cleared, new agreements will need to be entered into and compensation paid;
- where there is physical or economic displacement, L&CA will be required to prepare a RAP or CRP. If possible, the IESC would like to see one CRP covering all pipeline above ground installations and restrictions of use;
- not too far in the future, L&CA will need to develop clear tools for communicating to landowners, users and relevant government agencies what activities are allowed or not allowed in the various zones around the pipeline and above ground installations.

All the above are substantial tasks that will take time to execute. These task should be completed before pipeline commissioning is commenced.

The issue about who will undertake the social screening as part of the site selection process and who will ensure that SMP commitments are addressed during pre-construction surveys still has not been addressed. This issue has gone unaddressed for three consecutive reviews. The Level II non-conformance is maintained but will be escalated in the March 2012 review if it persists. This is surely a straightforward matter to fix.

5.3.3 Recommendations:

1) Hold a workshop or similar between the Operations team and Area L&CA Managers to define land requirements, buffers and restrictions to be applied around above ground installations and agree the best approaches to achieving these.
2) Ensure that project schedules have sufficient allowance for securing Operations phase rights to land and for providing training and education to landowners and adjacent communities on safety issues and land use restrictions.

[11] *Above ground installations include the following: Main line valve stations; pig launchers/receivers; check valves; cathodic protection transformers and anode beds; communications buildings; diesel gensets; emergency vents; helipads; and, access roads to the above.*

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 and continuing participation during implementation and monitoring/evaluation;
- compensate people affected by land acquisition for loss of assets at full replacement value;
- improve the living conditions of physically displaced households;
- design and implement in a timely manner culturally sensitive and economically sustainable income restoration measures;
- devise measures to support physical relocation and re-establishment;
- identify and provide special assistance to people who are especially vulnerable to displacement impacts; and
- carefully monitor and evaluate to ensure that resettlement measures are meeting the needs of affected people and to identify the need for and implement corrective measures.

5.4.2 Observations

5.4.2.1 Resettlement Logistics

Nine houses had been completed at the time of the November review, six in Q3, 2011. With implementation of measures described below, delivery of a further 60 or so houses will be required.

The resettlement team has taken the following measures to address the backlog in housing/ housing materials delivery to resettled families:

- 36 housing agreements were renegotiated to cash in Q3 2011, in cases where the resettler had already built a replacement house equivalent or superior to his/her original house and where the resettler agreed cash was an acceptable substitute;
- self-built replacement houses were checked for quality of the house compared to the original, satisfactory water supply, condition of new gardens and adequate toilet facilities;
- EHL placed an order with PNG Forest Products for 10 kit homes to be delivered by the end of 2011;
- EHL now has two house construction teams constructing two houses at once, with each house now taking about three weeks to complete;
- prefabrication of some housing components has started at the Timber and Housing team's laydown area to accelerate house construction at more accessible sites; and,
- going forward, new agreements for linear works (not yet viewed by the IESC) include an incentive for resettlers to self-build their replacement housing.

It was too early to determine whether the measures outlined above will prove effective in reducing the backlog of committed houses within a reasonable timeframe. The resettlement team was still unable to provide a clear indication as to when the required 60 or so resettler houses will be completed. In the meantime, the IESC encountered at least two cases of vulnerable households enduring unacceptable living conditions, in part due to slow delivery of replacement housing. The number of houses that can be delivered in Q1 2012 will provide an indication as to whether the additional measures are effective. The current non-conformance will be retained until there is actual evidence of accelerated delivery.

Construction of access roads around the Komo airstrip and HGCP sites to meet the IFC PS 5 requirement for 'adequate housing'[12] has commenced. The related non-conformance is lifted.

5.4.2.2 Progress in Defining Physical and Economic Displacement

Table 5.1 provides Resettlement team estimates of Phase 1 (2010-2014) physical and economic displacement based as of August 2011. Bracketed figures indicate estimates provided in the October 2009 RPF.

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

Project Facility	Description	Area	Estimated Physically Displaced Households		Estimated Economically Displaced Households		Total All
		Ha	N	Δ	N	Δ	N
Komo airstrip		522	29 (24)	-	10+49 minor compensation (6)	+49	88 (30)
Komo access road		--	16	16	5+132 minor compensation	-	153
Facilities	Including: HGCP Kopi facilities (TBD) Juni training facility	327	56 (+TBD) (63)	-	10 (+TBD)+61 (+TBD) (8)	+61 (+TBD)	127 (+TBD) (71)
Pipelines	Pipeline and spine lines based on 30 m corridor	1,136	30 (50)	-	30+150 minor compensation (TBD)	+90	210 (50)
Well pads + access roads	Hides well pads: A, B, C, D, E and G and access roads	173	25 (+ TBD) (TBD)	-140	30+252 minor (+TBD) (TBD)	-190	307 (TBD)
Heavy Haul Road	Based on 50 m corridor	522	150 (253)	-	100+750 minor compensation(TBD)	+550	1000 (253)
Quarries	Includes roads & support infrastructures	128	31 (+TBD) (55)	-1	130 +380 minor compensation (TBD)	+136	541 (55)

[12] *See the IFC PS5 Guidance Note for direction on what constitutes adequate replacement housing: "Adequate housing should allow access to employment options, markets, and basic infrastructure and services, such as… health care, and education."* (para. G6).

Project Facility	Description	Area	Estimated Physically Displaced Households		Estimated Economically Displaced Households		Total All
		Ha	N	Δ	N	Δ	N
Landfill	Hides & Gobe (TBD)	54	38 (+TBD) (15)	+3	51+433 minor compensation(+TBD) (TBD)	+373	522 (+TBD) (15)
HDD	Tagri, Mubi, Wah and Kikori	31	TBD (5)	-	TBD (TBD)	-	TBD (5)
Camps		111	25 (TBD)	-	17+125 minor compensation (TBD)	+45	167 (TBD)
Total		**3,079**	**400 (+TBD) (465)**	**-122**	**2,715 (+TBD) (TBD)**	**+1,114**	**3,115 (+TBD)**

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

5.4.2.3 Land Access and Resettlement Process Issues

Four further RAPs and CRPs were reviewed and approved by the IESC in the period since the last review. EHL now has 13 RAP and CRP documents disclosed on its website. The status of RAP/CRP documents as of November 2011 is summarized in Table 5.2.

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

RAP	Received	IESC Reviewed	Lender/IESC Approved	Finalized & Disclosed on EHL website
Komo Airstrip	✓	✓	✓	✓
Hides Gas Conditioning Plant RAP	✓	✓	✓	✓
Hides Quarries 1-3	✓	✓	✓	✓
Heavy Haul Road (for some sections)	✓	✓	✓	No
Komo Airstrip Access Road	✓	✓	✓	✓
Kopeanda land fill	✓	✓	✓	✓
Omati to Kaiam CRP (KP 227-292)	✓	✓	✓	✓
Kaiam to Kantobo CRP (KP 153-227)	✓	✓	✓	✓
Kutubu to Kantobo CRP (KP 80-153)	✓	✓	✓	✓
Kutubu to Moran CRP (KP 65-80)	✓	✓	✓	No
Timalia Borrow Pit	✓	✓	✓	✓
Hides Quarries 1-3: RAP Addendum 1 (Well Pad B)	✓	✓	✓	✓
Hides Quarries 1-3: RAP Addendum 2 (Quarry Expansion)	✓	✓	✓	✓
Hides Quarries 1-3: RAP Addendum 3 (Spoil Dump 1 & Extensions)	✓	✓	✓	✓
Quarry Area 1 (Tumbi Quarry) RAP	✓	✓	✓	✓
Hides Vehicle Staging Area RAP	✓	✓	✓	✓
Caution Bay CRP	✓	✓	IESC to review revised doc.	No
Omati Waterways CRP	✓	✓	IESC to review revised doc.	No

5.4.2.4 Valuation of Trees and Crops

The resettlement team has commenced preliminary planning for the top-up payments to achieve full replacement value. These will be undertaken during the first half of 2013. The following activities were reported to be underway at the time of the November visit:

- access database was being updated;
- top-up compensation calculations were being prepared, to be completed by end of November 2011; and,
- valuation study for mid and lower altitude project areas by ANUE was scheduled for completion by the end of November 2011.

5.4.2.5 Spineline Alignment in the Vicinity of Well Pad A

The IESC strongly endorsed EHL's decision not to proceed with development of Well Pad A. The decision resulted in avoidance of resettlement of about 100 households in the center of Hides (not anticipated in the RPF). It is noted, however, that the spineline that collects the gas from Well Pads B-G is still shown as running near Well Pad A and through locations that are densely settled. Consistent with the RPF obligation to avoid, or at least minimize, displacement of people, and the decision not to develop Well Pad A, serious consideration should be given to re-routing the spineline away from these populated areas.

5.4.2.6 Heavy Haul Road

The IESC has previously strongly recommended that EHL look at alternatives to the Heavy Haul Road on account of likely impacts to dwellings, gardens and waterways. The Project is considering possible alternatives with a decision on a preferred way forward to be made shortly.

5.4.2.7 Resettlers' Access to Water

Project impacts on water quality and supply have escalated beyond being a concern solely of resettled households. These wider impacts and possible responses are discussed in Section 5.7.

The resettlement team is continuing to construct water collection structures and has completed 19 of 29 planned water collection structures to provide communal access to water at resettlement locations or where community water supply had been impacted. The resettlement team is also installing some smaller scale structures, including 200-liter household tanks in situations where the communal structures are not suitable. Problems with maintaining communal access to the water houses continue to be encountered. The IESC was generally satisfied with the progress and efforts being made to address resettlement water supply.

5.4.2.8 Resettlement Monitoring and Reporting

No internal resettlement monitoring report was available for the November visit. The IESC hopes to see dashboard-type summary reports for communicating progress and issues to the senior project management team in regular use by the time of the March 2012 review.

5.4.2.9 Fisheries Baseline and Livelihood Plans

RPF Table 8 refers to two livelihood plans that were required to cover fisheries impacts, namely:

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

Dredging commenced on the Omati Waterways a few days before the IESC's November 2011 visit. On the basis of Project team and waterways villagers' accounts, the process of information disclosure, consultations, agreement negotiations, compensation disbursement and a ceremony at Goare was assessed to have been thoroughly planned and execution was smooth. Given the logistical challenges and some division within the Kerewo tribe, this is a significant accomplishment for the EHL team.

Daily monitoring of Omati communities was not occurring due to boat availability issues. This needs to be resolved. The communities raised some issues that may or may not have been related to the dredging (see the box below). These issues can probably be straightforwardly managed, provided a CLO responds in a timely manner. If not, as one community member suggested, there is a risk of the issues being escalated.

"*If the Project CLO doesn't show up to see evidence of our complaints, we will blame the Project for everything*." Goare woman (half in jest).

"*I have only one complaint – not enough sleep. We stay up very late watching the dredge lights moving up and down the [Omati] channel. It is very interesting*."

"*Discolored water from the dredge was carried up the creek where we make sago. It lasted 6-7 hours. When we made sago, it had a blackish color. It tasted sour."*Goare women.

"*Some people have experienced itchy skin after bathing in the river… and coughing. We don't really know if this has anything to do with the dredging or not."*Goare man.

"*We have seen some dead fish and crabs."*[With further inquiry, these were found to consist of: a large dead shark on the seaward coast, well away from the Omati waterway; two small crabs; and, a salmon]

IESC comment: The CLO monitor needs to be able to respond to these kinds of complaints fairly rapidly to record times, direction of tide, the number of people actually affected and other specific circumstances. If left unattended, these kinds of issues can gain currency and take on a life of their own. After the fact, circumstances become very difficult to substantiate or refute.

IESC comments on a draft Caution Bay CRP were discussed during the visit and a revised document has subsequently been submitted for final approval. In terms of Caution Bay CRP implementation, the IESC was generally satisfied with the level of community preparation, information disclosure and access arrangements that had been put in place to cover construction of the LNG jetty and ship loading platform.

EHL has initiated in-principle discussions with the PNG Department of Transport Maritime Security section regarding the Operations phase exclusion zones to be applied around the jetty and ship loading platform. The need for adjacent villagers to be able to transit through the jetty structure was discussed and a number of options were considered. A final exclusion zone concept will be developed as part of the Terminal Security Plan. This will be submitted to the PNG Maritime Security authority for final approval in mid-2013. Agreed principles included the following:

- a 500 meter radius exclusion zone will be established around the end of the jetty that encompasses the Ship Loading Platform and critical equipment area to be in force at all times; and,
- a section of the jetty will be designated and marked to allow small vessels to pass under the jetty structure.

The IESC is comfortable with this outcome. Operations phase impacts on villagers' marine transportation, access to the foreshore, mangroves and fishing grounds will be minor and are addressed in the Caution Bay CRP.

5.4.2.10 Vulnerable Households

A key thrust of the IFC Performance Standards is that particular attention be paid to vulnerable households to ensure that they are able to fully benefit from resettlement and social programs. The RPF includes commitments that the Project will "…*identify and provide special assistance to people who are especially vulnerable to displacement impacts*" and will "…*carefully monitor and evaluate to ensure that resettlement measures are meeting the needs of affected people to identify the need for and implement corrective measures"*.

The IESC is concerned that after more than 18 months of resettlement activity, the resettlement team still has not operationalized effective measures for identification, consultation, monitoring and responding to cases of hardships amongst vulnerable households. During its field interviews, the IESC was taken to two women-headed families, clearly vulnerable, who had to relocate twice and whom were now in need of basic humanitarian assistance – food, water, assistance to construct shelter, counseling and support. Details of one case are presented in the text box. The two families' conditions were apparently known to both Resettlement field officers and the Resettlement team management and yet no substantive action had been taken to improve their conditions.

These cases represent a fundamental failure of the Project's resettlement management system to meet one of the most basic tenets of IFC Social Performance Standards – pay particular attention to meeting the needs of vulnerable people. IFC PS 5 and the process of resettlement planning have evolved to ensure that cases like these two families do not occur. The Project should examine carefully how this failure has been allowed to happen.

In addressing the failure, EHL should also be mindful of its responsibility under the "*UN Guiding Principles on Business and Human Rights*" to "*avoid causing or contributing to adverse human rights impacts*" through its own activities, and to "*address such impacts when they occur*" (Principle 13(a)). In particular, reference should be made to "the *right of everyone to an adequate standard of living for himself and his family, including adequate food, clothing and housing, and to the continuous improvement of living conditions*" (*International Covenant on Economic, Social and Cultural Rights*, Article 11).

A level II non-conformance has been applied. In its defense, EHL had recently completed a draft of a manual defining procedures for dealing with vulnerable cases and appointed an officer to be responsible for monitoring vulnerable people. These actions alone should not be seen as a panacea for a wider review. The following actions are recommended:

- provide immediate humanitarian assistance to the two families to address the basic causes of their hardship and to remedy the hardship they have experienced as a result of the Project, and prioritize them for replacement housing;
- review the reasons why no action was taken to address the adverse impacts on these 2 families earlier – initiate necessary systemic changes to avoid such cases recurring in future;
- have an experienced social development specialist provide refresher training to the Resettlement team and management on Project obligations and applicable standards under the IFC Performance Standards, the RPF (and UN Guiding Principles);
- develop (or update) clear criteria for vulnerability in the Project context;
- prepare a consolidated register of vulnerable households from the records of the Environmental Law Centre, the Livelihood team and the Census and Survey team;
- undertake a rapid audit of all recorded vulnerable households to determine their current condition and any urgent need for assistance; and
- establish a program of regular monitoring to ensure that vulnerable households are visited monthly, or other frequency commensurate with their circumstances, until their living standards have been restored.

Example of Vulnerable Household:

The household consisted of a Huli mother with 7 children. Her husband took a new wife after the family received compensation for loss of land and dwelling for a project road. The mother was promised a replacement house, but after seven months of waiting, she traded her relocation rations and share of the compensation to secure help from relatives to build a traditional house with bush materials. Without rations and garden area, the family has struggled with insufficient food. Four months after completing her house, the family was required to resettle again for a spoil dump. The woman dismantled her house and moved with her children to live in a temporary tarpaulin shelter. The family had been in the shelter for six weeks at the time of the IESC interview. During the second relocation, the woman's youngest child died. The woman sought early release of part of her Part A compensation entitlement from the Project to cover funeral expenses, but the Project refused. The mother will receive a second compensation package, but at time of agreement negotiation could not get any firm commitment from the project as to when her replacement house might be built. The family complained about the dust from the adjacent construction. They are having difficulty obtaining water. The family's situation remains tenuous. They have been granted land (via the husband) to construct a house, but have no land for gardens. The family is unable to return to the mother's family land as the family land is already divided amongst a number of brothers, and a further large family would not be welcomed. When asked what were her priorities were, the mother replied:

- replacement house as soon as possible;
- food/extension of rations;
- labor to clear and cultivate a new garden area.

5.4.2.11 Speculative Development

The July IESC review commented on the increasing number of 'speculative' structures being built on Project lands after the cut-off date (i.e. the date upon which the census and survey for a given site have been completed) and suggested that if speculative activities continue, it may be necessary for EHL to assert its rights as license holder by initiating some trespass actions in accordance with Section 122 of the *Oil and Gas Act* (1998). As of November, the Project was preparing to take this advice in the hope that a small number of such actions (or the threat of such actions) would serve to discourage ongoing illegal activity.

The longer term solution must lie with EHL reaching agreement with landowner clans on conditions to be incorporated into land rental agreements that define use restrictions (e.g. no lighting of fires, tree felling or construction of houses) within critical Project areas. See also the discussion in Section 5.2.3.

5.4.3 Recommendations

1) Look at re-routing the spine line away from populated areas such around Well Pad A.
2) Resolve access to boats in the Omati waterways so that daily community monitoring can be carried out.
3) Facilitate the local Lanco (Kerewo Gas Investments) to approach Kikori Lanco and get their boat and outboard (a LBSA seed money investment) registered for engagement on the Project.

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 IESC met with ELC as part of its November 2011 review. Matters discussed included the following:

- project progress in strengthening land and resettlement contracts administration (see recommendations arising from the July-August 2011 review – yet to be fully implemented);
- need for EHL to have relevant technical experts attend public disclosure meetings so that people can receive clear and accurate responses to queries – this is part of fully informing affected communities;
- confusion over entitlement to furniture and white goods as part of housing packages (apparently arising from some graphics on an explanatory brochure);
- need for the Project to consult with and have the consent of all the disputing parties when the Project is negotiating access to disputed land; and
- potential for court actions arising from the alleged failure by the government to honor commitments made in LBSA agreements.

The IESC is awaiting clarification from the EHL legal team on an inquiry made about the status of a court restraining order on clans disputing ownership of the Daware camp site.

EHL has commenced the process of retrospectively translating all contracts into Huli and issuing these to affected parties. About one-third (90 out of 265) contracts had been translated at the time of the November review.

The contract must also be translated into appropriate languages for other ethnic groups whose land is traversed by the Project. In terms of compliance and contributing to affected people's understanding at negotiations, translations should be available prior to negotiations and signings, not after the event.

5.5.3 Recommendations

1) Ensure that relevant technical experts attend public disclosure meetings so that people can receive clear and accurate responses to queries.
2) Consider appointing a resettlement contracts administrator or local external legal counsel or equivalent to be responsible for contracts review and tracking compliance with contractual commitments (repeated).
3) When the Project is negotiating access to disputed land, ensure that it consults with and obtains the consent of all the disputing parties.
4) Translate resettlement agreements into appropriate local languages (in non-Huli area) to be available prior to negotiations.

5.6 LIVELIHOOD RESTORATION

5.6.1 Project Strategy

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

- delivery of weekly food rations or cash equivalent to ensure household food sufficiency for a nominal 9 month or 6-month period, in the case of linear routes, while food gardens are re-established;
- agricultural extension services, a tool package and supply of pathogen-free sweet potatoes to facilitate re-establishment of food gardens and food sufficiency;
- technical assistance to help resettlers to develop cash earning activities and enterprises; and
- provision of Compensation Advisor to assist and advise on compensation investment and business options.

5.6.2 Observations

EHL has designed a conservative agricultural program that draws on 20 years' experience of what has and has not worked in Papua New Guinea. It is being delivered by a PNG and expatriate team of the highest

caliber. The team finally has all staff positions filled. Both the livelihood team and its beneficiaries seem enthusiastic and motivated.

The Livelihood team is producing regular monitoring reports for each of the resettlement sites. A key indicator for reporting is developed sweet potato garden area per adult equivalent. Monitoring results show quite variable rates of replacement garden development across resettlement sites. Those resettlers that were working better quality soils prior to their relocation appear to more quickly develop replacement garden area equivalent to or exceeding their pre-relocation areas (e.g. Kopeanda, Timalia) or exceeding the 600 m^2/adult equivalent target for food sufficiency (e.g. Komo airstrip). In other areas, in the short term, focus on agriculture is constrained by:

- shortage of on-farm labor (due to construction work with Lancos); and
- abundance of cash to buy food as result of off-farm paid employment and compensation payments.

The initial focus of livelihood restoration has been on boosting food production through supply and distribution of (1) pathogen-tested sweet potato vines (up to threefold increase in yield per unit of land compared to low yielding local varieties); (2) corn seed (food supply within 100-110 days in Highlands conditions); and, (3) cassava (for flexible harvest times, high yield in poorer environments and value in enhancing food security). Food security experts on the Livelihood team currently do not foresee any major food sufficiency issues as LNG employment declines.

Following on from household food security programs, the Livelihood team has focused on other programs to diversify household production and generate cash income. Such programs include:

- training and distribution of ducklings and baby chickens;
- distribution of bud grafted oranges and mandarins;
- training in temperate vegetable production methods;
- agro food processing including training and distribution of drum ovens to enable women to bake scones and cakes (for cash income);
- pig breeding services and training of contractors to produce pig feed formulation; and,
- training and provision of nursery screen houses to establish contract growers for local sweet potato disease screening and multiplication, as well as citrus grafting.

During the course of its field visits, the IESC encountered a number of resettlers with very constrained garden areas, clearly not sufficient to support their family needs in the long term. The Project anthropologist argues that the Huli are multi-locational, and that those experiencing shortages of land at any one location have the possibility of moving to other lands belonging to clan or family members. This may or may not be the case in the Hides area, where concentrations of resettlers are high and some clans have incrementally lost large areas of their Hides landholdings. It is certainly not the case for divorced women, or for non-Huli males who have married into the local area. EHL monitoring needs to track those resettled or economically displaced families surviving on very small land areas. Some of these may need further assistance to access sufficient replacement land in the future.

Given the Project has now established that a motivated Highlands family takes about nine months to achieve first harvest from newly-established sweet potato patch, the IESC can see no reasonable justification for offering physically or economically households ration entitlements that are for less than this period e.g. for those displaced linear works. Going forward, the IESC recommends that in Highlands areas, all rations packages be designed on the basis of nine months.

The draft livelihood monitoring report for the Hides Waste Management Area provided to the IESC was a succinct and well written report. EHL needs to look at producing on a six monthly basis or similar a consolidated report with similar indicators and level of detail that covers all physical and economic livelihood restoration sites. Improvement or at least restoration of livelihoods is a key objective of IFC PS 5 and the RPF. Progress towards achieving this objective needs to be systematically monitored and recorded. Having data and evidence to demonstrate a consistent trend towards livelihood improvement is important because in all agricultural endeavors, crop failures or losses will occur.

5.6.3 Recommendations

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

5.7 COMMUNITY IMPACTS MANAGEMENT

5.7.1 Project Strategy

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

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

Community safety is defined in terms of community awareness programs, as well as work protocols designed to minimize potential community impacts. Procedures are defined in the Community Health and Safety Management Plan and the Community Health, Safety and Security Management Plan in terms of defining procedures for community interaction in terms such as community awareness programs. In terms of defining Project procedures to protect the public is the Journey and Traffic Management Procedure, which defines the procedures for managing truck traffic.

5.7.2 Observations

During this field visit, the most significant impact raised with the IESC by community members in Highland areas was water. Complaints about water had escalated from being an issue confined to resettled families (about access to water) to a widespread complaint (about water quality and quantity). Complaints commonly related to the following:

- 'milky' or turbid appearance of water in streams;
- diminished quantity of water – stream and spring flows; and,
- concern about 'pollution' and whether the water was safe to use.

Other complaints heard at specific locations included:

- streams drying up altogether (adjacent to Hides quarry road – where flows of side-cast material have blocked streams);
- water cress dying (Kopeanda); and,
- cases of 'diarrhea with blood' in children.

The IESC walked up one small stream flowing down a valley to the north of the QA1 quarry. Local residents had complained of diminished flow, milky water and two recent cases of children having diarrhea with blood. IESC observations were as follows:

- quarry earthworks, benching and mounding to prevent rocks rolling down onto adjacent dwellings, had almost certainly disrupted the upper catchment of the stream and probably contributed to reduced flows and turbidity;
- resettlers moved from the quarry had built houses right on the headwater of the stream, and also much closer to its banks than had previously been the case; and,
- extensive defecation was evident along the stream banks.

The water issue has multiple dimensions and contributing factors. In the case of the QA1 stream, a combination of Project earthworks, increased population/ density of settlement and poor sanitation practices appeared to be contributing to deteriorating water quality and quantity. In Kopeanda, the IESC heard of a similar pattern of increased population and settlement density (due to influx – see Section 5.9) and poor sanitation practices leading to deteriorating water quality. Use of sink holes for spoil disposal might also be contributing to changes in downstream stream flows and quality. There has not been any tracing to determine whether or not this is the case. Changes in settlement patterns and population density brought about resettlement and influx have increased the risk of biological contaminants. There is poor local understanding of good hygiene and sanitation practices. Together, these factors increase the risk of a waterborne disease outbreak.

The fact that the Project is constructing 'water house' collection structures in some areas also heightens questioning about the quality of existing water sources and creates expectations about possible improvements.

The Upstream North Construction Manager had been alerted to the rising number of water complaints through the grievance system and had established a Water Committee specifically to address the issue. The IESC has some concerns about the predominantly mechanical and engineering approaches that are being proposed to address the water issue. To be effective, water-sanitation projects need to address (1) both social and engineering dimensions; and, (2) not only water supply issues but also hygiene and sanitation (i.e. safe management of human excreta) practices. It is recommended that EHL engage one or more experienced, national wat-san NGOs to design and execute a water and sanitation program in the Hides-Komo area. This should include:

- designing a process for community mobilization and participation;
- delivery of hygiene promotion and sanitation training;
- selection of appropriate technology and hardware;
- site selection, design and installation; and,
- arrangements for ongoing management and operations (maintenance).

Reference should be made to the excellent UK Department for International Development (DFID) *Guidance Manual on Water Supply and Sanitation Programmes*[13]to assist with TOR development. Synergies should be explored with the Health team's hygiene promotion programs being delivered by NGO, PDS.

Going forward, the project needs to be more proactive in planning and seeking to mitigate impacts on community water supplies. Due to the limestone substrata prevailing along the Hides Ridge, this will be a challenging issue as local stream and springs may be fed by surface water, or ground water working through porous limestone substrate or a combination of these. IESC discussions with Juni community members, for example, revealed that the community was already concerned about impacts on the stream from which they drew their water (originating on Hides Ridge), and that it was closely watching Hides Wellpad Access Road construction on their clans' lands, as they knew this represented a further risk to their water supply.

[13]*The manual can be downloaded at the following website:http://www.lboro.ac.uk/well/resources/Publications/guidance-manual/guidance-manual.htm*

Some areas for particular attention include:

- the spine line and Hides Wellpad Access Road has the potential to affect a number of larger downstream communities e.g. Juni and others;
- the drilling program could lead to foam and drill cutting discharge through permeable limestone into local streams (based on previous Oil Search experience).

Robust discussions were held with the Drilling team whom showed good awareness of the potential impacts on water and the need to proactively manage relations with communities. Communities must be systematically informed and given advice about safe water usage ahead of any drilling activities that could result in foam or cuttings being discharged in local creek systems. Ahead of road and spine line construction the following should occur:

- identify all communities/users downstream of the Well Pad Access Road and Spineline that might be adversely impacted by changes in water quantity/quality due to Project activities, either through surface or sub-surface flows;
- meetings with downstream communities to explain potential water impacts, health issues, to discuss their access to alternative water sources and to agree any mitigation measures, if warranted (e.g. trucking in alternative supply, if required, for critical periods); and
- careful review of construction execution plans to ensure that all possible measures are incorporated to minimize sediment entering stream systems, particularly in liquefiable soil areas.

Recommendations are made at the end of this section. These cover the following areas:

- pro-active construction planning to address downstream water impacts;
- E. coli monitoring and information dissemination to communities to direct them to safe water sources;
- contingency planning for a possible waterborne diseases outbreak; and,
- outsourcing for design and implementation of Komo-Hides water, hygiene and sanitation project.

In other areas, the improved community safety performance noted during the last 2 reviews was observed to have continued. Construction of perimeter roads around HGCP had been commenced. Once complete, this will alleviate the tendency for pedestrian traffic to pass through HGCP construction areas.

5.7.3 Recommendations

1) Undertake regular, systematic E. coli testing of all rivers and streams within the Hides-Komo Project area and based on the results, disseminate clear information to communities on which streams are safe for use, and which are not.
2) In consultation with the Health team:
   - establish whether any additional monitoring/reporting is needed to provide early warning for any community outbreaks of waterborne disease in the Hides-Komo area; and,
   - undertake contingency planning (e.g. local stocking of rehydration kits) for possible disease outbreak;
   - liaise with the EHL Health team to prioritize most at-risk Hides communities for early PDS hygiene training.
3) Outsource delivery of a water and sanitation program in Hides-Komo project area to one or more experienced, national Wat-San NGOs to include:
   - designing a process for community mobilization and participation;
   - delivery of hygiene promotion and sanitation training;
   - selection of appropriate technology and hardware;
   - site selection and installation; and,
   - arrangements for ongoing maintenance and operations.

4) Ahead of Hides Well Pad Road and Spineline construction the following should occur:
   - identify all communities/users downstream of the Well Pad Access Road and Spineline that might potentially be adversely impacted by changes in water quantity/quality due to Project activities, either through surface or sub-surface flows;
   - meet with downstream communities to explain potential water impacts, to discuss their access to alternative water sources and to agree any mitigation measures, if warranted (e.g. trucking in alternative supply, if required, for critical periods); and
   - carefully review construction execution plans to ensure that all possible measures are incorporated to minimize sediment entering stream systems, particularly in liquefiable soil areas.

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 EHL 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:

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

5.8.2 Observations

5.8.2.1 Context

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

In the Project work areas:

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

In Port Moresby:

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

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

A new Acting Commissioner of Police was appointed in October 2011. There was a plan for the new commissioner to tour the Project works areas in November 2011.

Refurbishment of the Kikori Police Barracks (being supported by EHL) had commenced, but completion was being delayed by the severe flooding in Gulf Province.

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

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

5.8.2.2 Incidents

The following 'outside of the fence' incidents had occurred in the period since the July 2011 review.

Assault at Komo - a serious assault occurred on an MCJV OCN on 6th August 2011. The victim was airlifted to Australia for emergency treatment. RPNGC had made one arrest in relation to the incident and were continuing to pursue the principal offender. The incident followed a convoluted path, but reportedly had its origins in a lack of clarity about terms of dismissal from a Lanco (see Section 6.2.2.3).

Pay-back incident by Hides Security Services– Hides Security Services (HSS) is a joint venture between lanco, HGDC, and Guard Dog, a national security company. HSS staff at Komo were recruited locally and managed by Guard Dog. HSS provide security services to MCJV (EPC 5B). In early September, frustrated by several petty thefts and damage to MCJV (EPC5B) equipment, several HSS staff took matters into their own hands and resorted to traditional methods of pay-back on the supposed perpetrators. They burnt down the supposed perpetrators' houses. A number of failures appear to have contributed to this incident:

- MCJV's equipment was not stored in a secure or fenced enclosure leaving it exposed to theft and damage;
- lack of adequate training for HSS personnel;
- MCJV reportedly took a 'hands off' approach to training and responsibility for the HSS operation and did not assure itself that HSS personnel received training and met standards required by EHL, including adherence to the Voluntary Principles for Security and Human Rights; and
- EHL had not undertaken any monitoring or activities to assure itself that its EPC contractors were compliant with Project standards including the Voluntary Principles.

The IESC is concerned that EHL is not exercising sufficient control or oversight over its EPC Contractors and their third-party security providers to ensure compliance with the requirements of IFC PS 4, paras. 13 and 15, and the Voluntary Principles. The Voluntary Principles are cited as one of the applicable international standards in the Community Health Safety and Security Management Plan.

To varying degrees, there appear to have been lapses in ensuring principles 1-8 of the Voluntary Principle's "Interactions between Companies and Private Security" are addressed. The incident has worrying similarities to other PNG extractive industry security incidents that have resulted not only in destruction of private property, but loss of life. A level 2 non-conformance has been raised. Corrective actions should include:

- commission an internationally recognized Voluntary Principles auditor to review Project private security arrangements on a regular basis (e.g. six monthly during construction);
- undertake a proper investigation of the HSS incident and determine what remedies should be extended to the victim/s and perpetrators – provide a report on findings to the Lenders/IESC;
- review contractual provisions in agreements with EPC and other relevant contractors to ensure that EHL is able exert due influence with respect to adherence to the Voluntary Principles;
- make a register of all contractors and third parties providing security services to the Project and regularly monitor that there is documented evidence of:
  a) reasonable inquiries having been made to ascertain that those providing security are not implicated in past abuses;

b) adequate training having been provided to security personnel on applicable international guidelines;
c) detailed investigation into allegations of abusive or unlawful acts, including procedures for reporting allegations to relevant local law enforcement authorities when appropriate; and
d) regular monitoring by EPC contractors of Voluntary Principles compliance.

Consideration might be given to extending the audit referred to in the first bullet to cover arrangements with the RPNGC, should the latter consent.

Vandalism of bridges – there have been several vandalism attempts on bridges along the Northern Highlands Highway (e.g. interference with props, damage to gabions).

5.8.3 Recommendations

1) See the Section 2 Issues Table

5.9 PROJECT INDUCED IN-MIGRATION

5.9.1 Project Strategy

During Due Diligence, the Project committed to undertake a project induced in-migration risk assessment. A final report was completed in June 2010.

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

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

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

5.9.2 Observations

The Project Induced In-Migration Management and Monitoring Plan does not form part of the ESMS. It does however provide the framework for addressing in-migration risks. Progress in implementing the PIIM Action Plan remains uneven. Solid progress has been made over the last nine months in PIIM Action Plan implementation in the villages of Porebada, Lea Lea and Papa around the LNG terminal. PIIM committees have been formed. Using participatory processes, villages are developing their own land use plans. Various special interest committees have been formed such as the Papa Fish Committee and Lea Lea Women's Group that have successfully launched a fish market. Leaders and participants interviewed by the IESC were highly appreciative of the PIIM process.

Kopeanda – Impacts of in-migration in the Hides Komo area as observed by a resident pastor

- most of the 400 households in the settlement had between 10 to 20 members, above the 6 to 7 household members that was typical pre-project;
- additional household members consisted of extended family or relatives, or sponsored guests (usually people with special skills, or vehicles, or equipment being utilized by the project);
- guest housing construction had led to depletion of building materials in the surrounding forest;
- increased demand for food due to the increased population had led to extensive clearing of adjacent vegetation for garden establishment as well as depletion of forest-based food resources;
- increased firewood demand had led to further forest depletion;
- the area of defecation around the community had expanded leading to pollution of water sources and death of watercress, used by locals as a food source – newcomers did not respect the rules for protecting water resources;
- there had been an increase in theft (unknown in Huli communities);
- problems with alcohol and drugs had increased and there were more instances of men taking multiple partners (STD/HIV transmission risk);
- there is a breakdown of customary leadership as youths with income tended to show less respect for traditional elders and leaders;
- while Huli culture does not let people turn away guests, community leaders had recognized the heavy costs on environment and families of supporting the 'guest' population attracted by the project;
- Hides-Komo community leaders (with sponsorship by the church) had agreed to hold a regional meeting (with EHL and government invited) to look at 'managed changes' (not confrontation) and develop an action plan for controlling in-migration.

Since the last review, the Project had completed a PIIM monitoring study of the Hides-Komo area. A final report was pending. Some key findings of the study included:

- 60% of the influx population consisted of redistributions of householders and families from within the existing Hides/Komo project area;
- outsiders (mainly Highlanders from places like Madang, Chimbu or Enga) are generally sponsored by local landowners and bring skills, vehicles or machinery needed by Lancos; and
- 80% of MCJV/CCJV hires are Huli – notable confirmation of the success of the Project's local hire policy in the Highlands.

The IESC would caution against concluding that because the influx is generally 'intra-Huli' and not a mass inflow of outsiders, there are no adverse impacts and, therefore, no need for Project intervention. The IESC's own discussions revealed that, at least in some locations, a combination of resettlement and in-migration was leading to localize much higher population densities with significant detrimental impact on local resources, environmental quality and social cohesion. The IESC also notes that the increased densities of people living in some catchments and poor sanitation practices will potentially increase the risk of outbreaks of waterborne disease (see Section 5.7). The fact that Huli clan leaders, with church sponsorship, had agreed to convene a regional meeting on 18-19 December 2011 to discuss ways of controlling influx shows that there are local concerns. As the IESC has argued previously, raising community awareness of the adverse impacts is a key first step in managing influx. The Huli have arrived at this point of their own volition. While belated, EHL now needs to look at the impacts of population influx in the Hides Komo area, identify risks, refine its PIIM strategy and work with communities to implement this.

The IESC strongly disagrees with the preliminary Project conclusion that there is no significant in-migration, and that adverse impacts will be temporary and self-correcting. On the basis of the IESC's limited inquiries, most of the classic in-migration impacts are clearly evident.

By the time of the next IESC review, the IESC would like to see a clear PIIM strategy that addresses environmental and social risks in a manner consistent with IFC PS 1.

5.9.3 Recommendations

1) Have representatives from the PIIM, CDS and Health teams attend the 18-19 December 2011 meeting sponsored by Huli clan leaders and church to appraise how EHL could best support local initiatives as part of the PIIM program in the north.
2) Develop a PIIM strategy and time-bound action plan for the Hides-Komo area.

5.10 PROCUREMENT AND SUPPLY MANAGEMENT

5.10.1 Project Strategy

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

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

5.10.2 Observations

Contractor mobilization and in-country presence is clearly resulting in rapid engagement of local business and suppliers and in a steep increase in the work force. Updates provided by EHL during the IESC November mission did not include any data beyond that reported in the EHL third quarterly report. The following sub-sections review the three elements of the Project strategy.

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

As an outcome of its first in-depth monitoring of labor issues during the July review, IESC observed that although the Project is offering significant technical support to its supply chain and its (future) work force, the ILO core labor standards were not integrated into the capacity and skill building efforts of local business – including Lancos, nor in the training efforts of the local work force. Whereas the Procurement and Supply Management Plan clearly refers to "minimum environmental and social (including labor) standards" as a Project requirement for local providers and indicates IFC PS2 and the UN Global Compact as benchmarks - both (partially) based on the ILO core labor standards.

The IBBM Enterprise Center had picked up on these comments and is in the process of recruiting an HRM advisor, who will be delivering an Industrial Relations course to Lancos. Also IBBM was in a position to demonstrate through its monitoring formats that there is some check on forced and child labor issues applied in the Project's supply chain.

IESC will follow up on these developments at the Enterprise Center during it next review, and will contact both training centers, POM CTF and Juni to see how they are progressing in the curriculum that they offer.

5.10.2.2 Project Procurement from Local Business

In terms of in-country expenditures, EHL and EPC Contractors in combination spent an amount exceeding 3.3 billion Kina (US$1.5 billion) by the end of September, whereas the Project-related spending with Lancos exceeded 500 million Kina (US$223 million). Of course, Papua New Guinean businesses other than Lancos are also providing goods and services to the Project. Meanwhile, IBBM has supported 9,900 Papua New Guinean businesses and achieved more than 2,750 days of training. During the last quarter of 2012, the Center's new business mentoring program welcomed its first participants and launched a new Fundamentals of Business Management course and Director Training Level 2 course. Local Lancos referred to above include: LABA, LABA Alliance, Agility, Agility Project Logistics, HGDC, Kutubu Security Services, Mananda Umbrella JV, Oilimen Field Services, GFS, GFE, Kutubu Security Services,

Kawaso, KOI, KCL, CIVPAC, MAKA Investment Corp, Komo UJV, and others. EHL in-country expenditures on businesses other than Lancos includes: road transport - including vehicle purchases; air transport – including charter hire; office accommodation and associated costs; accommodation (residential); training; staff recruitment via the PNG agencies; security; cleaning service staff; PNG Institute Medical Research; and PNG Institute or Banking.

Much of the Project's commitment to procure from local business is reflected in the use of Lancos that supply labor and services to the different EPC Contractors. The success of this approach is reflected in the national workforce currently working on the Project. EHL reported that earlier projections for national expenditures and projected employment were understated, and are likely to be significantly exceeded. By the end of September, the Project workforce exceeded 11,000, with Papua New Guineans representing 65 percent of the Project workforce. Percentage wise this represents a slight decline compared to Q2 (>71%) as the overall workforce has increased much in this quarter, but in absolute terms numbers of PNG citizens employed by the Project have risen to 7,200 . As such, the PNG national workforce by the end of Q3 2011 (7,200 workers) still exceeds EHL's original (pre-construction) projection of slightly less than 6,000 and is a substantial percentage of a total workforce of 11,000 (Figure 5.1).

In terms of workforce development, the Project is committed to providing positive, productive and supportive work environments. Key to this is developing and retaining a highly talented workforce that is representative of Papua New Guinea. The expertise of Papua New Guinean workers is being developed through dedicated facilities such as the Port Moresby Construction Training Facility (POM CTF). To date, the Project and its Contractors have trained more than 6,000 Papua New Guinean citizens primarily for construction and support activities and some for future production roles. This equates to more than 700,000 hours of training delivered, with around 200,000 hours completed Q3 alone. Refresher training courses are being offered to update worker skills for those who have been engaged on the Project for more than 12 months

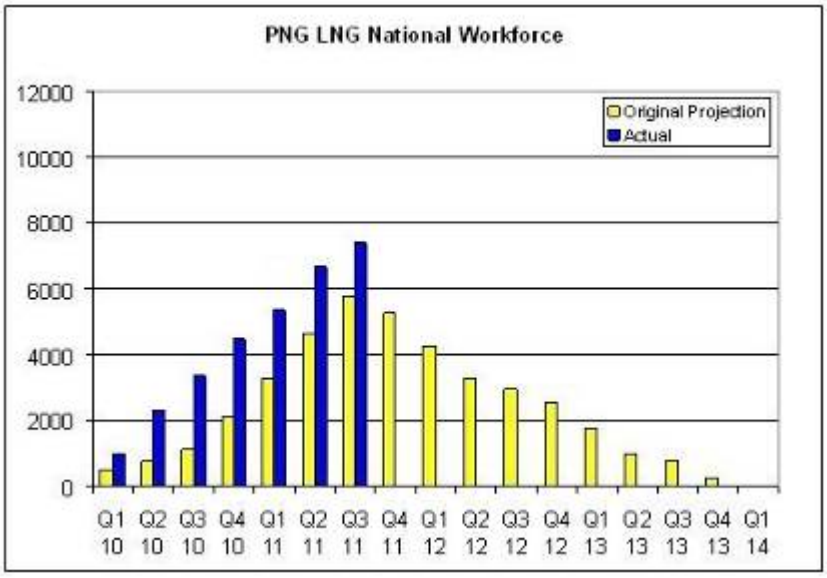

Figure 5.1: PNG LNG National Workforce – Actual versus Projected

Source: Updates provided by EHL.

5.10.2.3 Capacity and Skills Building of Local Business

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

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

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

Technical support efforts include:

- online registration of 'Expression of Interest' at www.pnglng.com (over 1,170 EoI to date); Open house policy (over 8,500 local entrepreneurs have visited the center since its opening); Business Assessments (102 assessment to date and 13 representative Lancos re-assessments in progress); Supplier Dash Board (to access business opportunities and Project information). More than 90 business opportunities from EPCs or sub-contractors have been offered to PNG suppliers and substantial future growth is expected;
- the IBBM Enterprise Center's strategy towards Lancos specifically is centered on training, mentoring and providing technical support to mainly the Umbrella Lancos. With this strategy the center aims to facilitate these Lancos in working with Project contractors, developing their business skills, governance, financial capacity and technical capability and managing their expectations of the (labor) market. The center offers training for Lanco Directors and Board Members, which is currently a work in progress. There are numerous contracts between Contractors and Lancos in place and multiple Joint Ventures have been established with Lancos to enhance capacity and capability. To date the center demonstrated the effectiveness of a dedicated Business Development Team working with Lancos. The BD team is well resourced, but all positions as shown in figure 5.2 are back-to back positions and therefore two staff only represent one full time BD position.

The major Lancos, LABA and HGDC have shown considerable improvement since the IESC July review. The work of the BD team and IBBM is starting to show for itself. In terms of understanding the need for improved labor and IR management, LABA and HGDC seem to be making progress. LABA had actually already appointed a dedicated IR staff person who deals with workplace issues of PNG workers at Plant site on a daily basis.

IBBM may also be playing an important future role here as they are in the process of recruiting an HRM advisor, who will be delivering an Industrial Relations course to Lancos. The BD Team would have its own role to play in these matters, but could still benefit from upgrading their skills in this field, e.g. a train-the-trainer program on labor and IR.

Also, EPC Contractors are applying lessons learned in their dealings with Lancos. EPC3 at the LNG Plant site and EPC4 and C1 in the Hides area have substantially intensified cooperation with LABA and HGDC and to a certain extent coached them on payroll issues. They have simplified and split off accounting of hours from other data collection and routinely send staff on location during the fortnightly paydays, so that disputes over pay may be resolved on the spot. The quality and effectiveness of calculations and payment of wages by Lancos has improved considerably (see for more detail section 6.2 on Labor and Working Conditions).

Nevertheless, the work to bring Lancos up to (commercial) speed is demanding for the Project. PNG laws require PNG businesses (including Lancos) to be financially sound, technically capable, pre-qualified and competitive in price and quality. However, the range of Lancos varies widely in terms of age, quality and experience. Some are old established companies - with a company established in 1992 already considered vintage; some were only very recently established (2010 or even 2011). Also, EHL originally expected to

deal with only 12 nominated Lancos and no new Lancos along the pipeline ROW, but License-Based Benefit Sharing Agreements (LBBSAs) and seed capital have caused a proliferation of new Lancos.[14]

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

Business development support to Lancos consists of pre-contract preparation[15], contract negotiations[16] and post-contract provision of services[17]. Figure 5.2 shows the accomplishments to date.

LANCO(S)	ACCOMPLISHMENTS
LABA	1,650 project workers with projected peak at 2,400 29 staff running the business (projected to grow to 35) Enterprise Centre Assessment = 3.1 stars (only 2 other Lancos have a 3 star rating) Fortnightly payroll Kina 700,000 Estimated revenue – Kina 27.6 M yearly peaking at 50 M Completed UIA Audit – all gaps closed Milestone Advance repayments to EHL on track Contractor and Laba Grievance and Discipline procedure aligned Only one expatriate remains supporting Laba in an advisory capacity Labor database developed providing an inventory of available personnel from the 4 villages Director training level 2 completed Mentor program implemented
HGDC Ltd	2,200 project workers with projected peak at 3,000 410 JV Staff running the business 9 expatriate staff embedded in the organization Enterprise Centre assessment = 2.7 Stars (up from 1.9 previously) Fortnightly payroll Kina 2.6 M expected to increase to almost Kina 3.6 M (includes wages and ration allowance) Cash balance = Kina 9.0 M Monthly Plant & Equipment Revenue = Kina 2.1 Outstanding debts: - Vehicle / Plant Hire Kina 7.4 M - Other Kina 3.1 M Working capital requirements- Kina 12.0 M / month Board structure finalized with 15 shareholders Director Shareholder awareness training completed Completed UIA Audit – all gaps closed All staff employment contracts completed

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

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

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

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

LANCO(S)	ACCOMPLISHMENTS
	Reached agreement with IRC regarding payment of Kina 12.0 M in tax obligations over 24 months.
Pipeline ROW Lancos	Approximately 290 km from Omati to Hides 9 distinct cultural areas 4 major Lancos but 54 key sub-Lancos (excluding Hides sub-Lancos) Block 1 – EPC 5A demobilizing workers; EPC2 hiring Block 2 – Work ongoing Block 3 – Early Stages of work Block 4 – Preparatory stages EPC5A PNG workforce 1,400 - (78% of total) (89 female) 33% skilled, 23% semiskilled, 44 % unskilled Other PNG workforce (EPC2 and Lanco staff) - 367 Employment from 20 Provinces with SHP & GP making up 88% of the National workforce 22,000 hrs of training to National workforce in 2011 Revenue to Lancos-Kina 26.5 M (as of 1 October) Revenue Sources: Reserved Services (fees) - Employment, catering, Camp maintenance, Security, Light vehicle Non reserved - Heavy equipment hire, Light vehicle hire, Quarry, Wooden skid construction, Special officers, Work stoppage incentives Direct Revenue Flow to sub-Lancos (# of sub-Lancos) KERKOI►(2) GFE►(4) KRS►(11)

Figure 5.2: Business Development Accomplishment with Lancos

Source: EHL Lancos update November 2011.

5.10.3 Recommendations

1) Consider initial risk assessment on core labor standards for PNG suppliers;
2) Build on first steps taken by IBBM Enterprise Center to include capacity building and skill development on (i) workers' rights, i.e. the ILO core labor standards and (ii) worker-management relations, i.e. industrial relations for the Project's supply chain.[18]

5.11 COMMUNITY SUPPORT STRATEGY

5.11.1 Project Strategy

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

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

- engage in effective, transparent and culturally appropriate community consultation;
- build trust between the Project, community members and other stakeholders;
- manage community expectations;

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

- 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

As is the nature of community-driven development programs, the processes of community mobilization, training and capacity building, needs and opportunity identification and project design take time. Tangible results are often not evident for at least 18 months. Eighteen months of hard-work by the CDS team are now starting to come to fruition with some very positive results across a range of sectors. Generally, the IESC is comfortable with the current status of the CDS program.

In response to the IESC recommendations from the July 2011 review, the CDS team confirmed as follows:

- logical frameworks have been developed for each CDS project with indicators and progress monitored weekly, monthly or quarterly as the case may be;
- third party, mid-term evaluations of the CDS projects have been scheduled for Q3 2012;
- CBS (with the EHL Government Interface team) is seeking to raise awareness and build stronger relations with government agencies on an ongoing basis;
- the National Education Department, Law and Justice Sector, Central Provincial Education Department and relevant district government agencies have been specifically engaged as part of ongoing CDS projects;
- initial contact has been made with Hela Transitional Authority; and,
- Local Level Government (LLG)[19] training is to be commenced as part of CES initiatives in Q4 2011.

There are potential synergies and overlapping areas of interest between the CDS program, the Livelihood program, the Biodiversity Strategy and Project Induced In-Migration Management and Monitoring Plan. As each of these other areas develop, opportunities may arise for greater cooperation between programs.

5.11.3 Recommendations

1) None arising from this review.

5.12 STAKEHOLDER ENGAGEMENT AND CONSULTATION

5.12.1 Project Strategy

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

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

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

- providing clear, factual and accurate information in an open and transparent manner on an ongoing basis to stakeholders through free, prior and informed consultation;
- providing sufficient opportunity to stakeholders to raise issues, to make suggestions and to voice their concerns and expectations with regard to the Project;

[19] *In PNG, LLGs are the level of government below 'districts'. Districts are typically divided into 4-5 LLGs.*

- providing stakeholders with feedback on how their contributions were considered;
- building capacity amongst stakeholders so as to enhance their ability to interpret the information provided to them;
- treating all stakeholders with respect, and ensuring that all company personnel and contractors that have contact with stakeholders do the same;
- responding to grievances and requests for permission in a timely manner; and,
- building constructive relationships with identified key and influential stakeholders through personal contact.

5.12.2 Observations

During the last 12 months, the stakeholder engagement program has made very substantial progress in implementing the strategies defined in the Stakeholder Engagement Plan. Some achievements observed by the IESC during the present review include the following:

- four community representative committees have been established for Upstream North and two community committees have been established for Upstream South (Omati Waterways Committee and the Barging Route Committee) to provide for a for regular interaction between EHL management and local communities;
- a Homa/Paua community committee and a community forum for the LNG plant site are in the process of being established;
- in the period July-October 2011, some 119 engagements were completed reaching 42 communities and over 10,000 participants;
- drama has proved a powerful communication tool both for community engagement and also worker safety training;
- alignment of Community Affairs engagement activities with the project construction schedule is working well;
- as noted in Section 5.4.2.10, the Omati waterways engagement and community preparation was a significant success - the participation of senior EHL managers in the Goare celebrations was the much appreciated by the communities and was a constructive relationship-building exercise;
- a Community Observation and Interaction Report card (similar to EHL's Safety OIR card) was in the process of being rolled out to promote more regular and systematic recording of community interactions and engagement activities.

In a Melanesian context, the symbolic and relationship-building value of senior management coming out from behind the perimeter fence and being prepared to participate and engage with community leaders and people should not be under-estimated. The IESC would like to see more of it!

The IESC found that there was huge demand in the Upstream North area of the Project for information about training opportunities at Juni. People wanted to know detailed information about when trainee selection will be undertaken, who will be eligible, what will be the avenues for applying, how will trainees be selected and what courses will be offered. There are large community expectations regarding the Juni Training Facility that need to be managed.

5.12.3 Recommendation

1) Provide clear information to Upstream North communities about forthcoming training opportunities at Juni – when will trainee selection be undertaken, who will be eligible, what will be the avenues for applying, how will trainees be selected and what courses will be offered.

5.13 GRIEVANCE MANAGEMENT

5.13.1 Project Strategy

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

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

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

5.13.2 Observations

The IESC was pleased that its recommendation for Area Construction Managers to take ownership of grievance management has been fully implemented, with a dramatic improvement in the allocation of responsibility and resources for grievance close-out. Together with the focus on internal training that has occurred during the last 4 months and the pending internal roll-out of 'grievance cards' much progress has been made in operationalizing the grievance management system.

Based on an MS EXCEL summary of open and closed grievances for Q3 of 2011, the IESC makes the following observations regarding recording:

- a clearly defined 'corrective action' should be recorded against each grievance. For many complaints, it is presently unclear what action is proposed (or was taken) in response to the complaint;
- the 'grievance feedback' column should be completed for *every* complaint. This is effectively the 'outcome' of the complaint. This column must be completed before the complaint can be designated as closed. As a minimum, it should indicate whether the complainant was 'satisfied', 'partially satisfied subject to further action', or 'not satisfied';
- conditions for closing a complaint should be clearly defined. For example, a complaint should not be closed on the basis that a contractor has given assurance that a corrective action will be taken. Close-out should be based on (i) verifying that the corrective action has been completed; and, (ii) recording the complainant's response to that action (satisfactory or not).

The IESC observes that the number of complaints being received (around 60 per month for Q3 2011) is quite small for a project of this scale with multiple work fronts. This may reflect good social performance or the still developing awareness of grievance reporting both internally and amongst community members.

Examples of Grievances

Details have been omitted to protect the privacy of complainants. The fact that a complaint has been expressed should not be interpreted as proof that there are substantive grounds for the complaint.

As reported in Section 5.7, water issues have been prominent amongst recent complaints received:

- *"We used to have 3creeks namely the T----, K---- and U---- creeks where there was abundant water for our family and clan. Since the quarry was started, the two creeks namely, T---- and K--- have already dried up. The only remaining one is U---- creek but its volume is declining and soon it will dry up. We are requesting the project to provide us with water tanks in both M--- and N--- villages."*
- *"All the other areas were given water tanks but my people living near the gate were not provided any. All our water sources were destroyed by the construction and there is no water. People around this area need water tanks urgently and immediately to sustain them."*
- *"My community's drinking water was polluted due to the construction of the airport. The little stream that we drink from is dirty when we fetch it in water bottles."*

Complaints about employment, or perhaps more accurately concerned about missing out on employment, are common:

- *"A group of locals forced their way into an EPC bus sent to T--- village to pick up Village-Based-Recruitment reps (VBR) for a meeting to discuss employment distribution amongst each clan/community.The group forcefully asked the driver to take them to Camp Y--- so that they could be employed. The bus load of locals fronted up atCamp Y--- and waited for employment."*
- *"The Umbrella Lanco is not local. More work must be given to our local Lanco."*
- *"PK has been terminated or laid off from his employment with Lanco Y as a driver for contractor EPC. His complaint is that there should be plenty of jobs around and he is not happy at being sacked or terminated."*

Complaints about government performance or nonperformance, or legacy issues related to the oil project, are directed through EHL:

- *"Our complaint is that the government did not give Business Development grants to Komo Airfield like for the other facilities so we want the government to pay Business Development grants to the landowners of Komo too."*

Complaints about delays in delivering compensation or entitlements:

- *"Replacement housing at M---- is very overdue despite having dismantled previous buildings over a year ago."*
- *"I have obliged to Community Affairs and willingly removed my structure within the X--- construction site. Yet, the Resettlement Team has not paid my outstanding payments which I would like to have by tomorrow".*
- *"At stated time and date, approximately 20 local men, women and children trespassed onto the southern end of Komo airfield and disrupted morning tool box meetings. They demanded work not start until their grievance relating to the delayed progress of the access road being built around the airfield is addressed."*

Other types of complaints:

- *"BF raised an issue over his second residential structure belonging to his second wife and located just outside of his first residential structure not being assessed by the C&S team."*
- *"The grievant complained that his canoe was capsized by the waves created by a CLO boat while travelling at high speed. The grievant lost an axe, a bush knife and a cooking pot."*
- *WN complained that a vehicle (details provided) belonging to the project ran over his male dog at XX portion of the road along road corridor".*

There are relatively few complaints from the Southern Highlands Highway. From recent blockages along the highway, there is clearly value in systematically publicizing avenues for making a complaint and ensuring there are resources to address complaints when they arise. Representative complaints are described in the inset below.

In its community consultations, the IESC was surprised at the continuing low awareness of avenues for making a complaint amongst community members, even amongst resettlers who have been exposed to numerous presentations, face-to-face meetings and written materials explaining how to make a complaint. The reasons for this are unclear. There would be value in having one of the project's senior national social

specialists explore reasons why awareness remains low and to suggest possible approaches to overcoming this.

Concern has previously been expressed by the IESC regarding the difficulties inherent in distinguishing 'issues' from 'complaints'. A case in point was the categorization of complaints about damage to roads in the Moro-Kutubu area as an 'issue' and not a 'complaint'. The reason given for this categorization was that repair of roads is a government responsibility, not a Project one. The Project needs to take a pragmatic view of the risk to its operations inherent in such complaints. If unaddressed, a complaint about road damage has a high probability of being escalated into a blockage. The corrective action may entail informing the Department of Public Works about the need for a repair, or if the government is unable to respond, it may need direct intervention by the project with the consent of the Department.

Looking forward, the IESC encourages EHL to look at ways to facilitate (through third parties) the restoration of the village court system. Many of the complaints, grievances and land disputes presently being dealt with by EHL's grievance management system belong in the domain of the village courts and land mediators. The village court system has shown itself to be an enduring and respected part of community justice in spite of profound central and provincial government neglect. In the long term, EHL's ability to go about its operations can only be enhanced by functioning village courts and district land mediation.

5.13.3 Recommendations

1) Have a senior national project social specialist assess why community awareness of avenues for making a complaint is low and suggest culturally appropriate measures to improve understanding.
2) Continue to reiterate avenues for making a complaint during all community engagement activities.
3) Ensure that avenues for making a complaint are widely publicized along the Southern Highlands Highway and that resources are in place to address complaints when they arise.
4) Review the 'complaints' versus 'issues' screening process to ensure that complaints (such as those about damage to roads) that carry a risk of potential risk of action against project operations are formally recorded and tracked as complaints.
5) Continue to work on improving grievance logging and reporting, in particular:
   - ensure there is a clearly defined 'corrective action' recorded against each grievance;
   - ensure that the 'grievance feedback' (outcome) column is completed for every complaint; and,
   - establish clear criteria for closing a complaint to include (i) verification that the corrective action has been completed; and, (ii) that outcome has been verified with the complainant.
6) Recognize restoration of the village court system as a key part of a long-term grievance management strategy.

5.14 OTHER SOCIAL ISSUES

5.14.1 Oxfam Listening to the Impacts of the PNG LNG Project Report

In November 2011, Oxfam Australia released a report entitled "Listening to the Impacts of the PNG LNG Project, Central province, Papua New Guinea".[20] The report was based on interviews and discussions with 730 men, women and youths from the villages of Porebada, Boera, Papa and Lea Lea. The report is well researched. In the opinion of the IESC, it provides a balanced insight into the impacts of the project, adverse and beneficial, as perceived by people living in the villages around the LNG terminal as of 2011. The report represents an invaluable and highly credible third party contribution to project monitoring. Oxfam should be congratulated for the professional manner in which the study was conducted and for the objectivity of their findings.

The IESC is mindful that such studies are expensive and logistically demanding to undertake. It is hoped, however, that Oxfam Australia can extend its 'listening to impacts' to other Project areas. It would also be useful if the study could be replicated in the period following demobilization of the local construction workforce.

[20] *The Oxfam report can be downloaded at: http://www.oxfam.org.au/resources/pages/view.php?ref=655&k=*

5.14.2 Unmet BSA Expectations

"EHL was granted its petroleum licenses and we can see the PNG LNG project progressing fast. We signed benefit sharing agreements with the Government promising much – roads, improved education and health services – but our standard of living is unchanged. The project construction is half over and we are starting to realize we might get nothing. What should we do?" Juni resident, expressing a concern that the IESC heard often repeated.

There is rising community concern that promises and commitments made by the government with respect to improvements in services and infrastructure during the benefit sharing negotiations will not be delivered. The latter issue is likely to come more into prominence as the election draws closer and as communities realize that their leverage using the Project diminishes as construction heads towards completion.

From discussions with the CEO of the Hela Transitional Authority, it is also clear that the Hela Provincial Government will be pre-occupied with the most fundamental tasks of establishing and accommodating its staff for the first 18 months or more of office. It is unlikely to have any significant capacity for delivering improvements in services and basic infrastructure in rural areas until well into 2014. There is clearly an emerging gap between community expectations arising from the BSA negotiation process and the yet-to-be formed provincial government's ability to deliver. This needs to be addressed or the repercussions for the Project in terms of blockages and disruption are likely to be significant.

The IESC encourages EHL to explore with the Government ways to accelerate delivery of some of the LBSA commitments with respect to services and infrastructure delivery so that progress is evident well before PNG LNG project completion.

5.14.3 Recommendations

1) Explore with the Government ways to bring forward delivery of some of the LBSA commitments with respect to services and infrastructure so that progress is evident well before PNG LNG project completion.

6 LABOR AND HUMAN RESOURCES

6.1 INTRODUCTION

6.1.1 Scope of Labor Review for this Site Visit

The November mission contained a follow up to labor and industrial relations issues that were monitored for the first time in a more extensive manner during the July – August 2011 review. From a labor and human resources standpoint, the IESC engaged with about 100 people individually or in groups, including Contractor managers, Contractor work force, both locally and internationally hired, and other key informants, such as the PNG Employers Federation.

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

- presentations on Contractor management, camp management and labor and working conditions by Contractor Compliance and Interface Management staff in Port Moresby;
- presentations on the National Content Plan, local business development and Project - Lancos interaction by relevant Project staff in Port Moresby;
- in-field discussions with a range of Project personnel including Project managers and L&CA Compliance and Interface leads;
- in-field discussions with Contractor and Sub-contractor personnel including managers and workers at C1, EPC 3, 4, 5A and 5B as well as the workers committee at EPC3;
- presentations by several umbrella Lancos, such as HGDC Ltd (EPC 4 - Hides Gas Conditioning Plant and Well Pads), LABA Holdings Ltd (EPC3 - LNG Plant) and visits to their offices;
- discussion on the PNG Decent Work Country Program with the PNG Employers Federation.

6.1.2 Waiver

The IESC labor review is based on interviews conducted with EHL staff, subcontractor staff such as construction managers, HRM etc and is also based on interviews with worker and relevant third party stakeholders. Any claims made by workers or management are crosschecked against one another. Also, efforts are made to substantiate claims with project documentation, such as minutes of meetings, attendance records, statistics etc.

The IESC consulted with workers in groups only. Group interviews were carried out according to an established methodology; clearly outlining the mandate of the interviewer, ensuring absence of management, guaranteeing anonymity and confidentiality of interviewees while at the same time discerning systemic labor issues and underlying patterns from symptoms and incidents. Group interviews captured views of both men and women. The focus during this second mission by the IESC labor specialist was to follow up on issues with regard to specific risk groups, such as women workers, locally hired workers and OCNs and more specifically on OCN hiring practices by Contractors. Worker consultations were carried out in a random fashion and were not necessarily fully representative of the workforce. With best professional judgment, however, some new issues were identified.

The IESC review provides a "snapshot" of the PNG LNG Project's state of conformance with the commitments and standards defined in the Applicable Lender Environmental and Social Standards. Also, review effectiveness remains dependent on the accuracy of information provided by people. As such, the review does not purport to be a fully comprehensive evaluation of conformance.

6.2 LABOR AND WORKING CONDITIONS

6.2.1 Project Strategy

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

- Maximize work opportunities of PNG citizens during construction of the Project;
- Recruit workers in accordance with the geographic priorities determined by the Project and in particular, give first priority for employment to PNG citizens originating from within the Project Impact Area;
- Enhance PNG citizens' skills base through training provided during employment;

- Implement an equitable and transparent recruitment process; and
- Provide fair terms and conditions of employment and comply with relevant laws.

In the Management Plan these objectives are described in detail in Table 1: Management and Monitoring and are clearly benchmarked in Attachment 1: Legal and other Requirements. IESC therefore wants to make note of the fact that our observations are also based on the requirements of Attachment 1, specifically PNG labor legislation and IFC PS2, which in turn is underpinned by the ILO Core Labor Standards.

6.2.2 Observations

6.2.2.1 Project Monitoring of Contractor Performance

Contractor performance in terms of labor and working conditions encompasses the requirements of the Camp Management Plan, as well as the Labor and Working Conditions Management Plan. All Contractor Implementation Plans had been finalized between October 2009 (C1) and July 2011 (EPC2), except for drilling. As drilling was the last contractor to mobilize they only received training on social management plans in October 2011 and consequently finalized a draft version of its CIP in November 2011. In terms of reporting all EPCs provided monthly reports on their social management plans that were qualified as 'good' with the latest version included being that of September. EPC5B was the only one whose reporting still needs work. The CIC lead is working to get all required data.

The IESC report for the July – August field visit noted that the Project should work towards a more centralized and informed strategy in terms of dealing with the multitude of labor and Industrial Relations (IR) issues (labor unrest, strikes, work stoppages, etc.) and given the speed of developments and local specifics, that the Project should not solely depend on home-office support. During the November field visit the IESC noted that promising steps in this regard have been taken. An ExxonMobil home-office IR specialist has reviewed the Project in the field and EHL staff members responsible for HRM during the operational phase are now also involved with HRM for the construction phase. The CIC team has developed a Project-wide IR strategy; equally an IR strategy will be developed for Operations.

After a first visit and discussions with the IESC labor specialist in July EHL developed an Industrial Relation Strategy. An industrial relations model was also developed and presented to senior management for approval.

Healthy industrial relations should eventually lead to minimized and well-managed industrial action for the Project. The industrial relations model contains eight core enablers:

- engagement: workers committee;
- communications: briefing process, monthly, special and color-coded;
- procedures: disciplinary, grievance and demobilization;
- supervision: trained in procedures for managing IR;
- pay: processes for increases, wage surveys, pay parity, simple pay slips;
- Lancos: pay efficiency, HR\IR expertise, and role in D&G procedures;
- culture: awareness training, diversity management; and
- strikes: protocols, recording, contingencies, and root cause analysis.

The Project endorsed the model and initiated a gap analysis against existing practices. The analysis was based on 47 key performance indicators (KPIs). Each EPC, through the CIC leads, was requested to do a self-analysis against the eight enablers and 47 KPIs. The data were then analyzed and an action plan developed to address gaps based on project priorities. Of the KPIs 40% were considered effective, whereas 60% need work. The enablers were ranked as followed from highest to lowest score: communications; disciplinary procedure; grievance procedure; Lancos' efficiency; demobilization procedure; pay processes; strike handling; worker engagement - workplace; cultural awareness; worker engagement – camps.

The conclusions of the gap analysis were that given that fact that EPC3 and EPC4 will have the majority of workers, they will run the highest IR risk, that EPC3 has progressed well and has all IR enablers implemented and that their lessons learned are now being shared across Project, that EPC4 has an action plan ready for implementation and that EPC5B needs to take immediate steps to address its IR gaps. Other

results are that Operations has agreed to implement the IR strategy in the first half of next year and that the IR monitoring tool will be used on a regular basis to assess progress on the enablers.

Meanwhile, the CIC team had also taken action concerning some observations made during the IESC July review on possible lack of conformance with Project commitments and hence ILO core labor standards. A letter was drafted and circulated to all Contractors reminding them of their obligations concerning the core ILO core labor standards and requesting information on the following topics: the retention of travel documents and reasons for this; whether workers have copies of their contracts; composition of agency fees; access to a grievance process and grievances lodged and still open; what types of management worker engagement mechanisms are in place. Also, training materials were developed around the ILO core labor standards and circulated to all Contractors. An ILO core labor standards training was conducted at the LNG plant site for all Contractors and subcontractors. Finally, CIC researched how ILO core labor standards are incorporated into ExxonMobil procurement and contracting processes. Contractor responses to the questionnaire had not yet come in at the time of the IESC November field visit. IESC will closely monitor developments and follow up during its next visit.

6.2.2.2 Employment and Training through Lancos

EHL provided IESC with the latest update on (de)mobilization and training statistics concerning the PNG work force employed and demobilized through Lancos. LABA currently employs 1,650 Project workers with a projected peak at 2,400, excluding employees in Joint Ventures. 29 Staff are running the business and is projected to grow to 35. HGDC employs 2,200 project workers with a projected peak at 3,000. 410 joint venture staff are running the business with 9 expatriate staff still embedded in the organization. HGDC has completed Director Shareholder awareness training.

The four major Pipeline Lancos representing 54 sub-Lancos have different arrangements with the EPC Contractors, due to the linear and fast moving nature of their activities. Lancos do comprise the work force, but EPC5A employs these workers directly and pays each Lanco a fee per worker. In Block 1 EPC5A is demobilizing workers; in Block 2 work is ongoing; in Block 3 the early stages of work are commencing; and in Block 4 the preparatory stages of work have started. EPC5A currently employs 1,400 project workers (33% skilled, 23% semiskilled, 44 % unskilled) of which 89 are women. The EPC5A PNG workforce makes up 78% of total workforce employed because of the pipeline activities. For the offshore portion of the pipeline, EPC2 is hiring and their contractors are coordinating and aligning their (de)mobilization needs to guarantee employment to as many as possible and to minimize job loss for those already employed. Other PNG workers are employed either by EPC2 or as Lanco staff (367 in total). A total of 22,000 hours of training was provided to the national workforce in 2011.

6.2.2.3 Lanco performance

In terms of understanding the need for improved labor and IR management, the main Lancos, LABA and HGDC seem to be making progress. LABA has already appointed a person responsible for IR who deals with workplace issues of PNG workers at the LNG Plant site on a daily basis. This academically trained and very capable individual, however, lacks professional training in this field. After the November field visit, LABA immediately followed up on an IESC suggestion to put this person through proper training in order to gain professional clout and credibility. He consequently gained an 'Advance Certificate in Laws on Human Resource Management Practice in PNG' on December 2nd at the PNG Human Resource Institute. In essence he is now fulfilling a kind of role of troubleshooter for EPC3 and LABA, much like what IESC is suggesting for the Project to adopt on an overall basis.

IBBM may also be playing an important future role here as they are in the process of recruiting an HRM advisor, who will be delivering an Industrial Relations course to Lancos. The Business Development Team would have its own role to play in these matters, but could still benefit from upgrading their skills in this field, e.g. a train-the-trainer program on labor and IR.

Several Lancos have expressed an interest in setting up trade unions and, even though the PNG Trade Union Congress (PNG TUC) is very active in the mining, maritime and sugar sectors, it is not well represented in the oil and gas sector. Nevertheless, the Maritime Trade Union and a local consultant have approached Lancos as well as PNG LNG workers at the LNG Plant site.

The quality and effectiveness of calculations and payment of wages by Lancos have improved. To achieve this, Contractors across the Project have substantially intensified cooperation with Lancos and to a certain

extent coached them on payroll issues. Contractors have simplified and split off accounting of hours from other data collections and routinely send staff on location during the fortnightly paydays, so that disputes over pay may be resolved on the spot. Nevertheless, the topic needs ongoing attention.

IESC did receive complaints from PNG workers across the Project about two specific issues: lack of pay-raise after the probation period and absence of workers' appraisal systems. Pay rise after the first three months of work is customary in PNG, and even though Project wage rates are above the sector norm, there is potential for discontent among workers due to expectation patterns. At the LNG Plant site the workers committee was resolute in its opinion that the lack of appraisal systems at the various subcontractors contributed substantially to the August strike and earlier work stoppages. Even where appraisal systems are in place, appraisals are carried out annually which, given the commonly short employment, offer too little opportunity for workers to get promoted. During the field visit, IESC observed that most Contractors have had similar complaints and were in the process of offering (more frequent) appraisals and dealing with the pay-rise-after- three months issue. For example in the Hides area, CBIC (EPC4) has had an appraisal system in place since May 2011 and has removed the probation clause to avoid discussion on pay rise after 3 months.

The IESC also foresees a possible future problem with Nasfund refunds, particularly among unskilled, de-mobilized workers outside the POM area. By law PNG citizens are eligible for a pension refund after one year of unemployment, but there is no clear system for tracking down these refund candidates, especially in the more remote areas. In other words, Nasfund is holding money that needs to be returned to workers who, after their work at the Project will likely remain unemployed, especially the lowest skilled workers originating from remote areas. Nasfund does not have an effective means for keeping track of these people.

6.2.2.4 Contractor Performance

During the July mission the IESC observed a systemic lack of awareness of Project labor requirements at the Contractor and subcontractor level, except for worker health and safety, which scores very high across the entire Project. However, several aspects of labor management need to be improved before Project commitments can be considered to be fully implemented.

Most prominent were (i) the general lack of proactive workplace relations or in other words lack of organized worker-management dialogue including avenues for workers to get their concerns and needs addressed in a collective manner, rather than individually, as with the worker grievance mechanism or publically as during toolbox meetings and (ii) overall lack of appropriate due diligence with regard to hiring practices for OCNs.

In terms of worker management dialogue, the Project should be able to provide its workers with collective and institutionalized avenues to discuss their needs and concerns and to understand those of management. Worker grievance mechanisms and toolbox meetings are not valid alternatives. The situation is pressing given the complex reality of employing around 11,000 workers, of which about 9,000 are PNG nationals, with very distinct norms and values that are brought to the work floor, and the remainder consisting of a very diverse, international workforce. Finally, there is no real alternative for workers to organize, given the lack of trade union presence in the PNG gas and oil sector.

In summary, IESC has observed that the Project has not made enough progress in terms of facilitating a roll out of worker councils across the Project, neither for PNG nationals nor for OCNs. IESC strongly recommends the Project stimulate and facilitate the development of such councils and to no longer rely on inappropriate avenues such as toolbox meetings. Preferably, councils should be comprised of a mix of OCNs and PNG nationals to enhance a PNG LNG worker identity and worker professionalism in terms of workplace relations. If this is deemed not feasible then IESC suggests developing at a minimum separate councils for OCNs and for PNG nationals. IESC fully recognizes that the time elapsed since the July visit was short and that the Project has made a commendable and substantial effort in developing an IR strategy. Nevertheless, given the critical phase of major mobilization in which the Project finds itself, IESC strongly recommends that the Project addresses this issue and hopes to see progress during the March 2012 mission.

In terms of recruitment of OCNs, EHL will have to be able to demonstrate that its Contractors and their subcontractors can sufficiently guarantee the quality and reputation of the recruitment agencies in the countries of origin. This implies that EHL's Contractors need to know about the agencies' recruitment polices and practices and be able to demonstrate that these agencies at a minimum follow the law and not engage in any type of bonded labor practice and, better still, that they follow sector best practice.

During the November visit the IESC did not observe enough improvement in this regard. Contractors were able to provide details on their work force in terms of direct and indirect hires and countries of origin, but not on hiring policies and practices of the agencies responsible for the indirect hires. Please see below for more background and detail in terms of Contractor conformance with Project commitments.

6.2.2.5 Recruitment Policies and Procedures

During the November mission the IESC looked more closely at OCN recruitment practices and noted that Contractors and sub-contractors were able to provide IESC with their workforce statistics in detail, but were still unable to provide details on hiring policies and practices of those agencies responsible for indirect hires. Contractors and sub-contractors do have highly diverse recruitment strategies. Some work with agencies on an ad hoc basis, some with fixed agencies and some even have their own recruitment agencies in the countries of origin. In terms of employment conditions, in some cases the agencies are fully responsible for the recruitment process and HRM, but the main trend visible in the Project is to employ OCNs directly and only pay the recruitment agency a fee per worker. Attention is needed for the high contingencies of Philippinos across the Project (no company can employ more than ten Philippinos directly; any surplus needs to be recruited through Philippine agencies) and for those OCNs from other countries that are on the payroll of agencies in the countries of origin. IESC recommends a review of hiring practices of the agencies responsible for all indirect hires.

The last IESC report recommended that EHL should consider a commitment to the intent of the *UN International Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families*, henceforth referred to as the *UN Migrant Workers Convention* or *Convention*. On 1 July 2003, the Convention entered into force. It seeks to play a role in preventing and eliminating the exploitation of migrant workers throughout the entire migration process. In particular, it seeks to put an end to the illegal or clandestine recruitment and trafficking of migrant workers and to discourage the employment of migrant workers in an irregular or undocumented situation. It provides a set of binding international standards to address the treatment, welfare and human rights of both documented and undocumented migrants, as well as the obligations and responsibilities on the part of sending and receiving States.

PNG is not a signatory to the Convention, but it is one of the nine core international human rights treaties and some countries that provide (sizeable) contingencies of workers to the Project are signatories, e.g. Colombia, Egypt, Indonesia, Philippines. Governments of States that have ratified the UN Migrant Workers Convention undertake to ensure that migrant workers whose rights have been violated may seek an effective remedy. It is then at EHL's discretion to verify that no such rights are violated across the Project and avoid possible future workers action. Also, it would be a matter of following suit to international best practice and IESC therefore still recommends for EHL to at least review the content of the Convention and screen Project performance against it.

6.2.2.6 Worker-Management Relationship

At the LNG Plant site IESC held meetings with both the Workers Council and with the Sports and Food Committee. The latter works well and addresses the most basic worker's needs in camps in terms of food, sports and other entertainment. Complaints about food are taken very seriously and are addressed even by flying in chefs from countries of origin. Food is not only considered as nourishment, but is acknowledged as emotional comfort for workers who are far away from home and on their own. Workers are also consulted on their needs and preferences for sports and other entertainment, including trips outside the fence. CJJV (EPC3) is making good progress with its pilot Workers Council for PNG workers. The consultation process for both committees is solid. CJJV issues a 'workers bulletin' three times per week, making use of color-coding, which they claim plays a big role in preventing strikes, simply by sharing facts and deflating rumors. The main issues raised by the Workers Council were:

- lack of pay rise after the three-month probation period, which is customary in PNG and even though EHL pays well above the minimum wage expectations patterns still lead to discontent;
- lack of worker appraisal systems; CJJV and its sub-contractors are just now starting up a system. Red Sea Housing went from worse to best employer in this respect as it now offers bi-monthly appraisals; the other contractors offer appraisals in a range from 3 to 6 to 12 months. Earlier implementation would have prevented many work stoppages according to the Workers Council;

- lack of transparency on the mark up percentage for LABA; there seems to be some serious trust issues underlying this complaint and of course LABA is not just a commercial recruitment agency but represents the communities, whereby trust is key; and
- lack of women-specific grievance mechanisms; this was seen as essential in order for local women to voice their concerns.

Contractors in the Hides area (EPC4 and C1) are reluctant to initiate workers councils due to Huli cultural characteristics, "…they'd rather not gather them in groups." However, the Project is working with the Huli workforce to develop constructive and positive interactions. EPC4 and C1 had advised that they will not be establishing a worker committee. Efforts were made last November to establish a group, which proved unsuccessful. In order to manage IR issues CBIC (EPC4) has taken actions to address them on an individual worker basis through strengthening the role and capacity of supervisors. Issues and worker grievances are being addressed in the workplace when they arise or elevated higher when necessary. This approach has proven successful over the past 4 months. EPC4 does consider working with its worker safety committee first and seeing if a workers council would be possible based on that experience.

An IR committee has been set up by HGDC that intends to meet every two weeks with representatives from HGDC management and C1 and EPC4 staff and with workers representatives. However, EPC4 staff seemed unaware of this initiative. IESC will follow up during its next field visit.

The onshore pipeline and Komo contractors (EPC5A and 5B) do not have such workers councils in place, or plans in that direction. EPC5B does have informal fortnightly meetings with OCNs, which is working well according to MCJV. IESC will follow up on this during the March visit. A full review was undertaken for EPC5A project management, but due to the complexities of the workforce, i.e. workers are recruited from more than 56 minor Lancos, management decided not to adopt this process as it was deemed to be unworkable. The offshore contractor (EPC2) has not been contacted yet by IESC, as they have only recently started their operations.

OCNs still lack access to any form of workers council across the Project, although at Komo fortnightly meetings with OCNs are held that are reported to have produced improved workplace relations. Grievance mechanisms are in place at most Contractors, but are still poorly communicated to OCNs and unfortunately most Contractor staff appear to see tool box meetings as the main and appropriate channel for worker grievances. OCNs have on occasion forced forms of collective bargaining after security incidents, demanding an end to their contract and repatriation.

During this field visit the IESC did identify a possible pattern of failures in workplace relations resulting in security incidents. This was substantiated not only during the Security presentation at the end of the mission, but also by anecdotes and on the ground experience of security staff. Below are some examples that were mentioned (see also Section 5.8.2.2).

PNG national attacks OCN (August 6th, Komo) - the event has a long history to it, but in essence it comes down to a local worker being fired for improper behavior and not welcome back into any employment relationship with the Project. A failure of the respective Lanco to clearly communicate to this man the reason and consequences of his termination, allowed him to then erroneously assume that he would be eligible for other job opportunities, such that he then became very frustrated after several failed attempts, blocked the road with a felled tree, and was then arrested by the police. Meanwhile his brother, who is employed by the Project, was told the man died in the police station. The brother then lashed out at the first person available who happened to be the OCN in question.

This example exhibits the following workplace relations issues:

- inadequate HRM of respective Lanco in terms lay off process;
- inadequate response of respective Lanco to repeated attempts of person in question of being re-hired; and
- MCJV did not assure itself that laid off worker was properly briefed on reasons for dismissal.

Various groups of OCNs at EPC3 and EPC5B leave after security incidents and threats (August) – a general strike took place at the LNG Plant site in August 2011. EPC3 claims it was politically induced, i.e. other village factions trying to take over LABA. Cell phones were used to threaten other workers including OCNs; as a consequence cell phones were banned from the workplace (use only permitted for emergencies). Several OCNs left as a consequence of the tightened security situation. The EPC3 workers

committee, however, was resolute in its opinion that the lack of appraisal systems at the various subcontractors contributed substantially to the August strike and earlier work stoppages.

This example exhibits the following workplace relations issues:

- August strike and its causes, although these causes are debated by several parties;
- failure to provide OCNs with a secure work environment;; and
- unclear communication to OCNs.

Retribution by Hides Security Services (HSS) towards a local community (early September, Komo) - this incident is complex as well, but comes down to HSS staff feeling frustrated for several petty thefts of and damages to EPC5B equipment, which had not been fenced in. HSS staff at Komo is recruited locally and managed by Guard Dog. HSS is co-owned by HGDC. Training of staff and the on-the-ground management presence of Guard Dog is insufficient and Guard Dog, through its joint venture with HGDC, is perceived as a Hides-based employer. Consequently, HSS staff resorted to traditional methods of retribution and burned down several houses in the community.

This example exhibits the following workplace relations issues:

- MCJV's equipment was not stored in a secure enclosure leaving it exposed to theft and damage;
- lack of adequate training and on the ground management for HSS personnel;
- MCJV did not assure itself that HSS personnel received training and met standards required by EHL, including adherence to the Voluntary Principles for Security and Human Rights; and
- EHL had not undertaken any monitoring to assure itself that its EPC contractors were compliant with Project standards including the Voluntary Principles.

A Level 2 non-conformance has been raised. For corrective actions suggested by IESC see section 5.8.2.2).

Security incident at CBIC (7 and 8 September, HGCP) - some workers used violence at the workplace; these people and their supporters were removed at once by CBIC. After two weeks they were told they had been suspended for six weeks, four more to go from that moment on. After this period some workers were taken back on while the real troublemakers were terminated. The ones taken back on were very appreciative toward CBIC, as they too had been under pressure to support the actions of their wontok. CBIC staff responsible for handling this issue explained that Huli culture is about both parties having their say "…don't interrupt them until they are done", finding a win-win option and about firm, decisive yet fair decision-making. Their response was successful as it demonstrated both firmness and justice.

In terms of workplace relations issues, the following observations can be made:

- CBIC took firm, decisive action to curtail workplace violence; and
- CBIC gave all parties a cool down period and then made a decision recognized as fair and just by PNG workers.

Harassment of a local woman by OCN (first week of November, Komo) – An OCN exposed himself to a local cleaning lady in his room. The lady in question at least had the option to confide in a capable woman, the office assistant of her employer, IPI. The matter was immediately taken up with EPC5B to which IPI is sub-contracted. The OCN was fired on the spot and repatriated. A meeting was held with the local community and compensation paid. Had a confidante, be it an informal one, not been available and the lady taken the offense back to her community, the event could have turned into a serious security incident. Proper handling of the incident clearly demonstrates the need for a women- specific grievance mechanism, as local women would never turn to any male superior with such a story.

This example exhibits actions and understanding for dealing with women's issues:

- IPI has an (informal) confidante in place for women;
- IPI took firm, decisive action in dealing with the perpetrator;
- IPI understood out-of-the-fence consequences of the occurrence and dealt effectively with them.

6.2.2.7 Conditions of Work

In terms of overtime, IESC noted that OCNs at EPC5A, compared to those working for the other Contractors, remain at a disadvantage due to unpaid, extensive commutes between camps and work

locations along the pipeline. Also, working hours for OCNs at EPC5A with a 7-day workweek and a 20/2-rotation-schedule are exceptional compared to other EPC Contractors, whereas working conditions on the pipeline are among the harshest on the Project.

Some staff interviewed were outspoken on these working hours and rotation schedules along the pipeline and suggested that OCNs should at least be granted one Sunday afternoon off to socialize, play soccer or otherwise, and that the 20/2 schedule should be adjusted to those of other expatriates. At EPC4, for example, the rotation schedule for Philippinos is 12/2.

6.2.2.8 Demobilization

C1, EPC4 and HGDC have had one or two meetings on strategizing for worker demobilization, an initiative that hasn't really come off the ground. It's called the Workforce Transition Committee and mainly deals with demobilization and mobilization from C1 to EPC4. However, the database that C1 prepared for EPC4 with skilled PNG workers who have been/will be demobilized does not appear to be effective. EPC4 is perceived by C1 as a contractor that prefers recruiting skilled workers from OCN countries, rather than PNG skilled workers with less years of experience.. Demobilized skilled workers from MCJV are also being targeted for re-employment. CCJV (C1) employs some 650+ PNG workers of which 60% are unskilled, as well as some 300-400 political recruits (spotters, FLOs and VLOs etc.), most of which will not be able to work for CBIC (EPC4), as their activities by nature require mainly skilled labor. A proper demobilization strategy seems key at this moment in time, especially one that focuses on those PNG workers currently employed by C1, but expected to be jobless in the future.

On the other hand, when Spiecapag (EPC5A) mobilizes into the Hides area, they will need to review the potential impact of entering into a differentiated agreement with HGDC, other than the existing agreements C1 and EPC4 have with HGDC. EPC5A negotiated a different arrangement with the pipeline Lancos whereby PNG workers are usually hired directly and the Lancos are paid a fee per worker. This contrasts with the other contractors, where PNG workers are on the payroll of the respective Lanco, which may cause confusion for workers in the Hides area and lead to misunderstandings and discontent.

Another major issue for Spiecapag will be introduction into the area of its previously recruited semi-skilled PNG workers that travel with the pipeline from the downstream areas. Currently Spiecapag has demobilized some 800 PNG workers from Area 1, which went down without problems mainly due to the fact that people in this area are more gently natured than upstream. The morning of IESC's visit, however, drivers were on strike, as they demanded continuation of their employment with Spiecapag. Drivers are considered semi-skilled and have a right to be taken along the pipeline, but there were sufficient drivers available in Area 2. EHL and Spiecapag are trying to get these drivers employed by Saipem (EPC2), who is now mobilizing in Area 1.

Finally, IESC observed that MCJV (EPC5B) is in need of developing a demobilization strategy as soon as practically possible.

6.2.3 Recommendations

1) Concerning EHL:
    a. ensure adequate and effective follow up on first steps taken with regard to the Project's Industrial Relations Strategy, both within EHL and towards all Contractors;
    b. assign a mobile troubleshooter specialized in labor and IR, who can act above all parties and have this person visit all Project sites on an ongoing basis in order to monitor labor and IR issues across the Project, and enable this person to mobilize swift and effective Project responses.
2) Concerning Lancos and PNG workers:
    a. have all major Lancos attend the Industrial Relations course delivered by the new IBBM HRM advisor;
    b. monitor performance of Workers Council at EPC 3, and discuss possible rollout with other Project Contractors, preferably mixed PNG national/OCN/Expat workers councils; and
    c. develop tailor-made HRM and IR solutions for PNG women workers' needs at Project level and roll out to Project Contractors (see section 6.2 on Gender).

3) Concerning Demobilization of PNG workers:

   a. develop a Project-wide demobilization strategy at Project level that is better aligned with the Community Support Strategy Action Plan (see CSSAP, section 2.1) and roll out to Project Contractors;

   b. prepare for mobilization and demobilization issues especially along the pipeline and at the HGCP site.

4) Concerning Other Country Nationals:

   a. carry out a rapid risk assessment at Contractor and subcontractor level for those contingencies of OCNs that are still hired through Recruitment Agencies in their countries of origin in terms of the agencies' policies, practices and reputation;

   b. discuss possible rollout of Workers Councils for OCNS with Project Contractors; and

   c. have Project Contractors improve on and provide ongoing information on grievance mechanisms towards OCNs.

6.3 GENDER

6.3.1 Project Strategy

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

- the Labor and Workers Conditions Management Plan (Mitigations 23.026 and 23.034); and
- the Camp Management Plan (Mitigations 24.027 and 24.029).

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

6.3.2 Observations

6.3.2.1 Women vis-à-vis Labor and Workers Conditions

Gender

In follow up to IESC's observations during the July - August 2011 field visit, EHL updated the IESC in November on its work with the World Bank to develop a potential capacity-building partnership focused on women's livelihoods in the Project impact area. This included financial education. Community investment criteria for these gender empowerment programs are in alignment with Corporate Signature Investment programs, with PNG National Action Plans, and with the UN Millennium Development Goals. It works through strategic partnerships with established, capable donors like the World Bank and NGOs. The PNG LNG workforce is engaged where possible, including through a *'Women in Energy Network'* that was launched in 2011.

Examples of key women's empowerment community investments are the *'Building Women's Self Reliance Program'* (2011 – 2012), the *'Global Women in Management Program'*, and the *'Urban Youth Employment Project'* (2010 – 2012), which if successful, might be expanded to the Hides area with a specific focus on female participants.

The Project also engages in key policy dialogue in the context of the *'PNG Country Gender Assessment'* (2010 – 2011) and the *'Pacific Women's Policy Dialogue'* (2011).

Program elements such as building women's livelihoods and financial education would indeed address some of the gender concerns pointed out by the IESC, such as women's control over their own earnings and opportunities to put these to their own use. However, it is unclear to what extent these programs target either the PNG LNG women work force or women in the Project impact area and if so, how many women enjoy access, which support is offered to whom and in which areas. IESC will follow up during its March 2012 visit.

Nevertheless, IESC also noted that there are still some Project-wide gender issues that remain to be addressed. It still recommends the Project to centrally drive development of tailor made HRM and IR solutions for women workers' needs and of women-specific grievance mechanisms. The Community

Health Program is conducting a very successful 'marriage and relations counseling' program at the community level. IESC sees a great opportunity for this program to support the Project with gender workplace issues by developing a specific focus on violence issues related to women-in-employment. This view was actually shared and validated by program staff, as they are also aware of the fact that confiscation of wages by male family members and (violent) domestic implications for women employed by the Project are widespread (see for more details same section in previous IESC report).

6.3.2.1 Women and Camp management

There are still no women-specific grievance mechanisms in place except incidentally and informally. For example EPC5B's subcontractor IPI employs a capable secretary who has informally taken up the role of women's confidante. Her role in a sexual harassment case that occurred at Komo in the first week of November, proved vital to diffuse possible retaliation from male family members towards the Project. An OCN had exposed himself to a local cleaning lady in his room. The lady in question at least had the option to confide in a capable woman, the office assistant of her employer, IPI. The matter was immediately taken up with MCJV (EPC5B) to which IPI is sub-contracted. The OCN was fired on the spot, repatriated, and a meeting was held with the local community and compensation paid. Had a confidante, be it an informal one, not been available and the lady taken the offense back to her community, the event could have turned into a serious security incident. Proper handling of the incident clearly demonstrates the need for a women-specific grievance mechanism, as local women would never turn to any male superior with such a story.

As large contingencies of unskilled and semi-skilled women from local communities are employed at either Alliance or IPI subcontractors, suitable grievance mechanisms and capable confidantes need immediate implementation across the Project.

At the LNG Plant site IESC met with a selection of members of the Workers Council. One of the main issues raised by the Workers Council was the lack of a women-specific grievance mechanism; this was seen as essential for local women to voice their concerns. However, in follow-up to IESC's Novemberreview CJJV (EPC3) developed such a mechanism and named it 'The Women's Champion'. At LABA two women have been appointed to *"follow up with concerned parties and, where appropriate, provide or arrange counseling."* They will be assisted in this as required by the CJJV Senior Health Advisor, a position currently occupied by a woman. The document outlining the procedure does specify that it *"refers to issues that have arisen solely because the aggrieved is female, and is not concerned with contractual, safety, work or remuneration matters on which the gender of the aggrieved has no particular bearing."* The procedure further specifies that "*any female with such an issue* [sic: regular work place issues] *should complete a grievance form and transmit it to…"* one of the appointed woman at LABA." And that *"if necessary, it can be placed in a sealed envelope marked 'Personal and Confidential' and handed to an IR officer or a NWC* [sic: national workers council] *delegate for onward transmittal."*

CJJV also informed its main sub-contractors on the new procedure and invited them to consider developing a similar mechanism. CJJV also requested these parties to distribute the document containing the procedure among their women workers, post it on their National Workforce Committee Notice Boards and generally ensure that women staff is fully aware of the facility.

6.3.3 Recommendations

1) Have a Gender specialist make an inventory of the most pressing issues for women employed by the Project and assist in the development of tailor-made human resource management and industrial relations solutions for women, especially for Huli women in the Hides area at the Project level - including concise instructions for Contractors and Lancos. Most immediate attention is to focus on getting women's workplace issues out in the open and safeguarding women's control over earnings (repeat recommendation).
2) Make women-only grievance mechanisms available at all Contractors and subcontractors camps through appointing a competent 'confidante' and proper communication on this mechanism, and follow suit to the approach taken by CJJV in December 2011 (repeat recommendation).

6.4 CAMP MANAGEMENT

6.4.1 Project Strategy

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

- to avoid or reduce negative impacts on the community and maintain constructive relationships between local communities and workers' camps; and
- establish standards on worker welfare and living conditions at the camps that provide a healthy, safe and comfortable environment.

The Labor and Working Conditions Management Plan also contains some mitigation measures on living conditions (e.g., Mitigations 23.020 and 23.021). The two health-related documents contain some specific requirements for food sanitation, sanitation of living areas and laundry practices and procedures in addition to Project-wide requirements for public health and occupational health and safety at large.

6.4.2 Observations

Camp construction is progressing to schedule, both at the LNG Plant site, as well as in the Hides area. There is, however, a continued and pressing need for EHL to rigidly implement, monitor and evaluate all risk mitigation measures proposed in the risk assessment reports for personal-space-reduction at EPC3 and in the Upstream Area. These risk assessment reports and the mitigation measures they contain have been instrumental in lifting the Level 1 Non Conformance during the IESC July – August review and are therefore critical to implement. For example, one major issue observed during the July – August field visit and again in November, was the lack of ventilation in most low rank, and thus more densely inhabited rooms. All rooms do have secured windows that can be opened, but both habitants as well as maintenance staff after cleaning keep windows closed, which leads to unhealthy and unhygienic air conditions and enhances chances for the spread of airborne diseases, such as TB.

Communication on the camp grievance mechanism towards OCNs remains unclear and is therefore inadequate.

As most camps have transitioned from a pioneer to a more permanent status, IESC observes that the camps visited are diligent in the provision of services such as catering, sports facilities and entertainment. Virtually all camp restaurants cater for different national cuisines depending on the contingencies of expats and OCNs present. Throughout the Project food is recognized as an important feel-good factor and when possible chefs are hired from countries of origin.

At the LNG Plant site IESC met with the Sports and Food Committee, which works well and addresses most basic worker's needs. Workers are consulted on their needs and preferences for food, sports and other entertainment, including trips outside the fence.

6.4.3 Recommendations

1) Rigid implementation, monitoring and evaluation of risk mitigation measures to manage reduced space/person at the LNG plant site and in the Upstream Area (repeat recommendation).
2) Improve communication on and accessibility to camp grievance mechanisms for OCNs in relevant languages and cultural appropriate ways (repeat recommendation).
3) For recommendation on a women-specific grievance mechanism at camps see section 6.3 on Gender.

7 HEALTH AND SAFETY

The PNG LNG Project has a well-developed program to manage both occupational health and safety of workers, as well as a community health and safety program. The Health Group focuses on both worker and community health issues, whereas the Safety Group focuses primarily on occupational safety of workers. Community Safety is managed primarily through the L&CA organization and has been treated in Section 5.7. Project health and safety commitments towards the local communities are part of the ESMP as defined in the Community Health and Safety Management Plan, EHL Community Health, Safety and Security Management Plan, and the Community Impact Management Plan. Other requirements for health and safety are contained in documents outside the scope of the ESMP. Three of these documents, the Project Safety Plan, Project Health Plan, and the Journey and Traffic Management Procedure were therefore specified in the LESR to be relevant to demonstrate compliance with Lender Group requirements. In terms of community safety (see Section 5.7), Project traffic has proven to be the most significant adverse impact to communities in many other projects similar to PNG LNG and for that reason was targeted for inclusion within the umbrella of the LESR.

7.1 COMMUNITY AND WORKER HEALTH

7.1.1 Project Strategy

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

7.1.2 Observations

The Project Health program is organized into both occupational health as specified in a Project Health Plan and into community health within the requirements of the Community Health & Safety Management Plan. These plans are well developed and appropriate for a Project of the scope of PNG LNG.

The Community Health Management Program continues to progress consistent with its scope of responsibility as described in March 2011 field visit report. This program incorporates baseline studies based on comprehensive census surveys in Project areas and control communities, such that it is expected that any Project impacts on local health will be eventually determined. The program also incorporates an Integrated Health and Demographic Surveillance System (iHDSS) with a platform for enhanced clinical service delivery. To ensure scientific oversight and transparency, an International Science Advisory Board has been created with highly qualified experts from the U.S., Australia and Europe and that board has provided recommendations now being incorporated. The community health program involves collaboration with Government bodies and NGOs. Components of this collaboration include the construction and operation of an Infectious Diseases Diagnostic Laboratory and provision of equipment to the Kikori Hospital for diagnosis of tuberculosis. Community outreach programs include water sanitation hygiene, marital relationship training, and providing health training grants. Additional details on the community health program are presented in the EHL Quarterly Report for Q3 2011. A concern to the community health program identified to the IESC is that their budget might be significantly reduced in the upcoming months.

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

Since the July – August field visit, the Project has undertaken a full review of all of their diagnosed cases of serious malaria. The result of this review is that some cases may have been mis-diagnosed and the situation might not be as bad as previously assumed. The rate of serious cases does not appear to have changed over the past year. In any case the Project continues to implement one of the most comprehensive preventative malaria programs. The project also continues to demonstrate a high level of TB surveillance and awareness programs to assure TB Control programs are fully implemented. The rate of TB cases has decreased over the past year.

In terms of camp hygiene, IESC has observed that ventilation needs to be improved in shared sleeping accommodations to reduce the potential for outbreaks of respiratory illness. It is understood EHL is working to improve ventilation. Outbreaks of food or water-borne illnesses were not recorded since the March 2011 field visit.

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

A health issue the IESC suggests to further investigate is the obesity risk among PNG workers and all obesity-related long-term health risks, including diabetes and cardiovascular disease. An increase in obesity rates may be due to dietary and lifestyle changes, i.e. exposure of PNG workers to Western diet and the abundant availability of food in the camps, as well as a likely Melanesian genetic predisposition to store fat. Community Health Program staff do share this concern. With regards to the Highlands people it is unknown whether they are similarly genetically disposed or not. IESC suggests looking into this situation with a dietician specialized in Melanesian obesity issues.

7.1.3 Recommendations

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

7.2 WORKER SAFETY

7.2.1 Project Strategy

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

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

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

7.2.2 Observations

Worker safety continues to be a primary focus of EHL and the EPC contractors. Safety statistics presented by EHL show a continuing decrease in the Total Recordable Incident Rate (TRIR), down to 0.52 from the 0.67 from the March 2011 field visit and 0.55 from the July - August 2011 field visit, but the Project also recorded another fatality on October 6, this case caused by a trench collapse that occurred while MCJV was

performing temporary excavation activities for water diversion associated with the Komo Airfield construction. This accident is different from the two previous unusual accidents in that the collapse of an excavation is generally identified as a common hazard associated with earthmoving, for which there is extensive training and procedures to be followed. Well-known rules had to be broken for this accident to take place.

In terms of safety management the Project until now only held Tier 1 to Tier 4 safety meetings; Tier 1 being at the level of Project management and the other tiers taking the safety meetings down into the Project's organization. This approach to safety management is now so well established that the Project is ready to take it down to a Tier 5, the Worker Safety Council, which is at the level of EPC workers across the Project. These councils are composed of expats, OCNs and national workers alike. EHL has also conducted a Fatal Risks Workshop with Project-wide participation focusing on enhancing the job safety analysis (JSA) program and re-emphasizing individual safety commitment/accountability, as well as improving oversight for excavation activities and the process for assigning job tasks in support departments. MCJV has also reinforced their individual safety expectation statement or charter understood and signed by all persons acknowledging Safety Golden Rules (life-critical safety rules) and has defined a policy whereby the consequence for willfully violating safety procedures will result in termination. Tighter workplace safety procedures have also been initiated by MCJV.

One of the Project-funded initiatives started before the fatality in October is referred to as the "Safety Champions" initiative. Close to 200 PNG workers have been selected based on their positive attitudes and work performance to receive additional training and serve as models for workplace behavior so that an environment of worker safety extends more deeply into the workforce. EHL has also sponsored training under the topic of Field Safety in Uncontrolled Environments and also continued SSHE training for field-based line management.

7.2.3 Recommendation

11) 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 (continued repeat recommendation).

8 CULTURAL HERITAGE

8.1 PROJECT STRATEGY

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

The CHMP contains the following objectives:

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

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

8.2 OBSERVATIONS

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

Ongoing archaeological activities at the time of the site visit continue to be related mainly to pre-construction surveys and the management of chance finds, but some salvage activities have also taken place along the Pipeline ROW, most recently at bridge sites near Tamadigi and Moro. Neither site was found to contain high-value cultural resources. The preconstruction surveys are still ongoing for upstream infrastructure development (C1 – CCJV) and the pipeline (EPC5A – Spiecapag). With respect to C1, a sacred site consisting of a spirit sacrificial site and one ceremonial site consisting of a dance performance site has been recently discovered, along with 51 chance finds at the HGCP site. Spiecapag has recently discovered an ancestral village, reportedly inhabited c.1950's but now abandoned in favor of Kantobo. MCJV has not conducted any new pre-construction surveys, but two new chance finds have been recently made at the Komo airfield.

A positive aspect to the cultural heritage program is the involvement of PNG nationals. EHL now has a full-time PNG archaeologist based in POM who is supported by Coffey consultants as required. This individual is also responsible for recording, tracking and managing the Project's cultural heritage items and is the point of contact with the National Museum. C1 – CCJV has a full-time national field archaeologist. EPC3 has a national archaeologist on an on-call basis. EPC5A – Spiecapag has two full-time field-based national archaeologists. EPC5B – MCJV has one full-time field-based national archaeologist.

An issue yet to be resolved is that artifacts from salvage work in the HGCP area transported to Port Moresby in late April 2011 and inspected by PNG National Museum, still have not received an Archaeological Loan Permit such that they can be analyzed by Monash University. Obtaining this permit is a focal point of EHL's relationship with the National Museum, but it has yet to be procured.

8.3 RECOMMENDATION

1) An important activity still pending within the cultural heritage program is artifact analysis for material obtained in the Upstream Area of the Project, but obtaining an export permit for this material has been problematic. If resolution of this situation is not obtained by EHL's cultural heritage manager in the near future, consider approaching the National Museum at a higher level.

APPENDIX A

IESC 5TH MONITORING VISIT – TRIP SUMMARY AND DOCUMENTS PROVIDED

TRIP SUMMARY

November 2:

IESC arrive in the morning in POM

IESC Environmental and Social Team - Discussion on IESC's 4th Monitoring Report.

November 3:

IESC Environmental and Social Team:

- Fisheries conference call with Mark Pedersen (IESC);
- Introduction;
- Construction Update and project overview;
- Resources and organization;
- MoCs discussion;
- Pipeline Remote Site Access Roads update;
- Incinerator and Waste Management;
- Quarantine;
- Cultural Heritage.

IESC Social Team:

- Meetings on Community Support Strategy / Action Plan;
- Resettlement;
- Contractor Compliance;
- Labor & Worker Conditions.

November 4:

IESC Environmental and LWC Team:

- Visit to Motukea Island: introductions and induction, site inspection and meetings;
- Visit to LNG Plant site: introductions and induction, documentation review and plant area site visit;
- Labor & Working Conditions (LWC): meeting with EPC3 sub-contractors and with EPC3 pilot workers council.

IESC Social Team:

- Social Presentations and meetings followed by visit to selected Plant site villages;
- Project-induced in-migration;
- Meetings: Hela Transitional Authority, DPE Meeting (TBC), ELC/Annie;
- Village meetings: Lea Lea Women's group PIIM Committee, Papa Fish Committee, Borea Primary School.

November 5:

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

- Heavy Haul Road Exit Strategy;
- Stakeholder Engagement;
- L&CA Grievance procedure update;
- Review of grievance tracking records;

- Flight to Moro and inductions at camp.

November 6:

IESC Environmental & Social Team – Moro to Kopi Scraper Station (Camp 1) by Chopper:

- Visit to Spie Camp 1 and to dredging operations in the Omati via the ROW;
- Visit to ROW sections travelling onward from Omati landfall to Camps 1 and 2.

November 7:

IESC Environmental Team, Travel from Camp 2 to (Kaiam) and onwards to Gobe:

- Camp 2 inspections and discussions; travel to Camp 3;
- Travel via ROW to Gobe;
- Gobe – Moro (Chopper) via Tamadigi.

IESC Social Team, Visit Goare and meet local communities from Goare and adjacent villages:

- Boat to Goare: discussions with local communities;
- Continue discussions with local communities; return to Omati (Kopi?) landfall and Camp 1.

November 8:

IESC Environmental Team, Travel from Camp 3 (Gobe) to Moro via Tamadgi Transit Camp:

- From Camp 3 (Gobe) to Moro via Kantobo and Tamadigi;
- Ridge Camp By-pass Road and CPF By-pass Road reinstatement.

IESC Social Team, Travel by chopper from Camp 1 to Moro:

- Visit Kutubu High School;
- Documents review and discussions.

November 9:

IESC Environmental & Social Team – Transfer to Nogoli (Chopper) and drive to Juni.

IESC Environmental Team:

- Drive to Well pad access road and walk up to Well pad B;
- Inspection of Spineline and spoil dumps.

IESC Social Team:

- Meeting physically displaced and economically displaced people site (meet some of the people affected by the addendum area).

IESC LWC Team

- From Juni to Nogoli and Kobalu for interviews;
- Kobalu site inspection.

November 10:

IESC Environmental & Social Team – Highlands - Visit Quarries; meetings with camp management and resettlers:

IESC Environmental Team

- Transit – Juni to HGCP;
- HGCP CCJV SCOPE (desk based discussions around HGCP construction environmental aspects, provision of C1/CCJV environmental documents);

- HGCP EPC4 SCOPE (desk based discussions around EPC4 Construction environmental aspects, provision of EPC4 environmental documents).

IESC Social Team

- Transit – Juni to HGCP;
- HGCP site visit (including Spoil dump, HVSA, Demo gardens, Outgrowers /livelihood programs);
- Meeting with HGCP relocates recently (6 or so families at their resettlement locations including some of those settling behind the HGCP site - as a priority);
- Sit in on the Hides chief's coordination meeting or, alternatively, meet some of the leaders individually;
- Visit housing sites;
- ELC discussions.

November 11:

IESC Environmental & Social Team - Day in Highlands - Site/Meetings:

IESC Environmental Team

- Juni to Quarries (QA 1 and 2; Kopeanda and Tagari);
- Visit QA1-2, Kopeanda and Tagari quarries;
- TB1 Quarry;
- Transit to Komo (Vehicle);
- Komo Site induction.

IESC Social Team

- Juni to Quarries (QA 1 and 2; Kopeanda and Tagari);
- TB1 Quarry, including meeting resettlers. Meetings with PDL1 communities and Idwai School (RIP project). Census and Surveys (KP1-10);
- Transit to Komo (Vehicle);
- Komo Site induction.

November 12:

IESC Environmental & Social Team – Site Visits - Komo and Heavy Haul Road

IESC Environmental Team:

- EPC5B Komo; Pioneer camp and Main camp general inspection, including incinerators/waste facilities;
- Inspection of North and South Diversions;
- Transit to Moro Camp (Chopper).

IESC Social Team:

- Meetings with Komo and HHR resettlers;
- Meetings at Komo Primary School (Undulin Training);
- Transit to Moro Camp (Chopper).

November 13:

IESC Environmental & Social Team – Moro to Port Moresby:

- Finalization of IESC 4th Monitoring Report;
- Meeting with ITC at Airways Hotel;

- Discussion on Non Conformances - Environmental/Social.

November 14:

IESC Environmental & Social Team Transit from Airways to Lawes Rd.

Presentations on:

- Induced Access;

IESC Social Team

- Incident reporting, including community incidents;
- Health:
- Gender related issues, including recently agreed initiative with the World Bank;
- National Content;
- Security;
- Banking support initiatives;
- Lancos;
- Discussions on PNG Decent Work Agenda and ILO support to country.

November 15:

IESC Environmental & Social Team – Port Moresby:

Presentations/Meetings:

- Village Courts;
- National Education Department;
- De-brief session;
- Discussions on PNG Decent Work Agenda and ILO support to country and meetings between IESC LWC team and the project;
- Prepare for Close out meeting.

November 16 and November 17:

IESC Environmental& Social Team – Port Moresby:

- Close out Meeting;
- IESC departure.

DOCUMENTATION RECEIVED

On-site documents:

ASSOCIATED FACILITIES

- *Associated Facilities Procedure* - pdf*;*
- *PGHU-MC-CRENV-480005 Rev 0* - doc*;*
- *Register of Worksites, Facilities & Services_2 Nov 2011 Master* - xls;
- *Tagari River Quarries_EMP_Final_07Oct11* - doc;
- *Visio-Worksite,Facility,Service Categorization Flow Rev 0* - pdf.

BIODIVERSITY

- *Biodiversity Strategy Multistakeholder Meeting Oct 2011_agenda drafte* – doc;
- *Multi Stakeholder Meeting_Oct 2011_Atendee List_Internal.* – xls;
- *Presentation 1 - Biodiversity Strategy Background & Status.* – pptx;
- *Presentation 2 - Biodiversity Offsets Guiding Principles.*- pptx;
- *Biodiversity Strategy* – pdf;
- *Biodiversity Strategy for PG* – ppt;
- *IESC Visit #3 - Biodiversity Strategy_FINAL* – ppt*;*
- *IESC Visit #4 - Biodiversity Strategy_FINAL* - ppt.

C1-HIDES_CCJV NOV 2011

- *Contractor Monthly Report - Aug PGHU-CJ-BRKPI-000001 Rev 28* – pdf;
- *Contractor Monthly Report July PGHU-CJ-BRKPI-000001 Rev 28* – pdf;
- *Contractor Monthly Report - Sept PGHU-CJ-BRKPI-000001 Rev 30* – pdf;
- *Hides Fuel Facility Refueling Mgmt Plan, PGHU-CJ-XPMAT-410002 Rev E.*- pdf;
- *Project Event Database_Enviro_Sept.*- xlsx;
- *Waste Record Hides Template 2011*- xlsx;
- *WQ Database_2_Hides_Sept* –xlsx;
- *1284_Memo_143b_HidesRidge_P2_Results_KP5-2to8-35 & Wellpad C_FigAtt_v3* –pdf;
- *1284Memo_143bHidesRidge_P2_Results_KP5-2to8-35WellpadC_Rev0* – pdf;
- *QA2 PGHU-EN-SRZZZ-490011 Rev 2* –pdf;
- *SpDmp1x3 PGHU-EN-SRZZZ-420049 Rev 0* – pdf;
- *CER - LNG Temp Waste Storage 22Oct201 – PNGLNG* - ppt;
- *HIDES WELLPAD ACCESS ROAD INDUCTION_Rev3* - pdf;
- *HWPAR SideCasting Mngmnt Plan Oct2011* – ppt;
- *App1_Design Parameters* – pdf;
- *App3_Isometric Views* – pdf;
- *DRAFT Nagoli QA2 Peer Review report* –pdf;
- *Draft_Nagoli_V1* – docx;
- *Stage 1 Design* – pdf;
- *Stage 2 Design* – pdf;
- *Stage 3 Design* –pdf;
- *Stage 4 Design* –pdf.

CULTURAL HERITAGE

- *IESC Visit 5 Cultural Heritage_Nov 2011* – pptx.

EPC3 NOV 4

- *Appendix-1 Environment Patrol Report* –pdf;
- *Appendix-2 Sandalwood Monitoring* – pdf;
- *Appendix-3 Consolidated Waste Control Activity Monthly Report* –xlsx;
- *Appendix-4 WWT Discharge Monitoring Report* –pdf;
- *Appendix-5 Water Usage Summary* –xls;
- *Appendix-6 Storm Water Discharge* –pdf;
- *Appendix-7 Ground Water* – pdf;
- *Appendix-8 Disturb Area Map as of July 31 2011* –pdf;
- *Appendix-9 Disturb Area Photos as of July 31 2011* –pdf;
- *Appendix-10 Dewatering Water for pH At LNG Tank Area* – pdf;
- *Construction Monthly Environmental Report-2011-07-31_sani* – doc;
- *Appendix-1 Environment Patrol Report* – pdf;
- *Appendix-2 Sandalwood Monitoring* – pdf;
- *Appendix-3 Consolidated Waste Control Activity Monthly Report* - xlsx;
- *Appendix-4 WWT Discharge Monitoring Report* - pdf;
- *Appendix-5 Water Usage Summary* - xls;
- *Appendix-6 Storm Water Discharge* - pdf;
- *Appendix-7 Ground Water Quality Monitoring Report* - pdf;
- *Appendix-8 Sea Water Quality Monitoring Report* -pdf;
- *Appendix-9 Disturbed Area Map* - pdf;
- *Appendix-10 Disturbed Area Photos as of August 31 2011* - pdf;
- *Construction Monthly Environmental Report-2011-08-31* - doc;
- *Appendix-1 Environment Patrol Report* – pdf;
- *Appendix-2 Marine Mammal Observation Report* – pdf;
- *Appendix-3 Sandalwood Monitoring* – pdf;
- *Appendix-4 Consolidated Waste Control Activity Monthly Report* – xlsx;
- *Appendix-5 WWT Discharge Monitoring Report* – pdf;
- *Appendix-6 Water Usage Summary* – xls;
- *Appendix-7 Storm Water Discharge Quality Monitoring Report* – pdf;
- *Appendix-8 Sea Water Quality Monitoring Report* – pdf;
- *Appendix-9 Disturbed Area Map* – pdf;
- *Appendix-10 Disturbed Area Photos as of September 30 2011* – pdf;
- *Construction Monthly Environmental Report-2011-09-30* – doc;
- *2nd Audit Report_Oct2011* - doc;
- *CJJV 1st Spill Kit Audit Report_Aug 2011* - pdf;
- *Lender 20111104* - ppt;
- *Lenders Audit PowerPoint Presentation Nov 4th 2011a* - ppt;
- *PGLN-YK-SPENV-901108_1 (Reinstatement)* - pdf.

EPC4

- *153517-PGHU-CV-SRZZZ-00040* - doc
- *153517-PGHU-CV-SRZZZ-00040.DOC[1]* - pdf
- *Aug 2011_153517-PGHU-CV-SRZZZ-00038 (2)* - pdf
- *July 2011_153517-PGHU-CV-SRZZZ-00037* - pdf
- *October EPC4 Env Report* - pdf

- *Sept 2011_153517-PGHU-CV-SRZZZ-00039* - pdf

EPC5A

- *PGHU-SC-BRZZZ-000022 - MONTHLY REPORT N°22 (17 SEPTEMBER 2011 - 21 OCTOBER 2011)* - pdf

EPC5B – Komo Airfield

- *Attachment 1 Komo Ecology Assessment* – pdf;
- *Attachment 2 Komo Weed Assessment* – pdf;
- *Attachment 3 Noise Study* - pdf
- *Attachment 4 Komo Airport Water Quality Study* – pdf;
- *Komo Airport and Access Roads, Pre-Construction Survey Results Document* – pdf;
- *Komo Cultural Heritage Results* – pdf;
- *Komo Figures* – pdf;
- *summary of survey data KOMO 1284_55_Komo_v1-6* – doc;
- *10 12 10 Nursery Establishment and Operation* – docx;
- *10.12.10 Nursery Establishment and Operation* – docx;
- *29.11.10 Plant Nursery Plan* – docx;
- *11.10.11 WWTP #014* – pdf;
- *37992-1-pghu-mc-spenv-420104_1 epi - reinstate plan* – pdf;
- *Env Monthly Report Aug 11* – docx;
- *Env Monthly Report Oct 11* – docx;
- *Env Monthly Report Sep 11* – docx;
- *Incinerator Log* – xlsx;
- *Nursery Tree and Plant Species* – docx;
- *Orig Design vs Re-Design* – pdf.

INCINERATOR MANAGEMENT

- *Construction Waste Incinerator SOP (Rev 0*) – pdf;
- *Incinerator Poster* – pdf;
- *Lenders Nov 2011 Construction Incin Update (Rev 0)* – pdf.

NOVEMBER SOCIAL PRESENTATIONS

- *2011-11-02 Final_IESC Fisheries Presentation Lenders Q3* – pdf;
- *contractor management_pres to IESC_Nov 2011* – pdf;
- *IESC Grievance Review Nov 2011_Rev2final* - pdf;
- *IESC Project Status Update - 20111103 – FINAL* – pdf;
- *IESC Stakeholder Engagement Review Nov 2011_Rev2_final* – pdf;
- *IESC Visit #5 - Resettlement Overview* – pdf;
- *IESC visit GI review* – pdf;
- *SELCA Organisation - overview – IESC* – pdf.

PIPELINE REMOTE SITE ACCESS ROADS

- *Pipeline and Remote Site Management Lenders Review_Rev 0* -ppt presentation;
- *WR_1994_Onshore_RevH_(Gas Pipeline with Omati)* – pdf.

QUARANTINE

- *Quarantine Lenders Presentation November 2011 Rev 3* – ppt presentation.

RESOURCES AND ORGANIZATION

- *E&R Org Chart_Nov 2011* –ppt presentation.

WASTE MANAGEMENT

- *PGLN-EN-SRZZZ-900019 Rev 0* – pdf;
- *Waste Pres November 3_2011 IESC Visit_Final* – pdf.

Post-Mission documents

- *2011-11_IESC PIIMS Presention_Final* – pptx presentation;
- *2011-11-02 Final_IESC Fisheries Presentation Lenders Q3* – pptx presentation;
- *2011-11-04 Omati CRP to IESC* – docx;
- *2011-11-18_Caution Bay CRP_IESC without Figures* – pdf;
- *Biodiversity Strategy Working Group Protocol (v5)* – doc;
- *Caution Bay CRP_Sent to IESC w Figures* – pdf;
- *Env_Incidents* – xls;
- *Grievance_List_3Q_2011_Closed* – xls;
- *Grievance_List_3Q_2011_Open* – xls;
- *IESC Nov 14 11 Monitoring Visit 5- Drilling Overview-final DRG* – pdf;
- *IESC_Nov_14_11_Monitoring_Visit_5-_Drilling_Overview-final_DRG[1]* – pdf;
- *Induced Access Register_14112011* – xls;
- *Lake_Kutubu_background[2]* – doc;
- *media_release20110908_2Q11EnvironmentalSocialReportReleased[1]* – pdf;
- *media_release20111130_PNGLNG3Q2011[1]* – pdf;
- *NAQIA singapore trip rpt_Orapa Areke n Dai* – pdf;
- *Orig_Design_vs_Re-Design[1]* – pdf;
- *Pages from EPC5A Monthly Execution Report 2011 10Oct progress slide* – pdf;
- *PGGP-EH-SPENV-000018-001_ESMP_Rev_2_Nov_29_for_disclosure[1]* – pdf;
- *PGHU-MC-CRENV-480005_Rev_0[1]* – doc;
- *photo_release20110907_PNG_LNGProjectCompletesOffloadPipesKopi[1]* – pdf;
- *photo_release20111031_PNGLNGProjectStartsOffshorePipelay[1]* – pdf;
- *Progress Map_110731* – ppt presentation;
- *TapWaterKomoOct11SGS* – pdf;
- *TapWaterKomoSep11SGS* – pdf;
- *The_Environment_Permit_authorizes_EHL_to[1]* – docx;
- *Waste_Water_Monitoring_Register___EHL_CAMPS_&_POMTECH* – xlsx;
- *Water_test_results* – xls;
- *WR_2143-Reroute_14_20110906[1]* – pdf;
- *WR_2143-Reroute_15_20110906[1]* – pdf.