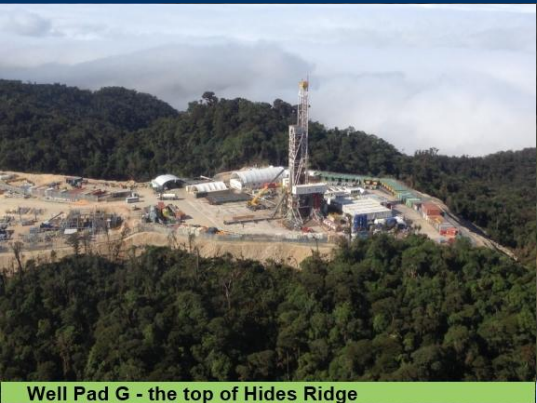




Lake Kutubu



Well Pad G - the top of Hides Ridge



Hides Gas Conditioning Plant - now receiving gas

REPORT OF THE:

INDEPENDENT ENVIRONMENTAL & SOCIAL CONSULTANT

ENVIRONMENTAL & SOCIAL COMPLIANCE MONITORING

PAPUA NEW GUINEA LNG PROJECT

Site Visit: February 2014

Prepared for

Export-Import Bank of the United States

Export Finance and Insurance Corporation

Japan Bank for International Cooperation

Società Italiana di Assicurazione dei Crediti all'Esportazione

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ACRONYMS

AFGU	Alternate Fuel Gas Unit
AWPAR	Angore well pad access road
BD	Business Development
BDPEP	Benefits Distribution Project Execution Plan
BMP	Biodiversity Monitoring Plan
BOD	Biological Oxygen Demand
BODP	Biodiversity Offset Delivery Plan
BRWC	Barging Route Waterways Committee
BSA	Benefits Sharing Agreement
CBD	Convention on Biological Diversity
CBI	Chicago Bridge and Iron
CBIC	Chicago Bridge and Iron & Clough JV (EPC4)
CCJV	Clough Curtain Brothers JV (C1)
CDS	Community Development Support
CEA	Cumulative Effects Analysis
CHMP	Cultural Heritage Management Plan
CI	Conservation International
CIC	Contractor Interface and Compliance
CIC	Community Issues Committee (at EPC5B)
CIC	Contractor Interface Coordinator (labor issues)
CIP	Contractor Implementation Plan
CJJV	Chiyoda JGC JV (EPC3)
COD	Chemical Oxygen Demand
CP	Cathodic Protection
CPF	Central Processing Facility (Kutubu – OSL)
CPUE	Catch per Unit Effort
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
EMPNG	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
EPT	Ephemeroptera (mayfly), Plecoptera (stonefly), and Trichoptera (caddisfly)
ERG	Emergency Response Group
ESIA	Environmental and Social Impact Assessment
ESMP	Environment and Social Management Plan
ESMS	Environmental and Social Management System
FOC	Fiber Optic Cable
FRV	Full Replacement Value
GFE	Gobe Field Engineering
CIC	Community Issues Committee

GoPNG	Government of PNG
HDD	Horizontal Directional Drilling
HGCP	Hides Gas Conditioning Plant
HGSF	Hides Gas Security Force
HH	Highlands Highway
HRM	Human Resource Management
HSS	Hides Security System Ltd.
HWMA	Hides Waste Management Area
IBBM	Institute of Banking and Business Management
ICT	Information and Communication Technology
IESC	Independent Environmental and Social Consultant
IFC	International Finance Corporation
iHDSS	Integrated Health 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
IPCBA	Initial Post-Construction Biodiversity Assessment
IPIECA	International Petroleum Industry Environmental Conservation Association
iPi Catering	integrity...Proactive...innovative Catering
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
LKRUMP	Lower Kikori Resource Use Management Plan
LKWMAEP	Lake Kutubu WMA Enhancement Plan
LR	Livelihood Restoration
MCH	Maternal and Child Health
MCJV	McConnell Dowell CC Group JV (EPC5B)
MESL	Monitoring Social Environmental Law, Ltd
MIP	Marine Incident Protocol
MOC	Management of Change
MOF	Marine Offloading Facility
MOH	Medicine&Occupational Health
MoU	Memorandum of Understanding
MSDS	Material Safety Data Sheet
MPA	Million Tons per Annum
MWMA	Mobile Waste Management Areas
NAQIA	National Agriculture Quarantine and Inspection Authority
NBSAP	National Biodiversity Strategy and Action Plan
NCD	National Capital District
NCDC	National Capital District Commission
NFA	National Fisheries Authority
NGO	Non-Governmental Organization
NLB	Northern Logistics Base
OCN	Other Country National
OGP	International Association of Oil and Gas Producers
OIMS	Operations Integrity Management System
OSRP	Oil Spill Response Plan

OSL	Oil Search Limited
Para.	Paragraph
PCS	Pre-Construction Survey
PFC	Permanent Facilities Compound
PIG	Project Infrastructure Grant
PIIM	Project Induced In-Migration
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
PVT	Personal Viability Training
Q	Quarter
QMP	Quarantine Management Program
QRF	Quick Response Force
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
SoL	Standard of Living
SSH&E	Safety, Security, Health and Environmental
STI	Sexually Transmitted Infections
TCC	Thermal Cuttings Cleaner
TOR	Terms of Reference
TOU	Thermal Oxidizer Unit
TRP	Tactical Response Plan
TSHD	Trailing Suction Hopper Dredger
TSS	Total Suspended Solids
UBSA	Umbrella Benefits Sharing Agreement
UNEP-WCMC	United Nations Environmental Program – World Conservation Monitoring Centre
U-PNG	University of PNG
WAA	Waste Accumulation Area
WAP	Workplace Assistance Program
WASH	Water, Sanitation and Hygiene
WMA	Wildlife Management Area
WPAR	Well Pad Access Road
WWF	World Wildlife Fund
WWTP	Wastewater Treatment Plant
YTD	Year to Date

EXECUTIVE SUMMARY AND CONCLUSIONS

This report represents the eleventh 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 ExxonMobil PNG (EMPNG, formerly EHL – Esso Highlands Limited) as the Operator 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 February 9 – 17, 2014 in PNG.

The commitments made by the Project for environmental and social management associated with the construction phase of the Project are defined in three documents. The Environmental and Social Management Plan (ESMP) is the main document defining EMPNG'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 have defined the roadmap to achieve Lender compliance as defined in the International Finance Corporation (IFC) Performance Standards (PS) and Equator Principles. Up until this field visit these documents and standards have been the benchmarks against which the IESC audits the Project.

The PNG LNG Project is currently in the process of transitioning to Production. The requirements of the Milestones Schedule have been fulfilled and the issues for which there was a requirement to prepare a LESR are resolved within the Production ESMP, which is transitioning to be the applicable standard to which EMPNG has committed to follow. The remaining requirement associated with the LESR is associated with Construction, specifically the Resettlement Completion Audit. The Resettlement Completion Audit is also a requirement of PS 5, but unrelated to the construction Completion Certificates (see Section 5.4.2.3). The LESR has also served to link ESMP and non-ESMP documents, for example the Biodiversity Strategy, but these links are now defined in the Production ESMP documents. For this field visit the IESC has considered mainly the Construction and Production ESMPs to be applicable as appropriate to the work being undertaken.

ExxonMobil PNG Limited (EMPNG)¹, a subsidiary of Exxon Mobil Corporation, is responsible for the Project's construction and operation. EMPNG 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 6.9 million tons per annum) loaded onto ocean going tankers and shipped to gas markets overseas. At the time of this visit, work was mainly associated with EPC3 (LNG Plant construction), EPC4 (HGCP construction), and EPC5A (onshore pipeline). Contractors C1 (Early Works), EPC1 (telecommunications), EPC2 (offshore pipeline) and EPC5B (Komo Airfield) have completed their work scopes, although the C1 Contractor (Clough Curtain Brothers JV – CCJV) has been reengaged to support EPC5A in the construction of pipelines in the Hides area.

The Project is transitioning to production. Gas has been flowing since August 2013 from OSL's Kutubu Processing Facility to Train 1 at the LNG plant such that commissioning activities are starting. Systems are fully in place for the effective management of social, health & safety, environmental and labor issues. Gas is also being supplied for the commissioning process to start at the HGCP via the condensate line. Accordingly, this report focuses mainly on the issues to be resolved associated with the transition to Production.

¹Formerly known as Esso Highlands Limited – EHL (name change effective January 2014).

Environmental and Social Management System (ESMS) – Transition to Production

The transition to Production is well underway. Although the Construction environmental and social teams have not demobilized, the Production teams have already assumed responsibility for day-to-day activities. The Production ESMP is effectively final and only the environmental sections of the ESMP are pending a final approval from the Department of Environment and Conservation (DEC). During this visit, the IESC was presented with some changes made to the ESMP at the request of the DEC, which were approved by the IESC. In any case, the Production ESMP is already being implemented where Production teams have assumed responsibility.

The Milestones Schedule is now closed. Remaining items pending at the time of the October – November 2013 field visit were the Oil Spill Contingency Plan – OSCP for the Production phase of the Project, a requirement of Milestone Schedule # 7, and the requirement for the biodiversity requirements of MS#15 and MS#16. IESC conformity with the closure of these items was made prior to this site visit.

Environmental Management – Waste and Wastewater

Waste management continues to fall in the arena of “best” practice, as reported in the previous IESC reports. Difficulties have continued with the operation of the hazardous waste incinerator at the Hides Waste Management Area (HWMA) and its future use by the Production Team still under discussion. The landfill at the HWMA is being filled with construction waste within projected parameters and the waste remaining from EPC Contractor demobilizations is being handled appropriately. Some of the waste streams resulting from demobilization are significant. For example, 120 tons of pipe end caps (recyclable wastes) that were stockpiled and stored at Kopi wharf are being shipped to POM for recycling. As a general observation, the Project has been able to recycle much more of the non-hazardous and hazardous waste streams than was expected at the beginning of the Project.

The deficiencies with respect to WWTPs ongoing at the time of the June – July field visit have continued to be reduced. The situation is still not fully resolved, but much improved since November 2013 and the IESC considers the issue to be closed, in particular that most of the construction-phase WWTPs will have been demobilized by the time of the next IESC field visit.

Ecological Management and Biodiversity

The completion and publication of the Rev.3 Biodiversity Strategy is imminent. All pre-construction surveys have been completed. The Biodiversity Monitoring Plan is approaching final revision, pending clarifications with IESC on operationalizing the target/stress response model and defining levels of change in condition of sensitive ecological features.

The Project’s monitoring activity using remote sensing of residual impacts has recently completed the retrospective 2009 baseline and 2011’s first biannual analysis report; 2013 data is currently being processed and analyzed; and internal specialist resource on satellite imagery has also now been engaged. Procedural protocols will shortly be developed for undertaking ongoing Condition Surveys to monitor any sensitive ecological features potentially impacted by the project. A senior external expert has been engaged to help the Project develop their methodology for undertaking Biodiversity rapid assessment surveys, for implementation during 2014. An Initial Post-Construction Biodiversity Assessment will be undertaken during 2Q/3Q to determine the extent to which the objectives of the Biodiversity Strategy are being achieved to date, and define the extent of the Project’s Construction footprint.

The Biodiversity Offset Delivery Plan has been revised taking into account previous comments received from the IESC. Issues considered relevant during the life of the offset which are important to deliberate at this early stage include demonstrating the additionality of offset programs, potential risks and uncertainties that may arise, and the demonstration of measurable conservation gains and therefore no net loss. Progress is being made on the individual offset component activities. Initial work plans are being finalized with a range of international NGO’s on activities to progress a Kikori-wide protected area plan. Regarding the support for the bi-annual Conservation Forum for PNG NGOs, a scope of work with the preferred Lead NGO is being finalized and the first Forum anticipated during 2014. Although some setbacks have occurred within the enhancing conservation capacity program, U-PNG now has Lectureships in place and student intakes for the supported Post-Graduate & Diploma courses are anticipated to start in March 2014. Significant progress is now being seen in the level of support to Lake Kutubu Wildlife Management Area conservation planning, with a full-time Enhancement Program coordinator in place, the Institute of Biological Research engaged as Lead NGO support, WMA Committee and community dialogue restarted,

and early priority provision of premises, uniforms and communications is underway. One of the WMA Committee priorities remains educating the community on the threat from tilapia farming on the endemic species of the lake. Lastly, dialogue on establishing a new protected area in the Lower Kikori continues with village representatives around the Omati and the Aird Hills WMA Committee. An NGO has been identified a preferred sustainable forestry partner to implement a Forestry Stewardship Council model.

Recommendations focus on: developing guidance on determining which indirect impacts detected via remote sensing will be attributable to the Project; defining levels of change in condition observed in ecological sensitivities; improvements in photo-recording monitoring techniques of sandalwood trees at LNG Plant; finalizing a detailed Lake Kutubu Enhancement Plan; and provision of an on-the-ground resource to progress Lower Kikori conservation planning, as has occurred at Lake Kutubu.

Induced Access

Although anticipated, there has as yet been no formal request from the PNG government for the retention of the Kikori River Bridge; the Project continues to consider any potential associated risks and mitigations in relation to how they can continue to meet their commitments, especially in relation to induced access and weed control.

The full suite of Construction-phase access controls was reviewed with the IESC during this visit, and we conclude that the range of controls in place for these temporary access points looks sufficient to restrict vehicular access onto Project roads and the RoW for the Construction phase. For the Operational phase, the proposed suite of permanent RoW and above ground installation access points requiring permanent vehicle access (and therefore the retention of previously temporary Construction access tracks) were presented to us. Several of these have required internal MOC risk assessments due to their divergence from commitments made earlier to reinstate pipeline construction tracks within the RoW, and avoid induced access situations. A small number of these access points could potentially create situations where induced access, weed transmission and natural resource extraction might threaten the integrity of forest biodiversity values.

Recommendations focus on: reconsidering the need for permanent vehicular access along the Homa Ridge Access Road to MLV-2; and if retained, then enhanced access prevention and monitoring measures be implemented; the installation of additional locked boom gates at several permanent access points to the RoW to prevent access onto and through those Project roads; and the development of procedures on how likely access scenarios (gate-breaches, repeated demands, etc.) might be managed and/or prevented, and how these would tie-in with associated monitoring regimes to assess the effectiveness of access prevention measures.

Reinstatement

Reinstatement of the RoW is almost 92% (268 km) complete and signed off, with only a few difficult areas remaining. From our helicopter flyover we observed well engineered and executed slope stability and erosion control measures. From Tamadigi downstream towards Omati, generally entire sections of reinstated Row appear to be fully re-vegetated. At Komo, slope stability measures appear to be working well, but ground vegetation coverage still has a long way to go; carpet grass seed germination has not proved entirely successful in some areas. At the LNG Plant, reinstatement plans are progressing on areas handed over from Construction, and areas reinstated previously are now requiring regular cutting control measures (for fire-risk management). The Project-wide Reinstatement Management Plan is now fully developed, which determines site-specific reinstatement success through systematic in-field auditing and scoring. BioTropica's recent audit has indicated passive reinstatement is likely to be effective across 95% of the Project area, and where weeds might be seen to affect successful reinstatement these are being targeted through the weed management program. Challenges identified by BioTropica include developing and maintaining low-growth grass cover at Komo, ensuring P1 weeds around Moro do not compromise natural regeneration, and enhancing vegetation regrowth to stabilize soils on Hides Ridge especially on steep cut-faces.

Recommendations focus on: the use of static photo points at the LNG Plant to monitor progress in mangrove reinstatement.

Invasive Species and Quarantine Management

The second major revision to the Weed Identification manual has just been completed; this is an excellent piece of guidance and will be distributed throughout the project imminently to help maintain the required levels of vigilance necessary with large areas of bare ground still common at this stage across the Project. Targeted eradication of *Ludwigialeptocarpa* has been undertaken by BioTropica along the RoW between Omati and Moro, using the stronger non-residual herbicide Glyphosate 570; they will shortly train Project personnel on how to use the herbicide. ‘Cleaning’ this Weed Management zone was vital as it is considered a mitigating barrier to avoid the transmission of weeds from different eco-types. BioTropica’s weed audit conducted 4Q 2103 identified only one new P1 and one new P2 weed, and only one P1 weed, *Puerariaphaseoloides*, was seen to expand its range. Overall weed diversity and abundance were deemed either stable or in decline when compared to the previous audit. However vigilance remains a vital preventative measure and specific Weed Management Zone objectives need to be revisited regularly. A buffer zone between the Hides Gas Conditioning Plant at the Hides Ridge is being established to offer the Ridge more robust protection from the ingress of weeds and plant pathogens.

Quarantine data have been provided by all Contractors still importing consignments. Improvements have been seen in EPC-3 performance during 2013, but improvements are still necessary from EPC-4, EPC5A and Drilling. The levels of fumigation required following inspection of their consignments by NAQIA are of concern, as the need for fumigation is manageable and preventable by good housekeeping and management at the packing source of the consignment.

Recommendations focus on: finalizing the current draft Weeds Management Plan in alignment with Production Environmental Management Plans; managing information dissemination on P1 weeds currently missing in the Weeds Identification guide, and inclusion in a future version; planning for ongoing input from external experts; and continuing the focus for improvement in quarantine performance from all Contractors.

Freshwater and Marine Ecology

Planning for 2014 Caution Bay monitoring, including marine ecology was discussed and a protocol agreed to with the IESC after viewing samples of previous year’s video. There was some evidence of coral stress following construction, although apparently much less than understood from Project reporting. Based on evidence to date it would appear that the level of impact resulting from construction activities is minor, and as predicted in the EIS, and on that basis Observation M8.4 (Issues Table) has been closed. The next monitoring program scheduled for 1Q 2014. Data from this monitoring event will help to further characterize the extent, duration and significance of the effects noted to date.

The 2013 freshwater survey results are expected shortly, and results of data analysis will give a valuable reference point to compare findings during non-extreme weather influences and build on biogeographical references. Results will also start to show trends on invertebrate recovery times with pipeline crossings occurring within three and six months of the 2013 survey. The latest biannual Water Quality and Marine Sedimentation monitoring survey commenced in September 2013, and results are expected soon.

Omati River and Caution Bay Fisheries Studies

Preliminary results for 1Q and 2Q 2013 of the Caution Bay and Omati River fisheries studies were made available during the site visit. Available information shows wide variation in species composition and landings, influenced by weather, season and village activities. The Project is commended for committing to monitor Omati fisheries through 2014 and Caution Bay through 2015, and will consider the need for further monitoring in Caution Bay after 2015 during the course of Production in 2015. Maintaining well-trained village assistants has been helpful, as demonstrated by continued increase in the participation of fishers in the monitoring program. Several community fishery-related programs are being considered.

Land Access and Resettlement

The Production organizational structure and component management are satisfactory. Monitoring and outcome evaluation is assigned as a key task under the Compliance component and two experienced staff have been selected to manage the resettlement outcome evaluation effort. The previous observation on outcome evaluation is closed.

Land has been acquired and compensation payments have been made for all areas except for the small extension of the flare buffer zone at Angore Well Pad A. All land agreements have been signed. RAP documentation is complete, except for the RAP Addendum for the Permanent Facilities Compound (PFC).

IESC Outcome Evaluation Verification

The IESC is concerned about the amount of time the verifications require considering the other responsibilities of the IESC Social Expert. The IESC and the evaluation coordinators should discuss this issue by the end of April, based on information from the Project to be submitted to the IESC April 15, including the number, location, and travel time to visit physically and economically displaced households. Section 5.4.2.2 includes a simple table for this purpose.

Standard of Living

The internal outcome evaluation of standard of living has been completed for 100% of the physically displaced households. The evaluation followed the outcome evaluation procedure, approved by the IESC. The comparison of pre- to post-displacement living conditions identified 64% living in improved conditions, 11% with maintained conditions, 12% with declined conditions, and insufficient data for 13%. Declined conditions are due largely to insecure land tenure and/or accessibility to services.

The IESC Social Expert conducted a verification of internal evaluation findings for displaced households in the Komo area (100% of the households in the declined category and 90% of the households in the maintained category) and a sample of households in the HGCP area during the October 2013 visit. Results of verification surveys done in October 2013 and February 2014 were analyzed for this report. In summary, the verification exercise changed the categories of 14 households, based on additional information from verification visits and a more nuanced assessment. The assessment placed more weight on the quality of current structures, rather than the number of structures, and less weight on security of tenure and access to services. Access to water was, but is no longer a negative indicator, as the Project will provide households with small catchment tank materials. The monitoring team will reassess results in the light of verification findings. Appendix B contains more detailed information on the verification results.

Top Ups for Crops/Trees

A theoretical crop versus compensation paid model to quantify top up payments has been developed for 36 of the 53 areas. Calculation is also in progress to identify any shortfall in compensation paid to households in the earlier RAP areas where formulas were used. Compensation “top ups” will be “in kind”, such as gardening tools.

Livelihood Restoration

Economically displaced households losing sizeable agricultural land/assets have all been offered livelihood restoration assistance. The livelihood restoration program is nearly completed, with the exception of final rations delivery, delayed in a few areas by security issues, and the remaining agricultural activities. All activities scheduled are to be completed by the end of 2015.

The first livelihood outcome evaluation has begun and results are expected in June 2014. A second outcome evaluation will be done once livelihood restoration measures are completed to identify the need for any additional assistance. The completion audit of both livelihood restoration and standard of living should be done within four months of the second outcome evaluation and IESC verification. The audit may indicate the need for time-bound corrective measures.

The evaluation survey teams are experienced in conducting baseline surveys, but are new to evaluation surveys. The IESC observes that they need additional direction from coordinators on methods for acquiring complete and accurate information.

In terms of the evaluation procedure, a working session during this IESC visit resulted in a change to one of the indicators and selection of the sample size and strata categories for livelihood evaluation of Type 2 economically displaced (loss of sizeable sweet potato gardens). The IESC recommends that livelihood restoration evaluation surveys and analysis note households that were employed by the Project as background for understanding notable changes in income or expenditure.

Baseline data available are insufficient for a systematic evaluation of the individual components of the livelihood program. The IESC deems that the program level evaluation supplemented by a detailed monitoring report showing that the RAPs/CRPs were implemented as planned and will be adequate to

demonstrate that the project has met its monitoring and evaluation responsibilities. The final livelihood restoration monitoring report should be submitted to the IESC within four months of the second outcome evaluation.

Community Impacts Management

On-going monitoring by EPCs and L&CA field teams indicates that demobilization has not resulted in any notable community issues. Workers from other parts of PNG are repatriated to their point of hire, and leave the project area as soon as they are demobilized because they have project transport, have lost their accommodations, and for those workers in the Highlands remaining would not conform to Huli clan traditions. The main impact of demobilization in communities is a decrease in income from employment and expenditures made by external workers. The Project will continue to monitor demobilization impacts on communities.

Community Security

The Project's security group, supplemented by L&CA field staff, continue to provide vigilant monitoring of the security situation. Security measures have been heightened in recent months as a result of increased tribal tensions, particularly along the pipeline ROW.

Project Induced In-Migration (PIIM)

The PIIM monitoring procedure will be rolled out as soon as management completes its review. L&CA staff is collecting data for the key indicators on a six monthly basis to identify the extent of in-migration, in-migration "hot spots," impact on communities, and strategies for the Project to help communities offset any adverse impact. Most mitigation measures would be best addressed in the Production Community Development Support Program.

Procurement and Supply

Procedures and monitoring are in place to ensure that core labor standards, including harmful child and forced labor, are implemented by Contractors.

Community Support

The *construction* community support program has completed 215 of its planned projects and 32 projects are in progress. The construction Community Development Support (CDS) Plan (Section 4) indicates that a *final completion review will be done by a third party* to assess the overall program effectiveness and make recommendations on the elements for the Production phase CDS. The IESC considers that the URS mid-program review and the review done by Infrastructure Development Partnership (IDP) and the CDS team adequately satisfy the requirement.

A draft of the CDS Production implementation plan for the first 18 months is expected to be completed in March 2014. The IESC will review the draft plan. The plan will include a detailed monitoring and evaluation framework. The IESC recommends that (i) outcomes be analyzed separately for each geographic area (upstream, RoW, plant area) and (ii) program level indicators be selected soon so that baseline data are available prior to beginning the program. The IESC also recommends that the 2nd phase of the program cover no more than eight years and include a built-in evaluation process to inform longer term planning.

Stakeholder Engagement and Consultation

The project continues to engage with affected communities and on a regular basis. Issues raised by communities were higher in the 3rd/4th quarters 2013 as a result of concerns over demobilization (mainly in the upstream areas) and health and safety during project commissioning.

Grievance Management

The grievance management procedure is being followed and the closure rate in 2013 was 89%, well over the target of 75%. Only four resettlement related grievances were filed in the last quarter of 2014, all of which have been closed or resolved. August/September 2013 saw an increase in grievances, most resulting from the landslide at KP71 – KP79.

Benefit sharing

The Project continues to provide administrative and logistical support to the PNG government for various aspects of the benefit sharing process. The PNG Government is responsible and accountable for determination and payment of landowner beneficiary royalty and equity dividends. The goal of EMPNG support is to influence and support the Government to pay landowner State Cash benefits in accordance to the laws of PNG. Its main challenge in this effort is to help ensure safe, accurate & effective delivery of cash benefits without having any actual control over the process.

Labor and Worker Conditions

The IESC has reviewed labor procedures, processes, and conditions during past reviews. Based on the information provided during this visit, no new issues have arisen and previous recommendations have been addressed.

Demobilization

Demobilization is above 96% complete in all EPCs, and EPCs 2 and 5B have demobilized all nationals/locals. Very few complaints regarding demobilization have been received. EPCs are currently implementing strategies to reduce demobilization impacts on neighboring communities and Production community development planning considers areas with large numbers of returning workers.

Gender in the Workforce

There are no issues at this time.

Camp Management

Camp occupation is winding down as the Project approaches construction completion. The improvements that have been made over the last year have eliminated most complaints regarding accommodation.

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 team focuses on worker and community health issues, whereas the Safety team focuses primarily on occupational safety of workers.

Worker Health: Key performance indicators for worker health continue to be surpassed and the response of the Health team to outbreaks of disease has continued to be effective. An outbreak of norovirus, a very contagious virus that causes stomach pain, nausea, and diarrhea and is the virus causing well-publicized problems on cruise ships, took place at the HGCP Camp affecting 63 individuals. This outbreak was contained and the virus effectively eradicated. The current focus of the Health team is to continue to provide health services at their current high level, while simultaneously transitioning towards the production phase, when the number of staff and facilities will be reduced. ISOS is assembling a team for the production from the most outstanding performers from the construction phase.

Worker Safety is a world-class program that continues to improve. Safety statistics presented by EMPNG show a continuing decrease in the Total Recordable Incident Rate (TRIR). In March 2012 this rate was 0.46 for the entire Project; the rate for all of 2013 was 0.14, with the cumulative TRIR down to 0.27. The Lost Time Incident Rate (LTIR) has also continued to decrease and is currently 0.00 for 2014, which is remarkable. The Project has completed more than 35 million hours Lost Time Incident free since July 2013. There have been no industrial fatalities since July 2013 as described in the last IESC report, although there was an incident on January 14, 2014 where a worker at MLV1 was attacked and killed while on duty as a guard. While this was a criminal offense and not an accident, it highlights that the Project is in a region where there is a culture of threats and violence.

Community Health: the Community Health Program (CHP) is functioning effectively by the Project Health Team and their partners PNG Institute of Medical Research (PNG IMR) and Population Services International (PSI). CHP implementation is closely tracked on the basis of KPIs that indicate strong performance across all program objectives. The EMPNG Medicine and Occupational Health group is working closely with community health program partners to assist and verify implementation of program deliverables in accordance with funding grant agreements. The next phase of the Community Health Program implementation process is sharing the PNGIMR morbidity and mortality data and research results with the PNG Government Department of Health, NGO's and interested stakeholders and translating the scientific data into actionable priorities. This process is occurring with IMR conducting meetings and

sharing data with Government officials and a workshop is planned in 2Q 2014 that will be facilitated by EMPNG with PNG Government Health Department, IMR, NGO's and aid agencies.

Cultural Heritage Management

Cultural heritage management associated with construction is drawing to a close. Since the last IESC field visit, what are probably the last excavations associated with the pipeline RoW were conducted with no significant findings to report. Five chance finds were turned over to EMPNG during the last quarter and five were also turned over to the National Museum. The process of documenting the cultural heritage sites within the Project GIS is nearly complete. With the construction footprint essentially established, the remaining work is mainly to finalize the few remaining excavation reports and make sure the Production staff understands what to do in case of chance finds. A regret from construction is that the National Museum has not been able to place Project findings on public display. EMPNG is encouraged to continue to pursue a public display of the excavated artifacts.

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)² for the Papua New Guinea Liquefied Natural Gas Project (PNG LNG or the "Project") being developed by ExxonMobil PNG (EMPNG), formerly Esso Highlands Limited (EHL), the designated Operator and also representing a consortium of co-venturers including Oil Search Limited (OSL), Santos Ltd, JX Nippon Oil & Gas Exploration Corporation and PNG State and landowners as represented by Mineral Resources Development Company (MRDC) and Petromin PNG Holdings Limited. 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 currently in the process of being modified to reflect the transition to Production. Compliance with the environmental and social provisions contained within the Construction Environmental and Social Management Plan (ESMP) are still benchmarks of this field visit, but the Production ESMP is also a benchmark document for those components of the Project whose construction is complete and where the turnover process to Production is complete, such as the Komo airfield, for example. The requirements of the Milestones Schedule undertaken to comply with Schedule H3 Environmental and Social Milestones Schedule to the Common Terms Agreement (CTA) have been fulfilled and the issues for which there was a requirement to prepare a Lender Environmental and Social Requirements (LESR) are resolved within the Production ESMP. The remaining requirement associated with the LESR is associated with Construction, specifically the Resettlement Completion Audit. The LESR has also served to link ESMP and non-ESMP documents, for example the Biodiversity Strategy, but these links are now defined in the Production ESMP documents. For this field visit the IESC has considered mainly the Construction and Production ESMPs to be applicable as appropriate to the work being undertaken.

The IESC 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 II 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 EMPNG, 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 EMPNG and the individual Engineering, Procurement and Construction (EPC) Contractors and infrastructure currently active in the field. Emphasis has been placed on evaluating conformance based on written information provided by EMPNG and observations made in the field including discussions with EMPNG 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.

An activity that does not fall under the category of "monitoring" yet is within the scope of the CTA is a requirement for the IESC to certify certain non-Project operations (section 14.2(m)(iii) of CTA). During this field visit D'Appolonia was not asked to provide any non-Project certifications.

² IESC Team members in the field: William J. Johnson (Earth Scientist/Cultural Heritage Specialist – Field Team Lead), Kerry Connor (Social Development Specialist), Louise Johnson (Biodiversity and Natural Resource Management Specialist) and Mark Pedersen (Aquatic/Marine Specialist). IESC Team member not in the field: Giovanni DeFranchi (Project Manager and Team Lead).

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 2487 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, *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 292 km from the Hides Plant to the Omati River landfall where it connects with the offshore pipeline.

The development of the above three components is nearly complete and construction is taking place only in association with the LNG Plant, the Upstream Pipeline, and the HGCP. Contractors C1 (Upstream Infrastructure), EPC1 (Telecommunications), EPC2 (Offshore Pipeline), and EPC5B (Komo Airfield) have completed their work scopes. For the EPC contractors still in the field, their overall responsibilities and current construction status are as follows:

- *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 6.9 million tons per annum (MTPA) LNG plant, with two per 50% trains, including facilities for inlet processing, treating, liquefaction, storage, and the marine terminal. Construction is approaching completion. Train 1 is constructed and was handed over to EMPNG on January 14. Train 2 is expected to be handed over to EMPNG in 2Q 2014. Overall, construction is 99.2% complete as of February 7, 2014. The workforce is currently significantly demobilized down to less than 6,000 workers.
- *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 production facility, the 960 Mcfd/day capacity HGCP, the HGCP Industrial Park, and the Rotator Housing Community. Overall, construction is currently 94.2% complete as of February 7, 2014.
- *EPC5A – Onshore Pipelines and Infrastructure* (SpieCapag): SpieCapag SA of Colombes, France is developing onshore pipelines and infrastructures for the Project. This effort includes the construction of a 32 – 34-inch gas pipeline for a distance of 292 km (328 km including spurlines), 109 km of 8-inch condensate pipeline, 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. The “golden weld” for the 32” pipeline was recently completed and the line is being purged with nitrogen. The HGCP is now connected to the 32” line. All remaining pipe to connect the Well Pads have been strung and it is expected that all of the piping to the well pads will be complete by the end of 1Q 2014. Overall construction status is 97.3% as of February 7, 2014 and EPC5A is well into demobilization.
- *Drilling - Nabors Drilling International Limited*: the current work scope is to drill 10 high-rate gas wells (8-Hides; 2-Angore) with up to two produced water disposal wells. Wellpads B1 and B2 are complete and handed over to EMPNG. Wellpads C1 and C2 are being prepared for perforation in 1Q 2014. Rig 702 has continued to work at Wellpad D where D1 was spudded on September 20, 2013 and has now been drilled to final well depth of 3530 m. D2 is also drilled and a 7” liner has been installed across the reservoir. Rig 703 was relocated to Wellpad G and the 32” upper sections drilled with air foam have been completed in G1 and G2. The Drilling Support Base is constructed and fully operational.

- *Associated Gas Development: Oil Search-operated Associated Gas Project* activities continue to progress. The first gas was sent to the LNG plant from the Kutubu Processing Facility in August 2013. Specifically at Kutubu startup is continuing at the Alternate Fuel Gas Unit (AFGU); Condensate ReInjection Project proceeding to provide the capability to reinject Hides Gas Conditioning Plant condensate into existing reservoirs in the unlikely event of an emergency. Preparation work is underway for the installation of TEG Pumps Civil Works (Central Processing Facility and Gobe Production Facility). All six replacement API 674 Reciprocating TEG Pumps have been tested and delivered to Perth.
- *China LNG Tanker Construction:* The first vessel (HZ1670A) is on schedule to be delivered in January 2015; construction began with steel cutting for the second PNG vessel (HZ1673A) on schedule to be delivered April 2016.

New construction continues at the 28 Ha Permanent Facilities Compound near the Port Moresby Airport. At the time of the visit, the ground floor slab for the Head Office Building was underway, the Airways C-blocks perimeter fencing installation was underway and other activities included Support Services Building steel erection and Gate House Precinct/Creek/Community Center areas earthworks.

After a peak workforce of 21,220 by the end of 2012, demobilization is accelerating. At the time of this field visit a total workforce of about 13,160 was reported. Of this, the PNG Local workforce was 5,225; 40% of the total workforce.

1.2 SOURCES OF INFORMATION

The main sources of information used to prepare this eleventh IESC trip report are primarily those provided by EMPNG, but D'Appolonia also obtained information by means of interviews with local stakeholders during the field visit in PNG as well as Project employees and contractor staff. The information provided by EMPNG 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 applicable Project documents 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 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 ^o	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
Environment and Social Management							
Environmental Issues – Waste and Wastewater Treatment							
³ M8.2	October '12	February '14	WWTPs at all of the EPC Contractors except EPC3 have shown persistent discharge compliance problems.	IESC Observation	Water Management Plan	Closed	IESC recognizes that significant improvements have been made to the operation of the WWTPs and that their performance is probably as good as practical within the limitations of their design. Considering that most of the WWTPs are going to be decommissioned with the completion of construction, this observation is considered closed.
Environmental Issues – Biodiversity and Ecological Management							
M8.3	October '12	February '14	As the pipeline RoW passes through the Lake Kutubu Wildlife Management Area, an internationally recognized Ramsar wetland area, the Project is required to “implement additional programs, as appropriate, to promote and enhance the conservation aims of the protected area” (PS-6, para.11). Milestone #16 was identified to highlight that additional work was required following Due Diligence to ensure the Project met PS6 with regard to their presence within the Lake Kutubu WMA.	IESC Observation	Performance Standard 6	Closed	The Project has met the original indicator required of Milestone 16, to integrate program in the Lake Kutubu WMA in the offset delivery plan. This is now stated clearly within the offset delivery plan, and we progress discussions with the Project as to the manner of these programs. Therefore we can therefore consider Milestone 16 closed. Dialogue on conservation programs at the Lake had stalled, due to the non-resolution of grievances related to fish-kill incidents reported previously. The PNG Government is yet to release the official report presenting their conclusions of the earlier fish kill incidents that occurred, an event which had caused tensions amongst certain community members. However, as reported in Section 4.6.2.1, the Project has restarted regular dialogue with the WMA Committee and community, and regained momentum in their support to the conservation objectives of the Lake Kutubu WMA. We await the finalization of the Project’s Lake Kutubu Enhancement Program document, but in the interim, we are more satisfied that progress is being made on the ground and therefore this Observation can be considered closed.

³ In order to better track project progress and accomplishments, the issues identified during each site visit are identified by a letter (M) and number (e.g. M1) that identifies the site visit (e.g.: M1 for the first visit, M2 for the second visit, etc.) followed by a digit that identifies the specific issue found (e.g. M2.4 refers to issue 4 found in visit 2).

Nº	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
M8.4	October '12	February '14	Results of marine monitoring conducted in February – March 2012 were available in May 2012, but not provided to the IESC until February 2013. Accordingly, this observation is a modification from the situation reported based on information available in October 2012. Monitoring indicates some coral reef monitoring points in Caution Bay were impacted by pipeline construction, especially sites CF-9 and CF-10.	IESC Observation	Performance Standard 6	Closed	Based on a review of the video of the reefs impacted by dredging, the degree of impact appears to be much less than was described in the field reporting. There is some evidence of stress to the coral, but it is recognized that coral in the vicinity of the sediment plume from dredging was already impacted prior to Project activities. It is not expected that any monitoring beyond the next planned round will be required. The marine ecology monitoring survey protocols planned for 2014 should focus on the limited coral areas where there is some evidence for impact by construction. Report reference 4.6.2.5.
Social Issues – Resettlement							
M6.5	March '12	February '14	The RPF specifies that external, outcome monitoring will begin approximately six months following relocation and will be continued biannually for a sufficient period for the effectiveness of measures to be evaluated (RPF, Section 10.1.2).	IESC Observation	RPF, Section 10.1	Closed	The Project provided the IESC with the preliminary analysis of the standard of living outcomes for physically displaced households. The Project also selected an appropriate sample of households and organized visits with the sample households for the purposes of IESC verification of results.

3 ENVIRONMENTAL AND SOCIAL MANAGEMENT

Environmental and social management for the construction phase of the PNG LNG Project is defined in three documents. The Environmental and Social Management Plan (ESMP) is the main document defining EMPNG'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 EMPNG 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. Up until this field visit these documents and standards have been the benchmarks against which the IESC audits the Project.

The PNG LNG Project is currently in the process of transitioning to Production. The requirements of the Milestones Schedule have been fulfilled and the issues for which there was a requirement to prepare a LESR are resolved within the Production ESMP, which is transitioning to be the applicable standard to which EMPNG has committed to follow. The remaining requirement associated with the LESR is associated with Construction, specifically the Resettlement Completion Audit. The LESR has also served to link ESMP and non-ESMP documents, for example the Biodiversity Strategy, but these links are now defined in the Production ESMP documents. For this field visit the IESC has considered mainly the Construction and Production ESMPs to be applicable as appropriate to the work being undertaken.

3.1 ENVIRONMENTAL AND SOCIAL MANAGEMENT SYSTEM

At the present time, the Project is transitioning into Production, referred to interchangeably as the Production phase. As such, the benchmarks against which the IESC will audit the Project are changing. The Project has developed a Production ESMP that has been reviewed and approved by the IESC. The EMP portion of the ESMP is currently pending signoff by the Department of Environment and Conservation (DEC). Some minor changes requested by the DEC requiring a change from Revision 0 to Revision 1 of the two EMPs have been approved by the IESC. The main changes relate to environmental monitoring within the LNG Plant and Marine Facilities EMP:

- Revised text in Section 18 (Monitoring) to provide for increased stack emissions monitoring (twice yearly for the first two years of operations, as opposed to one monitoring event the first year);
- Revised text in Section 18 (Monitoring) to provide for an additional ambient air monitoring campaign during start-up following first planned maintenance and provide for ambient air monitoring to be undertaken no less than every five years;
- Added to Section 18 (Monitoring) requirement to undertake periodic marine water quality monitoring and surface water quality monitoring in the vicinity of the LNG Plant; and
- Updated text in Section 18 (Monitoring) to provide for testing of full suite of water quality criteria prescribed in the Water Quality Criteria Regulation to be undertaken over two years, as opposed to only in the first monitoring campaign.

DEC also requested that formal submission of the EMPs be accompanied by an Executive Summary and that environmental monitoring procedures be provided for information in due course and that a summary of spill response equipment to be provided via separate letter. DEC approval of Revision 1 to the EMP documents is expected in the near future.

The Production Environmental and Social Management System (ESMS) does not include a LESR and there are currently no LESR-related issues that require review in this report. The requirements of the Milestone Schedule are now fulfilled. Remaining items pending at the time of the October – November 2013 field visit were the Oil Spill Contingency Plan – OSCP for the Production phase of the Project, a requirement of Milestone Schedule # 7, and the requirement for two biodiversity items (MS#15 and MS#16). IESC agreed that the Project had met the Completion Indicators for these items prior to this site visit.

The PNG LNG Project is somewhat unique from other projects in that the onshore and offshore pipelines from Kutubu to the LNG Plant are filled with gas that is being used to commission Train 1 at the LNG Plant. The final weld of the offshore pipeline was completed in December 2012, but the onshore pipeline is still being constructed while the portion from Kutubu to the Omati Delta is operational, with essential

systems transferred to EMPNG Production for care, custody and control. EMPNG has developed specific bridging documents to provide appropriate procedures to manage environmental, social and physical requirements during this transitional period until the Production ESMP is fully implemented; this includes an Early Operations Register of Environmental Management and Mitigation Actions.

The Production team for implementing the ESMS is effectively in place. Production has already had to assume responsibility for the portions of the project completed by the Construction team and turned over to Production, such as the Komo airfield and the onshore and offshore pipelines from Kutubu to the LNG Plant, but their responsibility also extends to aspects of the Project still under construction. The Construction staff has not demobilized and currently provides support to the Production team. The intent of this approach is for the Production team to assimilate the experience of the Construction staff before they demobilize. This is an aspect of working transition that the IESC has not seen on other projects, but appears to be a good idea. Significant effort is also being made to retain key Construction staff for the Production organization. This is most effective with the social staff, who to a large degree is comprised by PNG nationals, but it is expected that most of the expats, who comprise a greater percentage within the environmental and H&S groups, will largely demobilize after the construction phase is complete.

3.2 MANAGEMENT OF CHANGE

The ESMP has requirements for the Project to communicate changes to Lenders on the basis of significance. Since the last IESC field visit, two Class II changes (requiring Lender notification) have been enacted and another Class II change has been initiated. One of the MOCs enacted is related to the turnover of the Kikori Bridge to the PNG Government as discussed in the past two IESC reports. The PNG Government has not submitted a formal request to take over this bridge, but has informally communicated their intent to take over the bridge at the highest level. EMPNG has indicated their intent to have discussions with interested Lenders whenever the PNG Government formalizes their request.

An authorized MOC dated December 2, 2013 relates to additional access requirements to the northern section of the RoW, specifically into MLV1, MLV2 (Homa Ridge Access Road) and CV1. These additional requirements for access are in addition to those already identified in July 2013. These changes are discussed in greater detail in Section 4.6.2.2.

An MOC process that has been initiated, but not yet authorized for use related to the drilling of an additional production well on Hides Ridge. This 9th production well (exploration upsized design) will be located on the well pad located between Wellpad D and Wellpad G where exploration drilling outside of the scope of the PNG LNG Project was previously undertaken. Accordingly, it is not expected that the new production well will require any additional footprint beyond what is already there, but the MOC is not finalized and this will be a subject of future review by the IESC.

3.3 INCIDENTS

One significant incident since the last IESC field visit in October - November 2013 took place on January 14, 2014 when a guard in a local market adjacent to MLV-1 was killed by an attack from an individual whose motives are unclear, except to inflict bodily harm. The man killed was a dog handler working for Hides Security System Ltd. (HSS) serving as part of a four-person Quick Response Force (QRF) team. The perpetrator has apparently been identified, but local authorities have yet to apprehend the individual. From an environmental standpoint, there have been no major spills over the past year. The spill rate of spills >5 liters has continued to decline and is close to an order of magnitude less than when construction started in 2010. There have been no environmental incidents internally raised by EMPNG since the last IESC visit.

3.4 FINANCIAL COMPLETION

As the PNG LNG Project approaches the end of the construction phase the IESC is aware of the approaching requirement to provide an Environmental and Social Completions Certificate. The timing of the Environmental and Social Completions Certificate, as defined in the Completion Guarantor documentation, is that it be dated on or after the date of the Physical Completion Certificate and Operations Completions Certificate. Given that the Project has now met all the requirements of the Milestone Schedule (see Section 3.1), no new non-conformances have been raised since our October 2012 monitoring visit, no open non-conformances since the June 2013 visit, and is at an advanced stage of transitioning from the Construction ESMP to the Production ESMP, the IESC sees no impediments for providing the

Environmental and Social Completions Certificate as soon as the other obligations outlined in the CTA (such as the Physical and Operations Completions Certificates) have been met.

4 ENVIRONMENT

4.1 WASTE AND WATER 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 EMPNG and included as appendices to the Construction ESMP. The Production ESMP documents define waste and wastewater management requirements to be similar to the Construction ESMP, but taking advantage of the infrastructure developed during construction, in particular at the Hides Waste Management Facility (HWMF) and the waste and wastewater management facilities at the LNG Plant site. Both Construction and Production 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. As outlined in these documents, the main objective of the Project is to be self-sufficient regarding waste management processes. The construction phase Water Management Plan supported by the Project Standards document that defines the effluent discharge standards associated with the operation of wastewater treatment plants (WWTPs). These standards are also Project commitments as defined in the Production ESMP.

4.1.2 Observations

Waste Management

Waste management continues to be well implemented and waste quantities are beginning to decrease as the EPC Contractors demobilize. EPC5B (Komo Airfield) is no longer a source of waste as they incinerated their restricted waste until the Pioneer Camp was decommissioned in December 2013. Their waste oil was disposed by means of third-party (Niugini Table Birds) recycling. As shown on **Error! Reference source not found.**, much of the waste generated by the Project is recycled or re-used, with EPC3 overtaking drilling over the last quarter of 2013. Waste that is not recycled or re-used is either incinerated or landfilled at the Hides Waste Management Area (HWMA) at Kopeanda, which continues to be a “best” practice facility for solid waste management.

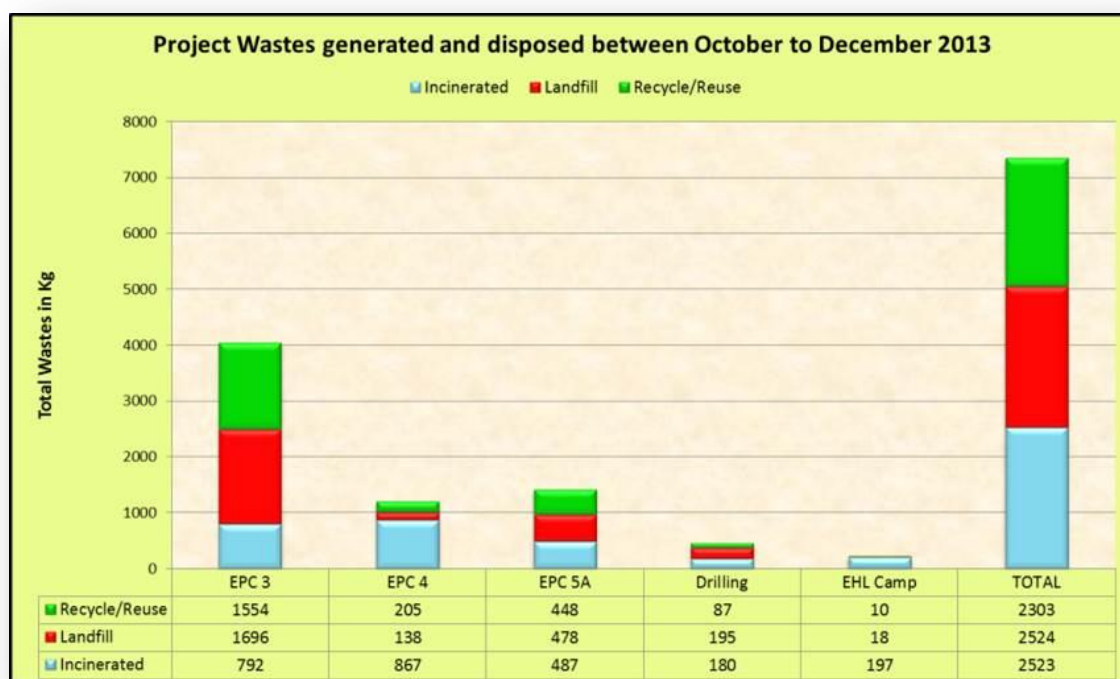


Figure 4.1: Project Waste Profile

Highlights of EMPNG's waste management program since the IESC field visit in October - November 2013 include the following:

- Cell 1 at the HWMA is 40% filled, below what was expected; Cell 2 is under construction;
- Implementing Ecoflex (a system whereby tires are stripped of their rims and used for civil and reinstatement applications, especially as a means to stabilize slopes without resorting to gabions) is still being used at the HGCP and plans are to use more than 2,000 tires stored at the HWMF at Kopeanda;
- Recycling programs continue to expand with waste oil now sent to Ramu Sugar and Niugini Table Birds, a new recycler approved in November 2013; used oil filters, oily rags and plastics and grease cartridges continue to be sent to Total Waste Management Ltd in Australia for recycling; 13 third-party facilities are now approved for the recycling or disposal of waste;
- Drilling is showing exceptionally effective waste management: 6,905 tons of cuttings have been processed at the Thermal Cuttings Cleaner (TCC) YTD, allowing for 4,769 barrels of oil to be sent to the Liquid Mud Plant (LMP) for recycling; close to 6 million liters of treated water have been used to rehydrate treated cuttings to allow for safe, dust-free transport to the HWMF, as well as for equipment and vehicle wash and as cooling water for pumps within the two vacuum trucks; 116,977 liters of waste oil has been recycled offsite at Niugini Table Birds and Ramu Sugar;
- EPC5A: All waste generated in previous camps destined for Hides landfill has been transferred; all the hazardous wastes stored in all the camp sites since the beginning of the project have been packed and transferred to Kopi for shipment to POM and eventual transfer to Australia; 120 tons of pipe end caps (recyclable wastes) which have been stockpiled and stored for a long time at Kopi wharf are being shipped to POM for recycling.

The large industrial incinerator at the HWMF is operational, but the difficulties in its use have not been fully resolved and its final fate is still uncertain.

Wastewater and Water Management

Wastewater management has significantly improved since the October – November IESC field visit. The situation described in previous IESC reports is still not fully resolved, but the Project has effectively used a technical specialist who has worked with the different EPC Contractors to undertake system assessments and make improvements, and in-situ monitoring has also improved performance. IESC considers the issue to be closed, in particular that most of the construction-phase WWTPs will have been demobilized by the time of the next IESC field visit.

A unique aspect of the PNG LNG Project is the loss of foam used to drill through the Darai Limestone, which extends from the surface to as deep as about two kilometers along Hides Ridge. Significant releases of foam have not taken place since the drilling of the first well.

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 Construction ESMP. For the Production phase, the requirements for hazardous materials management and pollution prevention are defined in the EMPs. These documents describe the Project approach and strategy to identify and mitigate potential impacts associated with the handling and transport of hazardous materials. 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. For the Production phase, an Oil Spill Contingency Plan (OSCP) has been prepared that accounts for the fact that the risk of serious spills is much greater during Production than has been associated with Construction.

4.2.2 Observations

Spill management is effectively managed across the Project. No spills greater than one barrel (ExxonMobil reportable spills) occurred in 2013. The spill rate per 200K man-hours for spills greater than five liters is currently 0.15, representing a continuous improvement since a rate of 1.1 recorded for 2010. Spill records continue to be properly maintained by both the Project and the Contractors with results included in the environmental monthly reports. Ongoing spill response training takes place across the Project.

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.

The biggest focus of the Project as it is transitioning to Production is spill response associated with major spill events, including incidents that could take place with vessels in Caution Bay. The Oil Spill Response Plan (OSRP), as requirement of the Milestone Schedule is complete and approved. The OSRP is a framework document that is a component of the overall Emergency Response Plan (ERP) for the Project and is supported by Tactical Response Plans (TRPs) expected to be developed over the course of 2014. Although the TRPs have yet to be developed, EMPNG has started to develop site-specific response scenarios for the condensate pipeline: in the area of the HGCP; CV#1 at KP 7.3; MLV#1 at KP 28.5; MLV#2 at KP 53.5; MLV#3 at KP 65.3; MLV#4 at KP 85; CV#2 at KP 94.6; the OSL Kutubu CPF; the EMPNG tie-in at Kutubu; and the OSL Kutubu tie-in. EMPNG has also developed emergency response scenarios for different points along the main gas line, as well as specific points associated with the lines for temporary commissioning gas, including the tie-in at the Kutubu Metering Station and the tie-in to the condensate pipeline.

A Marine Incident Protocol (MIP) is expected to be complete by March 1, 2014. Emergency response drills have already started at the LNG Plant and at the HGCP. The Emergency Response Group (ERG) at POM has planned a marine drill based on a simulated incident in the Caution Bay area with an LNG tanker for April 24, 2014. Oil Spill Response Ltd (OSRL) is expected to mobilize to the PNG LNG project in March 2014 to assume responsibility for the management of major spills.

4.3 AIR QUALITY

Project air emissions since the last IESC visit have been limited to dust from roads and earthworks, equipment and incinerator exhausts and greenhouse gas emissions. Stack emissions will be required for the LNG Plant and the HGCP once production has commenced. Initial preparations for stack testing started in 4Q 2013, including identifying potential independent laboratory service providers. Stack emissions testing is expected to start before the end of 2014 at the HGCP. Flaring has started at the LNG plant. The large flare currently observed at the LNG plant is associated with startup and flaring except for maintenance of a pilot flare is not expected to be required at the LNG plant during production. Ambient air tests at the LNG plant indicate no apparent change of ambient air quality associated with flaring.

The permanent incinerator at the HWMF will be subject to stack testing if it is ever formally commissioned. Some of the temporary construction incinerators have been maintained by re-lining their burn chambers with brick in case one will need to be resurrected for HGCP requirements for waste incineration during Production. Dust was not observed to be a significant issue at the time of the visit, but the IESC team had minimal opportunity to travel Project-used roads in the Hides area. Dust is no longer significant issues at the LNG Plant, as earthworks are complete and most roads are paved. The Permanent Facilities Compound (PFC), where dust was observed to be a problem at the time of the previous IESC field visit was not visited this trip and the recommendation for improved management of dust at the PFC has been removed pending future review. Greenhouse gas emissions are reported in the EMPNG Quarterly reports and the results are not repeated here.

4.4 EROSION AND SEDIMENT CONTROL

4.4.1 Project Strategy

EMPNG 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.

4.4.2 Observations

Erosion and sediment control systems are effectively a non-issue with the close of the construction phase of the project. The erosion and sediment control systems at the Komo airport that were problematic during much of the construction of this facility are now final systems accepted by the Production team. The pipeline construction has effectively reached the stage where reinstatement is the main means to control erosion and runoff. The only area where erosion and sediment control systems are still being installed is at the HGCP, but this is an area that could not be visited for security reasons so it is not practical to provide meaningful comments as to the effectiveness of the drainage control systems, which we understand are being constructed with the “Ecoflex system” as was conducted at Komo using used tires. Unless there are special issues that arise with significant failures to an erosion and sediment control system, this topic will be covered under the discussions associated with reinstatement in future reports.

4.5 BIODIVERSITY AND ECOLOGICAL MANAGEMENT

4.5.1 Project Strategy

The Project’s strategy for biodiversity and ecological management is illustrated in several management plans that appear as appendices to the Construction ESMP and in EMPNG’s Project-wide Biodiversity Strategy document. Mitigation measures within the Construction 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 and the Reinstatement Management Plan will be implemented by contractors during the construction phase, and, in some cases by EMPNG. In addition, EMPNG 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. Weed management is achieved through the identification and prioritization of weeds: Priority-1 (P1) weeds are defined as species that rapidly colonize disturbed areas and displace and/or invade native vegetation; the Project aims to control and monitor all P1 weeds and exclude them from all work areas through active control. Priority-2 (P2) weeds are defined as species that may rapidly colonize disturb areas and displace native vegetation, but rarely invade natural habitats; P2 species are monitored but only controlled where a species shows signs of increasing invasiveness or is growing alongside P1 weeds.

Central to the Construction-phase 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 (but not restricted to): pinnacles that contain bat colonies; potential Bulmer’s fruit bat (*Aprotelesbulmerae*) colonies; bird-of-paradise and bowerbird display grounds and trees; large individual trees (>1m diameter breast height); areas of Pandanus swamp forest; swamps in sinkholes less than 50m deep on Hides Ridge; and *Nothofagus* (beech) forest that will require special hygiene measures (due to risk of dieback as caused by pathogens such as *Phytophthoracinnamomi*).

Mitigation measures are often specific to one project area (Upstream Project Area, Marine Project Area or LNG and Marine Facilities Site), and are sometimes site-specific (e.g. the Ecological Management Plan section on Hides Ridge). During the Production phase, biodiversity and ecological management will be achieved through the separate Upstream & Pipeline and LNG Plant ESMPs, and will continue to be guided by the Biodiversity Strategy and associated documents. The Biodiversity Strategy was developed to address long-term mitigation of biodiversity for both the construction and operation phases within the Upstream Project area. The current Strategy provides an overview of EMPNG’s overall approach to mitigating impacts on biodiversity in alignment with the mitigation hierarchy. In accordance with the Biodiversity Strategy, EMPNG has developed an Offset Delivery Plan and Framework, providing detail on

initial offset design and implementation. In addition, the Biodiversity Monitoring Program comprises four 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, control of access, and the potential spread of invasive species and disease along the ROW;
- PMA-3 specialized Biodiversity Surveys, designed to collect and analyze flora, fauna and ecosystem data so as to support findings of PMA-1 and PMA-2; and
- PMA-4 Efficacy of Offset Projects, which will be tailored to monitor the outcomes of each biodiversity offset project.

4.5.2 Observations

4.5.2.1 Ecological Management

Implementation and Monitoring of the Biodiversity Strategy

The Biodiversity Strategy Rev.3 is undergoing final editing and expected to be finalized imminently; very little has changed, with amendments focusing on updating references to the monitoring program. This Strategy remains a core part of the Projects biodiversity philosophy, and will be used to continue to guide the project through the final stages of the Construction phase and into Production.

All Pre-Construction Surveys have now been completed.

Monitoring of the implementation of the Strategy is defined within the Biodiversity Monitoring Plan (BMP), which is nearing final revision. During this trip the IESC discussed with the Project their target/stress/response adaptive management approach, and how to better define any observed levels of change in condition of sensitive ecological features, so that the BMP ties in with the Upstream Environmental Management Plan. The Project will provide a further iteration of the BMP to the IESC following this visit for review, prior to final editing and completion.

Progress is being made on developing, refining and using the PMAs, which, between them, will provide an ongoing assessment of how well the Biodiversity Strategy is being implemented:

- Remote sensing of residual impacts (PMA-1): the Project is reviewing their external experts' draft of the final baseline report the pre-disturbance baseline conditions, (using Landsat5 satellite and Spot imagery dating from 2009) and the first regular 'monitoring report' (using RapidEye data from 2011). In parallel with these two important analyses, the Project has developed their procedures to record their standardized approach to specification, processing and analyzing satellite imagery data, including the detection and measurement of disturbance and vegetation type change. The Project advises that a full suite of cloud-free satellite imagery for 2013 was gathered, and that a new US-based ExxonMobil staff resource will also now be available to assist and offer advice.
- Condition surveys (PMA-2): The Project will shortly commence the development of the procedural Protocol for use during Condition Surveys. The Initial Post Construction Biodiversity Assessment will provide the initial data for ongoing assessment. The aerial and on-the-ground surveys will form a key part of the Initial Post Construction Biodiversity Assessment(see paragraphs below).
- Biodiversity surveys (PMA-3): an external expert has been engaged to develop EMPNG's approach to undertaking intensive rapid assessment surveys, and will shortly commence on the development of a protocol to determine standardized procedures and methodologies. An outline scope of work has been produced, and the first rapid assessment surveys will be undertaken during 2014.
- Efficacy of biodiversity offsets (PMA-4): development of this PMA awaits decisions on the range of activities that will make up the Project's offset program components. Once offset activities and objectives are determined, monitoring programs will be progressed.

In addition to the Project's own Reinstatement Management Plan (described in Section 4.5.2.3), monitoring of specific forest regeneration will be undertaken by external experts: New Guinea Binatang Research Centre. The Regeneration program will focus on long-term forest health and will comprise surveys of areas impacted by the project and the analysis of findings in comparison with ecologically-comparable benchmarking plots. It is anticipated that the first Regeneration inspections will be conducted during 3Q 2014.

Plans for conducting the Initial Post-Construction Biodiversity Assessment (IPCBA) are being developed for execution during 2Q/3Q 2014. This assessment will provide the first project-wide retrospective evaluation of residual biodiversity impacts and the biodiversity mitigation measures implemented through the construction phase. In essence it will determine the extent to which the objectives of the Biodiversity Strategy are being achieved to date, and will provide the initial data for ongoing assessment. A draft scope of work has been written. The IPCBA has three objectives, to identify:

1. The type and total area of forest lost or degraded during construction;
2. Those focal habitats and other sensitive ecological features which were lost or degraded during construction; and
3. Those focal habitats and other sensitive ecological features which were mitigated during construction, and of these, which should be inspected as part of PMA2 Condition Surveys.

Information for Objective 1 will be gained from satellite imagery utilized for PMA-1 Remote Sensing data analysis. Information from the EIS baseline, the completed PCSs, and the regular monitoring undertaken during construction will inform the analyses for Objectives 2 and 3.

Biodiversity offsets to address residual impacts

EMPNG has revised Rev 0 of their Biodiversity Offset Delivery Plan and Framework documents and provided the IESC a draft for comment. Following the input of comments from Rev 0, Rev 1 will be finalized and a summary document will be made public and shared with stakeholders.

Implementation of elements of the Project's offset program has continued.

- Component 1: Kikori-wide landscape scale. This component seeks to assist DEC in meeting its international Convention on Biological Diversity (CBD) commitments via production of a 'Protected Area Plan' for a Kikori-wide protected area, that in subsequent offset planning phases can be taken forward for implementation.
 - Since our Oct 2013 visit, dialogue has continued with the local offices of several large international NGOs. A detailed scope of work has been generated, while the proposals for a budget and work schedule has been developed; it is anticipated that funding will be awarded for specific work items during 2Q 2014. DEC World Heritage staff is being kept apprised of progress.
- Component 2: Support to DEC to achieve 'actions for improvement' of the National Biodiversity Strategy and Action Plan (NBSAP). EMPNG will support the re-establishment of the bi-annual Conservation Forum for PNG NGO's.
 - The scope of work with their chosen Lead NGO partner is close to final and funding about to be awarded. It is anticipated that the first such conference will be held during 2014, which is expected to attract several hundred participants. In addition, a newsletter will be produced quarterly.
- Component 3: Enhancing conservation capacity. EMPNG's support is focused on developing and institutionalizing Post-Graduate and Diploma courses at University-PNG (U-PNG), providing scholarships, and establishing a framework for placements and mentorships with field-based conservation NGOs.
 - Although senior staff changes at the University have resulted in some delays to the commencement of the teaching program and student intake, one Lecturer and one Senior Lecturer have now been appointed. The University has committed to complete the remaining module development and commence the program in early March (the start of the PNG academic year).

- Component 4: Support to existing protected areas. Support to the Lake Kutubu WMA (Wildlife Management Area) is the primary focus for achieving this component. The Project's Lake Kutubu WMA Enhancement Plan (LKWMAEP) contains three work streams: conservation design and WMA Management Plan; enhance organizational capacity; and local and provincial government land use planning.
 - Since the last IESC visit, there has been a significant progress made within this offset component. During 4Q 2013, the Project was able to resume village-based engagement allowing the scope and short term actions of the LKWMAEP to be agreed. A number of early priority projects are proceeding, with a site agreed and construction plans developed for a WMA Resource Centre. To be delivered shortly are uniforms for the WMA Committee, along with a communications system and a motor boat; the boat is for use by the Committee members to assist them in undertaking their WMA roles. The IESC is encouraged to learn that the Project has taken on a full-time LKWMAEP Program Coordinator, responsible for day-to-day site based coordination of the Plan. In addition, IBR (the Institute of Biological Research) has been awarded Lead NGO status for Plan implementation. The IESC had the opportunity to meet with the Chairman and members of the WMA Committee. They appear committed to working with EMPNG, and their expectations are high for the potential benefit a collaboration with the Project can bring. One of their main priorities they explained is continuing their outreach to communities, providing education about the dangers of the introduced species tilapia on the lakes endemic fish species. The early priority items described above are eagerly anticipated to help them achieve this outcome.
- Component 5: Establishing new protected areas. Following earlier stakeholder input, EMPNG is currently focusing efforts on engaging communities to establish a Lower Kikori Resource Use Management Plan (LKRUMP). The creation of a new community-based legally-designated protected area will build on the existing Aird Hills WMA as a nucleus for conservation. To achieve this, EMPNG is engaging with the Barging Route Waterways Committee (BRWC), which was previously supported through the Project's community investment program, and the Aird Hills WMA Committee.
 - Last year the BRWC agreed that the LKRUMP will integrate conservation with low-intensity, smallholder forestry and fisheries components. As the fisheries component is already underway through the previous investment program (and Production phase fisheries programs are under development), the Project's current focus is identifying and securing a partnership with an experienced community forestry organization, with a view to implementing a Forestry Stewardship Certification model. Negotiations are ongoing with a potential forestry-partner organization, and their multi-year proposal currently under review. Conservation priority activities have been identified with the Aird Hills WMA Committee, with a senior EMPNG manager in attendance at their last Committee meeting.
 - An offset candidate project focusing on the higher elevation zone (>1200m montane) has not yet been decided upon, but will be guided by findings from the initial post-construction biodiversity assessment to be undertaken this year. This will help determine the residual impact within that elevation zone, as a surrogate for representativeness, to ensure a 'like-for-like or better' biodiversity gain.

It is through the development and implementation of new and existing protected areas (i.e. Components 4 and 5) that the Project intends to meet the core offset requirements of demonstrating conservation gains and achieving no net loss of biodiversity. The IESC continues to encourage the Project to consider issues relevant through the life of their offset program: continue to refine the temporal aspects of the 'no net loss' program; to ensure that the 'additionality' of the offset program is sound and demonstrable; to consider how the project will track and react to risks, uncertainties and unforeseen challenges; and ultimately how conservation gain (and thus no net loss) will be demonstrated.

4.5.2.2 Induced Access

As noted in our last report, the government of PNG is anticipated to request the retention of the Project's Kikori River Bridge (also known as the Kaiam Bridge). As also noted in Section 3.2, there has not been a formal request from the Government for this transfer. EMPNG continues to consider potential risks and mitigations in relation to how they can continue to meet their commitments, especially in relation to induced access and weed control. The Project remains cognizant that further situations could arise across the Project where temporary infrastructure might also be requested for transfer in the future.

Although not visiting any RoW sections or access controls during this trip, the IESC was presented an overview of construction access controls in place. Discussions were held on each separate RoW section, focusing on the access points used to enter that section from nearby roads/tracks, plus the control mechanisms being utilized e.g. manned or unmanned locked boom gates, very steep terrain, and the removal of construction bridges post-use. The IESC concludes that the full suite of controls in place on these (typically) temporary access points looks adequate. Reliance on 'reinstated RoW' as an effective access control should be adequate, but as with all construction-phase access locations, monitoring over the long-term will indicate the sufficiency of this control.

Production personnel provided information on their suite of proposed requirements for permanent access to the ROW and above-ground installation (AGI) infrastructure. Many of the AGIs have associated helipads, and access by helicopter is still likely to be relied upon. The Project has determined that permanent access by vehicle is still necessary for 16 locations, primarily either because cloud-cover restrictions could make regular access by chopper unpredictable, or because road access to some locations proves more practical or economical. Several of these access points have required internal MOC's due to their divergence from commitments made in the EIS and EMP to reinstate the RoW following pipeline construction. Permanent access roads mean that construction tracks previously considered temporary and destined for reinstatement will no longer be reinstated. Currently the Project proposes to retain permanent access to twelve AGIs on the RoW, such as main line valves, check valves, generators, and cathodic protection valves. In addition, they propose to retain permanent access to four shoo-fly access roads linking a forestry track to the RoW, between KP232 and KP242 in the Kaiam area.

Without effective control, permanent access for project vehicles can cause increased incidence of incursion by non-project vehicles and increase the risk of induced access onto and along the RoW, in-migration and the spread of weeds. The Project's Environmental Permit states *'The Permit Holder is required to establish and maintain systems to ensure project infrastructure and road systems are not used in any way to provide support of logging activity or any other uncontrolled access. Prevention of access should continue until such time as natural vegetation regrowth prevents their use'*. Therefore, the Project proposes to restrict access to these vehicle access roads, primarily through the use of unmanned locked boom gates.

From the suite of proposed requirements presented by Production, several of the access points will require ongoing risk management for the duration of the Project, in addition to the installation of unmanned lockable boom gates, e.g.:

- Access to MLV-1: this valve is next to the Benaria River at KP27 in an area that lies between the ends of two public roads, the Dauli-Dagia road and the Benaria Station road. Community expectation is high that access will continue to be possible between the two roads, as the Project construction track is currently used for walking access. It is uncertain when a government bridge will be built to link the two public roads, and its implications for accessing the valve, pressure to use the Project's access road, and the potential for in-migration to the RoW/valve area.
- Access to MLV-2: this valve is located within the ecologically sensitive Homa-Benaria Ridge zone, identified within the Biodiversity Strategy as a Priority Ecosystem. The area contains largely intact high-altitude Nothofagus forest, one of the highest mammal diversities in the whole Upstream area, with very little settlement and a largely weed-free and pathogen-free status. Previous access to the valve was determined to be via helicopter, but is now planned to be via retention of the Homa-Benaria Ridge Road, a 7.8km topographically-challenging section of road built for construction access to the RoW from a public road. It is the IESC's opinion that access prevention via the proposed unmanned locked boom gate alone would be an insufficient deterrent – there are potential risks of incursion from logging operations, for increased settlement and the spread of weeds and pathogens. If access controls were to be breached, the speed within which logging operations could identify, access and extract timber would be within a timeframe

potentially undetectable by the Project's existing monitoring regime –EMPNG inform us they are developing an enhanced prevention and access/impact monitoring regime, which will be discussed during our next visit.

- Access to CV-1: the revised proposed access plan seeks to approach the valve via the Angore well pad access road (AWPAR) from well-pad B, down to the RoW then with the retention of a 5 km meter length of construction track. The IESC has observed in-migration onto the RoW and villages on the RoW that will likely have expectations of ongoing use of the 5 km track.
- Access to CP-2: a single lockable boom gate is proposed between the CP-2 helipad and the public road near KP-226. Considering the likelihood of the government requesting the retention of the Kikori River Bridge, the IESC would wish to ensure that the network of new Project roads and intersections of the RoW with existing public roads were sufficiently reinstated to provide adequate deterrent to access; otherwise additional locked boom gates would be necessary to avoid uncontrolled access in the area.
- The proposed four RoW shoo-fly roads between KP-232 and KP-242 will require continued use of an existing logging track. Even if logging trucks no longer use this track, use by the Project will mean that the track may likely require upkeep and maintenance, which other vehicles may make use of.

4.5.2.3 Reinstatement

RoW reinstatement is now almost 92% complete (approved and signed over from EPC5A to EMPNG), representing 268km. During this trip, the IESC did not undertake the usual road-trip along sections of the RoW. However, during helicopter flyovers, the IESC observed well engineered and executed slope stability and erosion control measures. Certain slope sections predicted to be potentially higher-risk stability and drainage challenges appear to be stable and some regrowth starting, e.g. Homa-Benaria ridge sections. Downstream of the Hides Gas Conditioning Plant (HGCP) all reinstatement works have been completed and sections signed off, apart from:

- Re-route KP89-90 and access track to the site;
- KP42-KP51 on Homa-Benaria Ridge (challenging-engineering section);
- KP28-KP31 around Benaria River and MLV-1; and
- KP18-KP22 north of Dagia River.

Generally, from Tamadigi downstream to Omati, entire lengths of reinstated RoW appear to be fully re-vegetated, with both pipeline trench and construction track now blanketed in growth. In addition, revegetation at former camp and infrastructure sites also appear to be progressing very well. For instance, tree grow that the early camp site near Kopi Scraper Station was visible from the helicopter.

The IESC did not visit the HGCP during this visit, but was advised that reinstatement planning and active re-vegetation are underway.

At Komo slope stability measures appear to be working well, but ground re-vegetation and coverage still have a way to go. The application of Japanese millet has achieved the objective of stabilizing soils and has generally died off (as predicted), however the successional carpet grass seeds have not germinated extensively in some locations. In other areas, natural regeneration in the form of *Casuarina oligodon* (aka she-oak or yah trees) and sub-grass, is progressing. As re-vegetation is required not only to aid slope stability, but also to assist in the management of surface runoff and ecological regeneration, further targeted applications of Japanese millet and carpet grass are currently planned.

At the LNG Plant reinstatement plans are being developed, with priority areas requiring slope stability being targeted. In areas where early phase reinstatement was conducted (e.g. road-sides), slope stability looks good and natural re-vegetation is thriving. Local villagers have been trained to assist with vegetation cutting in the vicinity of the LNG plant (a fire-risk requirement) and landscaping around permanent offices. The weather precluded the IESC visiting the area undergoing mangrove restoration.

EMPNG has now fully developed their Reinstatement Management program in conjunction with BioTropica (the Project's external weed & reinstatement consultants). The management program uses a protocol to help determine site-specific reinstatement success through in-field auditing. The Project has

scored each reinstatement site depending on its potential risk of not achieving successful regeneration. Scores are assigned depending on the type of site, its ecological setting, terrain, drainage, geology, soil fertility and soil erodability. A site's total score following this assessment determines whether it is categorized as high/medium/low risk. Within each risk category, a pre-determined number of sites are randomly chosen for audit. At a site audit, reinstatement progress is assessed according to four evaluation parameters: erosion, drainage lines, soil condition, and vegetation.

BioTropica performed a reinstatement audit during November 2013 at 18 sites. Observations/outcomes include:

- Passive approaches to reinstatement have proved very effective between Omati and Tamadigi;
- Other oil pipelines and old quarries were useful surrogates for predicting regeneration. Higher altitude sites follow similar pathways, but more slowly;
- Passive reinstatement is likely to be effective across 95% of the Project area;
- Active reinstatement around Komo, HGCP and Hides Ridge has focused mainly on carpet grass and Japanese millet (not on Hides Ridge) and successful translocation of seedlings at Komo and Hides Ridge (via use of the Project's Propagation Handbook, produced in 2012);
- Lowland areas are generally undergoing successful reinstatement;
- Exotic grasses present are all P3 weeds, not likely to withstand the succession of natural regeneration; and
- Regeneration at camps, & sago swamps between Omati and the Scraper Station, is slowed by the presence of *Ludwigialeptocarpa*.

Challenges highlighted and recommendations made as a result of the reinstatement audit include:

- Enhancing vegetation regrowth on Hides Ridge sites. BioTropica recommends the use of Japanese millet to address the lack of early growth, especially on steep cut-faces;
- Ensuring Priority 1 weeds around Moro do not compromise natural regeneration;
- Developing and maintaining low-growing grass cover at Komo;
- Monitoring *Ludwigialeptocarpa* (Priority 1) population around Omati; and
- Additional sites to be included, focus on high risk, expand scope of lowland BioTropica weed audits to cover reinstatement.

With reference to *Ludwigialeptocarpa*, BioTropica has re-stressed the importance of controlling its regeneration around Omati to avoid the spread into other weed management zones further up the RoW.

4.5.2.4 Invasive Species Management and Quarantine Management

Weeds, Pests and Pathogens (Invasive Species)

The current draft Weed Management Plan is in use, but awaits tie-in with the Upstream and Pipelines Environmental Management Plan and thus finalization.

With the Construction phase nearing completion, EMPNG is now starting to reduce the extent of cleared ground, and consequently the scale of threat from localized opportune incursion by invasive species might be expected to decrease. Nevertheless, vigilance remains critical to ensuring that weed management measures prevent the introduction and spread of weeds. The Project has just completed the 2nd major revision to the Weed Identification manual which is an excellent guidance resource, and will shortly distribute this to all work sites.

Contractor monthly reports for 4Q 2013 indicate regular weed monitoring and removal, with outbreaks of the following P1 weeds being recorded: *Ludwigialeptocarpa* (anglestem willow primrose); *Chromolaena odorata* (siam weed); *Cenchrus purpureus* (elephant grass); *Tithonia diversifolia* (Japanese sunflower); *Arundodonax* (giant cane); and *Mikania micrantha* (bitter vine). *Ludwigialeptocarpa* appears to be the most common weed observed and targeted for mitigation in the Upstream area. Reviewing a random selection of Contractor monthly reports, it appears that some improvement in consistency of weed reporting is still required, e.g. weed naming and spelling errors in EPC-3 Oct 2013 report. Contractors have targeted

localized outbreaks via a combination of hand-pulling, slashing, drying, incineration and herbicide application. In addition to prevention of the spread of weeds, Contractor reports indicate that monitoring around the Hides well-pads include inspections for dieback in *Nothofagus* trees, and a temporary wash-down station at the warehouse at the HGCP.

BioTropica continues to assist the Project with audit, advice and targeted eradication and assisted in arranging an import permit of Glyphosate 570, a stronger herbicide deemed necessary to address stubborn strongholds of *Ludwigia leptocarpa* (none was available within PNG). Specialized BioTropica crews working with local personnel used the herbicide to successfully undertake a targeted eradication program of the weed along the RoW between Omati and Moro (deemed a Quarantine Zone in EMPNG's weed management plan). As Glyphosate 570 is a stronger non-residual, non-specific herbicide, the Project will train any personnel involved in its ongoing use; BioTropica has developed a comprehensive training package, and two courses will be scheduled, at Moro and Hides.

BioTropica performed their regular semi-annual weed audit during 4Q 2013 and noted one new P2 weed species present at two locations, *Ipomoea indica* (blue morning glory or blue dawn flower). It is likely the weed had been previously present, just not observed or recorded by the Project. Only one P1 weed was concluded to have expanded, *Pueraria phaseoloides* (tropical kudzu). BioTropica performed a reassessment of the Priority rankings assigned to all weeds, and several adjustments were made; two upgrades were deemed necessary (one up to P1, one up to P2) reflecting observations of increased distribution and extent, and several downgrades occurred, primarily species found at the LNG Plant site.

Overall, the audit concluded that weed diversity and abundance are either stable or in decline at most sites when compared to the April 2013 audit. As the area of cleared ground now starts to decrease, to some extent this could have been expected. However, the IESC considers this is also testament to the management actions being taken by the Project and their Contractors (including the retention of their external expert BioTropica). However, vigilance remains an important preventative measure. Specific Management Zone objectives need to be revisited regularly. Specific Management Zone updates include:

- Omati landfall to Kikori River crossing and the Kikori River to Mubi River crossings, are now considered 'clean' following the recent targeted eradication of *Ludwigia leptocarpa*; this is especially important taking into account that the area between the Kikori River and Mubi River crossings is considered a 'quarantine zone' between lowland and upland areas thus serving as a barrier to the transport of weeds.
- Glyphosate 570 application is currently planned for the Mubi to Kutubu and Kutubu to HGCP zones (following the training events).
- At Lake Kutubu, the P1 species *Piper aduncum* (spiked pepper) is already common and actively transported by communities, so may prove a challenge to Moro camp and RoW weed management.
- BioTropica has concluded the presence of the wash-down station at the base of Hides Ridge has proved successful as only two P2's have been identified on the Ridge (Wellpad-B). Nevertheless, a buffer quarantine zone is currently being developed between the HGCP and the current Hides Ridge wash-down station, so that in effect the HGCP becomes the new clean/dirty line, giving the Ridge additional protection.

Ongoing challenges highlighted in BioTropica's latest audit include: maintaining the consistency of control recording and monitoring approaches across the Project; ensuring drilling, transport and allied operations are hygienic; and ensuring a smooth transition between Construction and Production. BioTropica recommendations include: more diligent control of weeds and improved hygiene at Wellpad B; placing Weed ID Guides in vehicles and common areas to assist weed identification amongst the workforce; and documenting all weed and pathogen management components to disseminate for the benefit of future Company operations. All recommendations from the previous audit visit are either being implemented by EMPNG or are currently in the planning stage.

The IESC welcomes the presentation of EMPNG weed data organized by specific weed management zones at our next and subsequent visits.

Quarantine Management

Contractor performance data for full year 2013 are included in the following two IESC graphs, presenting information on the proportion of consignments requiring a NAQIA inspection on arrival into PNG, and the proportion of those inspections that result in the need for fumigation of that consignment i.e. the inspection outcome.

Inspections are typically triggered by: inadequate/incomplete documentation accompanying the consignment, or the source of the consignment coming from a country that NAQIA deems to be higher risk. Thus the likelihood of inspection is not always within the control of the Contractor.

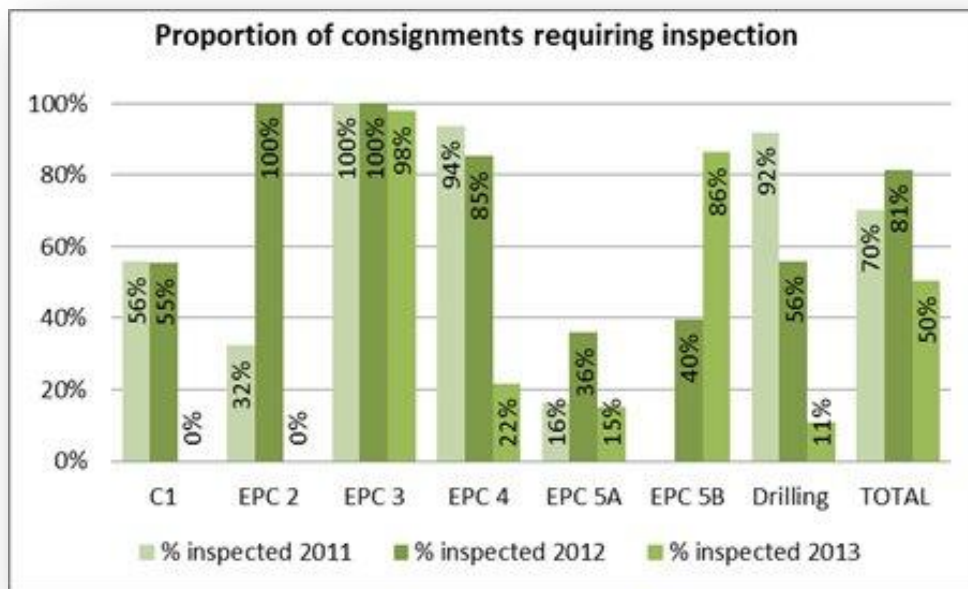


Figure 4.2: Proportion of consignments requiring inspection

However, fumigations are typically triggered by the observation of some suspicious item found during the NAQIA inspection, and hence usually are preventable by good housekeeping and management at the packing source of the consignment.

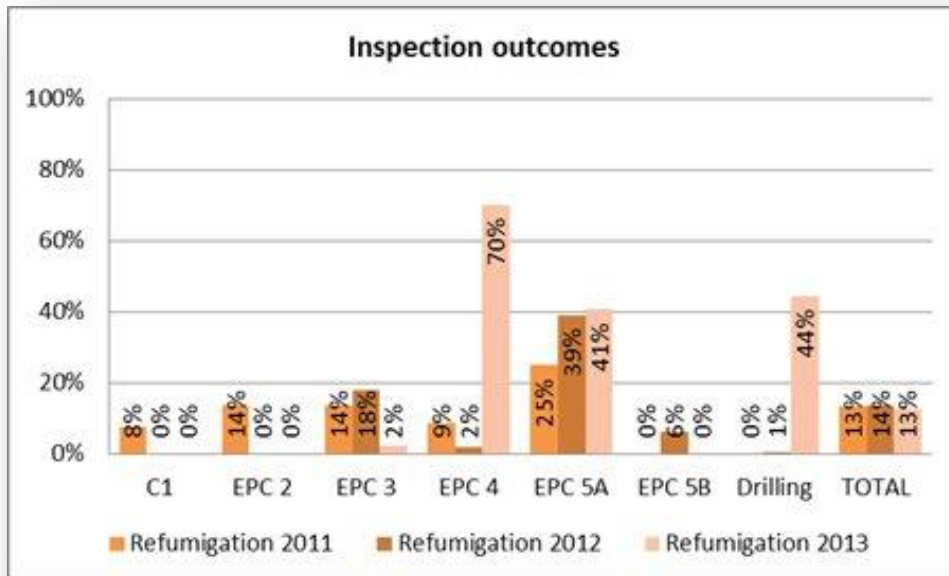


Figure 4.3: Inspection outcomes - need for fumigation following inspection

Key points on Contractor performance in relation to fumigation include:

- C1 has achieved 0% inspection and fumigation rates for 2013, and is now demobilizing;
- EPC-3: although still experiencing high levels of inspections, only 2% has resulted in the need for fumigation compared to 18% in 2012. Improved performance is likely the result of the Contractor amending their quarantine practice, so that all consignments are fumigated on arrival in PNG prior to inspection by NAQIA, rather than relying on fumigation at point of origin;
- EPC-4 consignments continue to demand a very high level of fumigations following NAQIA inspection;
- EPC-5A: although receiving far fewer inspections during 2013 than 2012, the need for fumigation is still high, at an average of 41% of inspections; and
- Drilling has experienced a high proportion of fumigation from the low number of consignments actually inspected.

EMPNG is seeking improvement from EPC4, EPC5A and Drilling: specific corrective actions are being implemented and discussed with EMPNG. EPC2 and EPC5B have now demobilized, and EPC5A is in the process of demobilizing.

4.5.2.5 Freshwater and Marine Ecology

The IESC thanks the project for making available the videos from previous years' reef ecology surveys of Caution Bay. The videos support the preliminary conclusions that the impact of construction activities has been minor, and consistent with the predictions described in the EIS. For this reason Observation M8.4 has been closed. The video did however show isolated stressed coral head that may have resulted from project construction activities at monitoring points located within two kilometers of the pipeline. The IESC worked with EMPNG consultants to agree on the protocols for early 2014 marine ecology surveys that both satisfy Project needs as well as demonstrate compliance with the approved ESMP and IFC PS6. The 2014 survey will show if the stressed corals recovered or if they died, which could trigger additional action.

The freshwater survey (which started in early October) targeted sites that had not been surveyed during construction phase recognizing the linear progress of the Project. The results are expected soon, and analysis of the data will give a valuable reference point to compare findings during non-extreme weather influences and build on biogeographical references. The 2013 monitoring will also start to show trends on invertebrate recovery times with pipeline crossings occurring within three and six months of the 2013 survey. The Freshwater Ecological Monitoring Program should provide confidence that construction impacts (and their recovery), will be detectable should they occur.

4.5.2.6 Omati River and Caution Bay Fisheries Studies

Preliminary summary results through 3Q 2013 of the Caution Bay and Omati River fisheries studies were presented during the site visit. The available information shows wide variation in species composition and landings, influenced by weather, season and village activities. The Project currently calculates catch per unit effort (CPUE) by pooling all catch of all species caught by all fishing gears and areas, divided by the number of hours fished. Full analysis of the 2013 data should be available sometime in 2014. The Project is commended for committing to monitor fisheries through 2015, and maintaining well-trained village assistants.

The Project has assisted fishers with submitting proposals to National Fisheries Authority (NFA) during 2013, but none were approved.

4.5.3 **Recommendations**

Ecological Management and Biodiversity

1. With regard to biodiversity monitoring, the Project should develop guidance on how it will determine which disturbances and/or vegetation changes recorded through remote sensing will be attributable to the project, so that this is clear and consistent as PMA-1 is used into the future.
2. With regard to monitoring any change of condition observed in focal habitats and ecological sensitivities potentially affected by the Project (PMA-2), levels of observed change should be developed and defined as per Indicators in the Environmental Management Plan.
3. Photographic monitoring of the sandalwood trees at the LNG plant should ensure that the camera images are focused on the trees and not on the fence surrounding the trees (see Contractor monthly reports during 3Q 2013).
4. As per discussions held during the visit, so as to formalize conservation intentions and actions, we would encourage the finalization of the Project's internal LKWMAEP document, to include the level of detail contained within the previously shared MoU Annex.1. This will provide consistency and clarity as the project transitions from construction to Production phase.
5. With regard to pursuing a smooth transition from the fisheries-only community investment program in the Lower Kikori, and to ensure local buy-in to future sustainable forestry and conservation components, we would suggest that the Project engage a full-time on-site resource to liaise with communities on day-to-day issues (as provided at Lake Kutubu WMA).

Induced Access

6. If the Project wishes to proceed with retaining the Homa Ridge access road operable, then we would wish to see an elevated immediate impact monitoring regime put in place, permanent retention of an effective wash-down station for mandatory use on any vehicles using the road, and improved access prevention measures.
7. On the new Project road section linking the existing Kopi Scraper Station logging track to the Kopi Shore base, the Project should consider installing an additional locked boom gate at the Shore Base end of the road. This will deter access into the area opened up by the new project road. In addition, additional locked boom gates may be required in the vicinity of CP-2 (see section 4.5.2.2).
8. With regard to the proposed access control measures and the potential for requests for access at manned gates, or breaches of access at unmanned gates, we recommend EMPNG develop procedures on how various access scenarios will be approved, managed or prevented, and what monitoring regimes will be appropriate to ensure each scenario is detected and effectively responded to.
9. We request a commitment from the Project that all retained AGI and RoW access tracks will be made impassable and reinstated at decommissioning stage.

Reinstatement

10. The IESC recommend that several static photo points be used to assist in the ongoing monitoring of mangrove reinstatement at the LNG Plant.

Weeds, Pests and Plant Pathogens

11. Conclude the integration between the current draft Weeds Management Plan and the Production Environmental Management Plans, so that the Weeds Management Plan can be formally finalized.
12. Plan for the Operational phase continuation of BioTropica's weed expertise including advice, targeted eradication and regular audits.
13. Although nearing the end of the Construction phase, continue focusing on quarantine management improvement issues with EPC4, EPC5A and Drilling.

5 SOCIAL

5.1 INTRODUCTION

5.1.1 Scope of Social Review for this Site Visit

The IESC consulted with a variety of people and groups during its February 2014 visit. The social review considered the usual range of the Project's social programs, while the field visit focused on verification of the results of the internal evaluation of the standard of living status of physically displaced households. The project is at a stage where it is critical to determine whether standard of living and livelihood restoration program are achieving their goals.

Activities included the following:

- Presentations by and discussion with relevant project departments;
- Working sessions with L&CA core staff on outcome evaluation procedures and analysis;
- Verification visits to a sample of physically displaced households in the wider Komo area; and
- Review of the PFC RAP addendum.

5.1.2 Waiver

The IESC social review is substantially based on interviews conducted with project staff, project affected people, the independent advocate, 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 or LARLA, component RAPs and other Social Management Plans. As such, the review does not purport to be a fully comprehensive evaluation of compliance.

5.2 LAND AND COMMUNITY AFFAIRS (L&CA) - 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.

The goal of L&CA during construction has been to sustain access to resources by developing and maintain our social license to operate. Its objectives have been the following:

- Secure and facilitate ongoing land access;
- Anticipate and mitigate construction and production interruptions;
- Develop EMPNG's Social License to Operate through its relationships with the communities where it works;
- Facilitate compliance with company policies & Project socioeconomic commitments; and
- Develop EMPNG national staff into the corporations' socioeconomic leaders of the future.

5.2.2 Observations

L&CA is maintaining an adequate of staff during the remaining construction works. L&CA Production staff will total a projected 100, composed of six expatriates and 94 PNG nationals. The organizational structure and persons assigned as component managers are satisfactory. Monitoring and outcome evaluation is assigned as a key task under the Compliance component of L&CA. Two current experienced staff already working on outcome evaluation have been selected to coordinate the outcome evaluation effort. Field teams, assigned under Community Affairs, will continue to conduct monitoring and evaluation surveys. Training programs for L&CA staff, including for monitoring/evaluation, are being developed.

Contracts are in place for external specialists, as needed, for specialized activities such as livelihood restoration.

5.2.3 Recommendations

None arising from this review.

5.3 LAND ACCESS AND RESETTLEMENT

5.3.1 Project Strategy

The Project strategy for achieving land access and resettlement was defined in the original Resettlement Policy Framework (RPF) and in the Land Access, Resettlement, and Livelihood Restoration Management Plan (LARLR) which has replaced the RPF, as well as in 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 (RPF, Sect 2.2, Resettlement Principles);
- 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 livelihood restoration measures;
- Provide 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.

5.3.2 Observations

5.3.2.1 Status of Land Acquisition and Compensation Payment

Land has been acquired for all areas except for a small extension of the flare buffer zone at Angore WPA, indicated by noise and thermal modeling. No physical displacement was required in this area, but one owner of a large garden was elevated to Type 1 for entitlement purposes (full compensation package). All compensation payments have been made, except for the land owner mentioned above. All land agreements have been signed.

5.3.2.2 Standard of Living of Physically Displaced Households

The project conducted internal outcome evaluation of the standard of living of 100 % of the 626 physically displaced households, including the 408 Type 1 households (physically displaced only) and the 218 Type 2 households (lost both dwellings and gardens). The evaluation followed the outcome evaluation procedure, approved by the IESC, using specified outcome indicators to determine whether household standard of living has improved, been maintained, or declined as a result of relocation. Two POM based staff coordinated the evaluation effort, trained the field staff who conducted the evaluation surveys, and analyzed the results. The Coordinators have been involved in the outcome evaluation effort for some time. Field staff is familiar with the households and experienced in surveying, but need some additional guidance to gather complete and clear information.

Analysis of the survey data showed the following overall results:

- 64% improved from pre-displacement conditions;
- 11% have an equivalent standard to pre-displacement conditions;
- 12% have declined from pre-displacement conditions, due largely to insecure tenure and/or accessibility to services; and

- 13% insufficient data (could not be contacted or other issue).

IESC verification of the internally analyzed standard of living data was conducted in the Komo area for 100% of the declined households and about 90% of the households in the maintained category during this February 2014 visit and a preliminary sample of households were visited in the HGCP area during the October 2013 visit. Results of the verification exercise for both groups are discussed below. The evaluation team will reassess results in light of these findings. (See Appendix B for more detailed information).

- Of the 31 households verified, the outcome category of 14 households changed as a result of additional information from the verification visits and more nuanced analysis that considered the indicators collectively and in the context of socio-economic and cultural conditions. Household categories changed as follows:

7 households moved from declined to maintained status;

4 households moved to improved status (4 from maintained and 1 from declined status);

2 households moved to declined status (1 from improved and one from maintained status).

- Internal data analysis placed too much weight on the number of structures versus the quality of structures. The verification interviews found that the quality of the main structure was more important to the households than the number of structures. This is because many households with minimal resources prior to displacement had several bush material structures, but used the compensation to construct a better/larger bush structure or to upgrade to a larger semi-permanent of permanent structure. Results of the quality of structure data show that the number of semi-permanent structures doubled and the number of permanent structures increased from 16 to 120.
- Security of tenure, though a key element of PS5, needs to be considered in the context of the land tenure system and practices in the PNG highlands. The residents are indigenous people who own the land but, in practice, a number of extenuating factors unrelated to displacement affect security of tenure. The most secure tenure is on land handed down from one's father or through the male line (patrilineal). Recurrent fighting over land between people of different tribes/clans, however, frequently forces people to change their locations, often resulting in insecure tenure because no patrilineal land is available or because of family disputes. Loss of security of tenure (had security of tenure pre-displacement, but not post-displacement) thus, should be considered, but on its own would not put a household/person into the declined category if all other indicators were maintained or improved.
- Access to services was measured as the time it takes to get to/from a service. In simple terms, the analysis would find that:
 - People who lived on or very near a road and were able to relocate to a location on or near a road have maintained their access status;
 - Access to services would be a declining factor for people who lived on or near a road and were unable to relocate on or near a road; and
 - Access to services would have improved for people who did not live on or near a road and were able to relocate on or near a road.

Survey questions on access and *analysis* of results should more carefully consider the availability of services pre- and post-displacement and the pre-displacement utilization of services by displaced households. Access to health care, for example, would not decline because a health care facility has been closed (as in the Komo area) as access would have declined even if these households had not been displaced. In terms of changes in access to educational facilities, surveys need to establish whether the children of affected households attend school in order to determine the significance of an increase in distance to schools.

Decline in access to water was not found to be a major factor. None the less, the Project will provide physically displaced households with the materials and instructions for small water catchment tanks. Households will have photographs taken as they sign for receipt of these materials.

5.3.2.3 Livelihood Restoration (LR) of Economically Displaced Households

Livelihood Restoration Entitlement

Economically displaced households losing sizeable agricultural land/assets (Type 2) households have now all been offered livelihood restoration assistance.

Status of Implementation

The livelihood restoration program is nearly completed, with the exception of the following activities:

Final delivery of rations is scheduled to be completed by the end of February 2014. Delays were caused by security issues on the Dauli Road and in Benaria.

The remaining agricultural program activities are scheduled to be completed by the end 2015, with the majority to be completed by the end of 2014. Delays were caused mainly by security issues.

LR Program Level Outcome Evaluation

The first LR evaluation is expected to be completed by June 2014. IESC verifications will begin thereafter. The results of the outcome evaluation will indicate whether any households need additional assistance to restore their livelihoods and whether the failure to restore livelihood can be attributed to the livelihood restoration program.

A second LR outcome evaluation and IESC verification will be done once all livelihood restoration measures are completed.

The status of livelihood restoration outcome evaluation is as follows:

- A total of 417 economically displaced households to be evaluated;
- Surveys of the 218 Type 2 (physically & economically displaced) have been completed and results are being evaluated;
- Surveys for a sample of the 199 Type 2 households that lost sweet potato gardens have begun; and
- The 85 displaced trade stores have been evaluated and analyzed.

Results of the trade store evaluation are 49% improved, 13% maintained, 38% declined. The primary reasons for declines are attributed to tribal fights, compensation spent on non-income related expenditure and/or on non-viable business ventures, and insecure land tenure.

LR Program Level Outcome Evaluation Process

The evaluation team and the IESC held a working session to review the outcome evaluation process, resulting in the following conclusions:

- Based on the results of preliminary surveys, sub-indicators for “reinvestment in income generation activities” will be changed from purchase of tools and seeds to purchase of cuttings, poultry, and/or pigs;
- Evaluation of Type 2 households will use a sample of approximately 25 % of the 199 total households in this category. The sample will be stratified to ensure that the sample is representative of the larger population of Type 2 households. This means that there will be a representative number of households (% depends on the total number of households in each strata) in each of the following categories.
 - Main source(s) of livelihood (gardens, animal husbandry, tree crops, business, other);
 - Age cohort of head of household (18-25), (26-35), (36-45), (>45);
 - Security of land use (lack of security of land use minimizes ability to use common resources).
- The IESC recommends that the LR evaluation surveys and analysis note households that were employed by the Project. This information will be useful to understand any notable increases or decreases in income and/or expenditures that these households may experience.

Close Out Monitoring of the Livelihood Program Components

In addition to evaluation of outcomes at the LR program level (discussed above), projects are usually expected to evaluate the outcomes of individual LR components. Surveys of the results of the LR agricultural component (main component) of the LR program have been done, but pre-displacement baseline data are still inadequate for a systematic comparison to pre-displacement conditions. The IESC deems that the program level evaluation, supplemented by a detailed monitoring report showing that the RAPs/CRPs were implemented as planned, will be adequate to demonstrate that the project has met its monitoring and evaluation responsibilities. This final monitoring report should be prepared for the Project's records and should be submitted to the IESC.

This monitoring report should contain the following information in a spreadsheet:

- Input delivery status from beginning of implementation;
- Achievement of targets for each activity; and
- Identification of any targets not achieved, reason for non-achievement, and any corrective actions taken.

5.3.2.4 Full Replacement Value Top-up Payments for Trees/Crops

Significant progress has been made in calculating the topup compensation payments for trees and crops. The livelihood restoration group has developed a theoretical model of cost versus compensation paid to quantify top up payments for 36 of the 53 areas. The model is based on a variety of factors, the main factors being data sheets for the 67 crops/species most frequently planted, a theoretical cost of production using a typical Huli Garden and KauKau mound as its reference point, and market surveys in 26 locations. Further calculation is in progress to determine whether there was any shortfall in compensation paid to households in the earlier RAP areas where formulas were used.

5.3.2.5 Vulnerable Households

The last IESC report asked for confirmation that outcome evaluation considers the conditions of wives/families of households that were displaced. The IESC verification exercise determined that wives and families that are directly affected by loss of dwelling or gardens are considered.

5.3.2.6 Resettlement Documentation

A RAP Addendum for the PFC facility was reviewed by the IESC and found to lack a description of the mitigation measures implemented by the land owner. Even though the project received the land without occupants, it is required to ensure and document that the mitigation measures are consistent with PS5. L&CA is following up with PFC management to complete an acceptable RAP addendum. The Addendum should be submitted to the IESC for approval by April 2014. Following approval, it should be publically disclosed.

5.3.3 Recommendations

1. Standard of living - Reassess results of standard of living evaluation considering the following:
 - giving more weight to quality of structures;
 - Loss of security of tenure in the context of land tenure “practices” should be considered, but on its own would not put a household/person into the declined category, if all other indicators were improved or maintained;
 - Reassess access to services considering in addition to distance that few services are available for most affected households and that some services are not utilized; and
 - Access to water does not need to be considered as water tanks will be provided.
2. Verify for the IESC when water tanks will be provided.
3. Livelihood Restoration:
 - The second livelihood restoration evaluation and IESC verifications should be done once the livelihood program has been completed. This evaluation and implementation of any additional measures indicated by its results should be followed by the Completion Audit of both livelihood restoration and standard of living;

- Ensure field livelihood restoration survey teams are closely supervised and results reviewed after the first 3 days and each week thereafter;
 - The “reinvestment in income generation activities” should be changed from purchase of tools and seeds to purchase of cuttings, poultry, and/or pigs;
 - The livelihood restoration survey of the Type 2 households should use a sample of approximately 25 % of the total of 199 households. The sample should be stratified using the following categories:
 - Main source(s) of livelihood (gardens, animal husbandry, tree crops, business, other);
 - Age cohort of head of household (18-25), (26-35), (36-45), (>45); and
 - Security of land use (lack of security of land use minimizes ability use common resources).
 - The IESC recommends that the LR evaluation surveys and analysis note households with occupants that were employed by the Project. This information will be useful to understand any notable increases or decreases in income and/or expenditures that these households may experience.
4. Livelihood restoration close out monitoring.
- A final monitoring report should be prepared for the Project’s records and submitted to the IESC. The report should contain the following information in a spreadsheet:
- Input delivery status from beginning of implementation;
 - Achievement of targets for each activity; and
 - Identification of any targets not achieved, reason for non-achievement, and any corrective actions taken.
5. Top up payments for trees/crops: Verify for IESC whether compensation will be paid in cash or in kind or some combination thereof.
6. Finalize and submit to the IESC a short RAP for the PFC describing the impacts of land acquired for the PFC and the mitigation measures implemented by the land owner (by the end of March 2014).

5.4 OUTCOME EVALUATION SYSTEM & INDEPENDENT COMPLETION AUDIT

5.4.1 Project Strategy

5.4.1.1 Outcome Evaluation

The original strategy, as outlined in the Resettlement Policy Framework, called for external resettlement experts to conduct outcome evaluations. Agreement was reached between the Project and the IESC on a combination of *internal* outcome evaluation of standard of living and livelihood restoration using objectively verifiable indicators, followed by IESC verification of results using a sub-sample of affected households.

5.4.1.2 Completion Audit

A completion audit by an independent third party is specified in the Resettlement Policy Framework (RPF p. 31) noting that “completion audits will occur once all RAP measures have been implemented and, in terms of livelihood restoration, once a sufficient amount of time has passed to produce verifiable outcomes.” The completion audit brings to a close the resettlement process. However, if the completion audit indicates that certain resettlement objectives have not yet been achieved, further action will be identified and implemented as appropriate.

5.4.2 Observations

5.4.2.1 Outcome Evaluation System and Staffing

Internal outcome evaluation

Substantial progress has been made in the system and staffing for internal resettlement outcome evaluation. A dedicated two person POM-based coordination team has been assigned, both of whom have been closely engaged in resettlement and development of the outcome evaluation system. They are supported in the field by experienced field supervisors and local field survey teams experienced in conducting household surveys and familiar with the areas and the affected households. The POM-based coordinators provide in-field training, quality checks, and system modifications as indicated by observations and survey results.

This is the first time the field teams have done outcome evaluation surveys which require more rigorous questioning than the baseline surveys with which they are familiar. Review by the IESC and the coordinators indicate that the field teams need additional training and supervision for the livelihood restoration surveys in order to solicit sufficient information for a thorough understanding of each household's livelihood strategy (such as the differences between livelihood strategy pre- and post-displacement, the full sources of livelihood, the persons contributing to livelihood).

5.4.2.2 External Verification of Outcome Evaluation

The IESC began external verification of standard of living results during the last visit (October 2013) with a small sample of physically affected households in the KP 0-5 and HGCP areas. The first formal verification occurred during this visit during which all the households whose living conditions were found to have declined from pre-displacement conditions and a sample of households deemed to have maintained their living conditions. The IESC was provided information sheets for each household and the visits were well organized.

The verifications are being done as part of the IESC regular visits. Based on this first exercise, the IESC is concerned about the amount of time the verifications require considering the other IESC responsibilities of the Social Expert. The IESC and the evaluation coordinators are scheduled to discuss this issue in a teleconference by the end of May when the analysis of standard of living will be completed and the analysis of livelihood restoration will be well underway. Additional details on this issue will be provided in the next IESC report after the June mission.

Type of evaluation	Location category (Survey Area)	No. households	Best estimate travel time from "base" to area	Estimate travel time between households
Standard of living	Add rows for each			
Livelihood restoration	Add rows for each			

5.4.2.3 Resettlement Completion Audit

The resettlement completion audit will be done for both standard of living and livelihood restoration. The audit should be done about three months after completion of the livelihood restoration program. It should be preceded by a final internal outcome evaluation of livelihoods. The IESC will provide examples of resettlement audit Terms of Reference and suggestions for suitable consultants.

For the purpose of clarification, note that the resettlement completion audit is unrelated to the construction Completion Certificates.

5.4.3 Recommendations

1. At least one of the outcome evaluation coordinators should provide additional training to the survey team and observation of livelihood restoration surveying.
2. Prepare verification information for the IESC (see 5.4.2.1) and organize teleconference discussion of verification strategy by end of April.

5.5 COMMUNITY IMPACTS MANAGEMENT

5.5.1 Project Strategy

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

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

5.5.2 Observations

Demobilization Impacts on Community

On-going monitoring indicates that demobilization has not resulted in any notable community issues. Workers from other parts of the PNG are repatriated to their point of hire, and most leave the project area as soon as they are demobilized to take advantage of project provided transport, as well as because they have lost their accommodation and remaining in the area is not supported by Huli clan traditions.

Local field teams continue to engage with local communities and their leaders, churches, and clinics on a wide range of concerns, issues, and grievances, including demobilization. These issues are considered in community development support planning and by LANCOs in their employment and business development efforts. Results of engagements on community impacts and responses are summarized below.

- Demobilization is causing a notable drop in local community income;
- New gardens are slowly emerging, though some households continue to depend on rations;
- Workers who have been demobilized express resentment toward workers who have not yet been demobilized;
- Some additional wives acquired as a result of cash from compensation payments or employment are leaving as income decreases;
- Some demobilized workers, particularly those who spent their earnings unwisely, are finding the transition back to the community difficult;
- Some demobilized workers have used their earnings more wisely for items such as skills training, children’s schools fees; purchase of generators, water tanks, roofing iron, timber for improved housing; improving gardens; and developing small businesses; and
- Many workers who receive training have left the area for employment elsewhere.

5.5.3 Recommendations

1. Continue to monitor community reactions and responses to demobilization and for a reasonable period afterward.

5.6 COMMUNITY SECURITY

5.6.1 Project Strategy

The Project’s security strategy insofar as it pertains to project social performance is described in the EMPNG 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).

5.6.2 Observations

The Project’s security unit (HGSF) continues to provide vigilant monitoring of the security situation, both on and off project. HGCF activities are also informed by others, such as L&CA field staff who are knowledgeable about the situation on the ground. Security measures have been heightened in recent months as a result of increased tensions tribal tension, particularly along the pipeline ROW (HomaPaua, Benaria, Awatangi and Neango) and in Angore, all of which are areas that have experienced relatively more tribal clashes than other areas during the last 10-12 years. This increased tribal fighting is not directly related to the project, though has restricted travel in some areas, thus affecting activities such as rations and some livelihood restoration deliveries. Restricted travel also affected the IESC’s ability to visit these areas.

5.6.3 Recommendations

None arising from the present review.

5.7 PROJECT INDUCED IN-MIGRATION

5.7.1 Project Strategy

The CSS commitment was to undertake an in-migration risk assessment and an assessment of associated environmental and social impacts.

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).”*

5.7.2 Observations

The PIIM monitoring procedure will be rolled out as soon as management completes its review. L&CA staff is collecting data for use in evaluating the key indicators on a six monthly basis. This information, complemented by iHDSS data, are being analyzed to identify the extent of in-migration, in-migration “hot

spots,” its impact on communities, and strategies the Project can use to help communities offset any adverse impact. The analysis will also provide a basis for on-going comparison of construction related versus post-construction in-migration.

5.7.3 Recommendation

1. The IESC looks forward to receiving the results of the PIIM analysis and ways the Project will assist in mitigating any adverse impacts. Since in-migration can be expected to continue, largely as a result of events that are not directly related to the project, most mitigation measures should be addressed in the Production Community Support Program.

5.8 PROCUREMENT AND SUPPLY MANAGEMENT

5.8.1 Project Strategy

The Project strategy is described in the Procurement and Supply Management Plan. The plan states that division of responsibility between EMPNG 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.

5.8.2 Observations

Contractor Performance IFC PS2 on Harmful Child and Forced Labor

Procedures and monitoring are in place to ensure that core labor standards, including harmful child and forced labor, are implemented by Contractors.

5.8.3 Recommendations

None arising from the present review.

5.9 COMMUNITY SUPPORT STRATEGY

5.9.1 Project Strategy

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

The overriding objective of the CSS was 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.

The Construction Community Development Support Plan (CDSP) identified the following objectives:

- Avoid or reduce the risk of adverse social impacts on PNG communities during Project construction and production; and
- Provide opportunities for sustainable development benefits in a culturally appropriate manner.

The implementation outcomes defined for the CDSP were that it would mitigate business risk as well as contribute to improvements in:

- The ability of communities affected by the Project to anticipate, understand and deal with potential harmful effects;
- The ability of communities to take advantage of positive opportunities afforded by the Project, including increased local economic activity; and

- Self-reliant livelihoods.

For the Production phase, objectives are stated as:

- Promote the development of conditions to strengthen communities to benefit from the Project's presence;
- Avoid or reduce the risk of adverse social impacts on Papua New Guinean communities during production;
- Provide opportunities for sustainable development benefits in a culturally appropriate manner;
- Ensure that the development process fosters full respect for the dignity, human rights, aspirations, cultures and natural resource-based livelihoods of Indigenous Peoples; and
- Meet local regulatory requirements and Performance Standard 7: Indigenous Peoples (International Finance Corporation, 2006) expectations.

5.9.2 Observations

5.9.2.1 Construction Phase Program Status

The status of the Construction phase program is shown in the table below.

Table 5.1: Construction Phase Project Status

Projects	Number Projects Planned	Status
Upstream		
Support to schools Women's empowerment Infrastructure Food processing training Personal viability training Support to youths Support to health facilities	124 projects	110 completed 14 in progress
Pipeline RoW		
Support to schools Women's empowerment Infrastructure Food processing training Personal viability training Support to youths Support to health facilities Cultural events sponsorship	72 projects	60 completed 12 in progress
Plant Site		
Support to schools Women's empowerment Infrastructure Food processing training Personal viability training Support to youths	51 projects	45 completed 6 in progress

5.9.2.2 Construction CDS Evaluation

The Construction CDS Plan (Section 4) indicates that a *final completion review will be done by a third party* to assess the overall program effectiveness and make recommendations on the elements for the Production phase CDS. A mid-term evaluation was undertaken by URS in 2013. CDS project management and Infrastructure Development Partnership (IDP) conducted a subsequent assessment of the program goal achievement and other information to inform development of the Production Community

Development Support plan. The IESC considers the URS mid-program review and the review done by IDP and the CDS team as adequately satisfying the requirement for reviews and for Production phase planning recommendations.

5.9.2.3 Production Phase Community Development Support (CDS) Program Planning

A draft of the CDS production implementation plan covering the first 18 months is expected to be completed in March 2014. The Project will share the draft with the IESC in April and the IESC will provide feedback prior to its June visit. .

The plan considers the results of the evaluations of the construction phase program. The plan will include a detailed monitoring and evaluation framework, with three levels of outcome indicators, including program level outcome indicators to evaluate whether the program as a whole is achieving its goals, project level outcome indicators, and theme specific indicators to determine whether the projects in each thematic group (e.g., health, education, livelihoods, etc.) considered together are achieving the goals set for each theme. The IESC recommends that the outcomes be analyzed separately for each geographic area (upstream, RoW, plant area) in order to consider the different social/economic/cultural differences in each area.

The next steps in plan development include:

- Review of currently proposed activities to ensure that risks identified for community development during Production are adequately addressed;
- Identification of the specific outputs expected from each project;
- Identification of the program and project level indicators; and
- Identification and assessment of implementation partners.

Some of the indicators will require baseline data against which to measure change. Once the indicators are identified, baseline data should be assessed for any data gaps and data gathered to fill these gaps.

5.9.3 **Recommendation**

1. Outcomes of the Production Community Development Support Implementation Plan should be analyzed separately for each geographic area in order to consider the different social/economic/cultural differences in each area.
2. Program level indicators should be finalized and gaps in baseline data filled prior to implementation of the Production CDS program.
3. The Plan for the second phase of Production Community Support should cover approximately 6-8 years. This plan should have a built in iterative evaluation that provides the information needed to longer term planning in response to changing economic, social, and cultural conditions.

5.10 **STAKEHOLDER ENGAGEMENT AND CONSULTATION**

5.10.1 **Project Strategy**

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

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

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

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

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

5.10.2 Observations

The project continues to engage with affected communities on a regular basis. In the last quarter of 2013, the project conducted 1,711 engagements involving 148 communities (58,605 participants) spread across Upstream South and North and the PNG plant site area. Issues raised by community members were higher in the 3rd and 4th quarters as a result of concerns over employment and demobilization (mainly in the upstream areas) and health and safety during project commissioning.

5.10.3 Recommendations

None arising from this review.

5.11 GRIEVANCE MANAGEMENT

5.11.1 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; and
- 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.

5.11.2 Project Strategy

5.11.2.1 Procedure

The grievance management procedure is being followed. The overall closure rate of grievances for 2013 was 89%, well over the target of 75%.

5.11.2.2 Resettlement Related Grievances

Four resettlement related grievances were filed during the last quarter of 2014, two of which are in progress and two which were resolved. Of the 22 grievances related to land acquisition filed, most were attempts to claim entitlements already received.

5.11.2.3 Community related

An increase in grievances toward the end of the 3rd quarter and beginning of the 4th quarter 2013 were directly or indirectly related to heavy rainfall and mudslides on the ROW (largely between KP 80 – KP 50). The project closed these grievances on the basis that any environmental damage will be compensated as side cast under Statutory Compensation payments and are administered by the Land and Compensation team. The landslips were not related to Project activities. The Project responded with this information to persons filing complaints regarding the landslips.

In general, environment related grievances were high due to concerns over reinstatement and erosion/sediment control. The majority of economically related grievances were filed by persons along the pipeline RoW wanting work as casual laborers. The Plant site registered over 1,700 community issues in 2013, all of which were low priority and often closed on the spot.

5.11.3 Recommendations

None arising from this review.

5.12 BENEFIT SHARING – UPDATE

The Project continues to provide administrative and logistical support to the PNG government for various aspects of the benefit sharing process. The PNG Government is responsible and accountable for determination and payment of landowner beneficiary royalty and equity dividends. EMPNG's goal is to influence and support the Government to help it pay landowner State Cash benefits in accordance to the laws of PNG. Its main challenge in this effort is to help ensure safe, accurate & effective delivery of cash benefits without having any actual control over the process. To meet this challenge, the project is in the process of:

- Establishing a Project position on delivery mechanisms and messaging to all stakeholders;
- Providing logistics support and coordination for delivery;
- Making tools and templates available to the Government; and
- Providing training, awareness, and reporting to all key internal stakeholders.

The Clan Vetting process is underway. This process identifies clans and sub-clans that will receive royalty payments per the Oil and Gas Act and the proportion of royalties and equity benefits each will receive. DPE is currently finalizing the list of beneficiary clans and sub-clans. The lists will be endorsed by the DPE and the Treasury Secretary and submitted for a Ministerial Determination.

EMPNG is using the following milestones to measure progress of the benefit sharing process (Bold signifies activities completed):

- **Individual (team member) journals completed and submitted to Deputy Secretary;**
- **Team report compiled and submitted to Deputy Secretary;**
- **Clan lists from report formatted for publication;**
- **Clan lists presented to CVP Manager (Deputy Secretary);**
- Clan lists endorsed by DPE & Treasury Secretary / Submitted to Minister;
- Clan lists approved by Minister for publication; and
- Clan lists published and gazette.

The major challenges to meeting the schedule by delivery of first gas (shown in the table below) are:

- DPE capacity to manage the myriad of issues / challenges;
- Distractions (other gas developments, Petroleum Authority kickoff, staff/contractor continuity);
- Maintaining the safety and security of Project area communities, Project staff and assets, and government representatives;
- The possibility of court action;
- Negative media; and
- Weaknesses in control of clan lists/vetting.

6 LABOR AND HUMAN RESOURCES

6.1 INTRODUCTION

6.1.1 Scope of Labor Review for this Site Visit

Labor and human resources procedures and processes have been previously reviewed by the IESC and non-conformances resolved. The construction phase is now 95% completed, thus Industrial Relations is currently focusing on the planning, messaging, execution, and monitoring of workforce demobilization. Thus, the IESC was updated mainly on demobilization.

6.1.2 Project Strategy

Project commitments are defined in the Labor and Worker Conditions Management Plan. 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. The IESC therefore wants to make note of the fact that our observations are also based on the requirements of Attachment 1 and, specifically, PNG labor legislation and IFC PS2, which in turn is underpinned by the ILO Core Labor Standards. 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).

6.1.3 Observations

6.1.3.1 Workforce Conditions

The IESC has reviewed labor procedures, processes, and conditions during past reviews. The IR gap analysis indicates that all EPC contractors are over 95% compliant with Project requirements, greatly reducing worker grievances and facilitating implementation of demobilization plans. Based on the information provided during this visit, no new issues have arisen and previous recommendations have been addressed.

6.1.3.2 Demobilization

Figure 6.1 shows the demobilization forecast for 2014. Demobilization is above 96% complete in all EPCs, and EPC 2 and 5A have demobilized all nationals/locals.

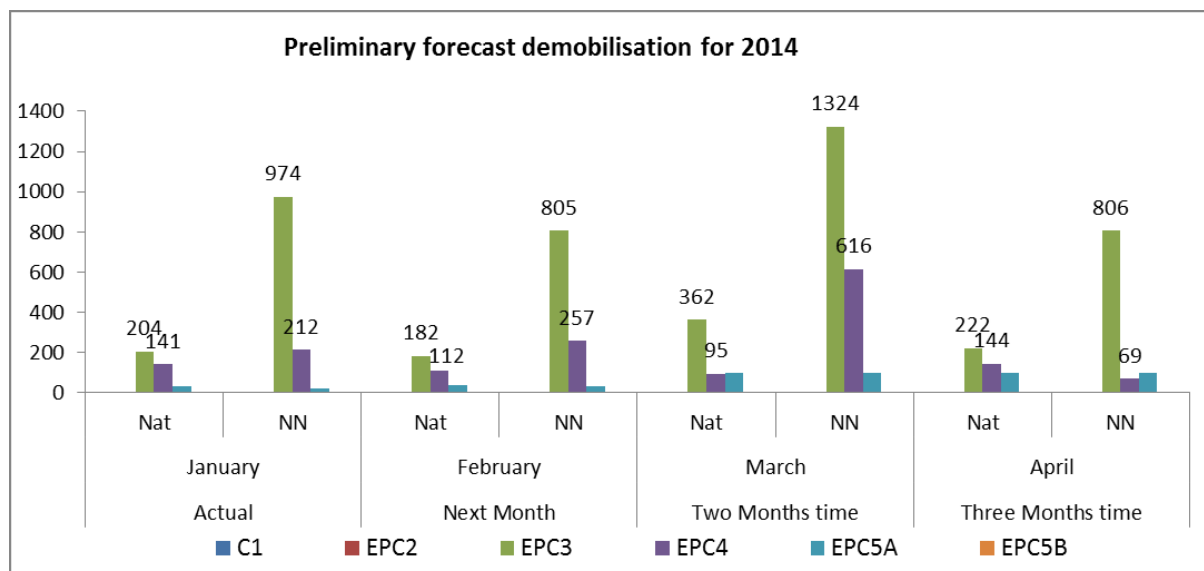


Figure 6.1: Preliminary demobilization forecast for 2014
(Nat=Nationals; NN= Non-nationals)

Only a few complaints regarding demobilization have been received, some of which are requests rather than complaints. Complaints/requests included:

- One on the demobilization process;
- Two for loss of business as a result of demobilization;
- Three on remuneration;
- Four requests for further employment; and
- One request to be given materials the project will no longer need.

The EPCs are currently implementing strategies to reduce the impacts of demobilization, particularly on the neighboring communities. The main emphasis is on preparing people for income opportunities outside the Project. The Community Development Support Plan also considers areas with large numbers of returning workers in its livelihood enhancement program planning. The Occupational health group is supporting demobilization by ensuring that equipment is verified and camp health conditions (food, water, disease management, sanitation and camp hygiene, etc.) are maintained at a high standard throughout the demobilization period

6.1.4 Recommendation

None arising from this review.

6.2 CAMP MANAGEMENT

6.2.1 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.

6.2.2 Observations

Camp occupation is winding down as the Project approaches construction completion. The improvements that have been made over the last year have eliminated most complaints regarding accommodation.

6.2.3 Recommendations

None arising from the present review.

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 Medicine and Occupational Health (MOH) department focuses on both worker and community health issues, whereas the Safety team focuses primarily on occupational safety of workers. Community safety is primarily undertaken through controls set up at Project construction sites to protect the community from workplace hazards, as well as controls set up through the Logistics group to minimize traffic accidents and community awareness programs implemented through the L&CA organization. No significant community safety incidents have taken place since the last IESC field visit and the discussion of safety is presented in the context of the Project's occupational H&S program.

7.1 COMMUNITY AND WORKER HEALTH

7.1.1 Project Strategy

Project community health commitments are defined in the Community Health and Safety Management Plan (implemented via Contractor Implementation Plans) and the EMPNG Community Health, Safety and Security Management Plan and the Community Impact Management Plan (implemented via Contractor Implementation Plans). Health planning specifically for worker health is defined in the Project Health Plan. The overriding 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. Worker health is defined within the context of the Project's occupational H&S program as specified in a Project Health Plan.

7.1.2 Observations

7.1.2.1 Community Health

The Community Health Program (CHP) implementation is fully integrated with performance metrics indicating strong performance across all program objectives. MOH is working closely with community health program partners, the PNG Institute of Medical Research (PNG IMR) and Population Services International (PSI), to assist and verify implementation of program deliverables in accordance with funding grant agreements.

The next phase of the Community Health Program implementation process is sharing the PNGIMR morbidity and mortality data and research results with the PNG Government Department of Health, NGO's and interested stakeholders and translating the scientific data into actionable priorities. This process is occurring with IMR conducting meetings and sharing data with Government officials and a workshop is planned in 2Q 2014 that will be facilitated by EMPNG with PNG Government Health Department, IMR, NGO's and aid agencies.

The program is transitioning into Production. A funding agreement and scope of deliverables has been completed for IMR for 2014. PSI has been awarded an updated agreement addendum with a new scope for 2014:

- Health education activities using Healthy Man/Healthy Meri as training advocates. Health education will include personal hygiene and sanitation, tuberculosis awareness, Water, Sanitation and Hygiene (WASH) products awareness;
- Conduct “success stories” interviews and program evaluation.

In 2013 PSI's WASH Program had a participation of more than 1,500 households involved in sanitation training, including food hygiene to prevent diarrhea.

Immediate plans forward for the MOH are to assist IMR and PSI in achieving monthly milestones; coordinate a visit of the Independent Scientific Advisory Board (ISAB) to review the community health program in April 2014; and work closely with Public and Government Affairs (P&GA) to coordinate a workshop with IMR, PNG Government and aid agencies on April 10, 2014 to discuss translating the IMR scientific data into actionable priorities.

7.1.2.2 Worker Health

Occupational health continues to be a “best” practice program implemented in a very difficult and challenging environment, with a complex, heavy burden of community-acquired disease. One of the contributors to the success of this program is the manner in which the MOH has established health program

criteria and then assessed effectiveness of program implementation through the collection of key performance indicators, both in terms of leading indicators (i.e., in areas of clinical operations, disease prevention/control, food and potable water safety, camp hygiene and sanitation and industrial hygiene), as well as lagging indicators (management of illness cases). Clinical service, pathology (lab) services and medical emergency response execution has been very effective across all camp clinics as measured by KPIs for the health service contractor, International SOS (ISOS).

The response of MOH to outbreaks of disease has continued to be effective. An outbreak of norovirus, a very contagious virus that causes stomach pain, nausea, and diarrhea and is the virus causing well-publicized problems on cruise ships, took place at the HGCP Camp affecting 63 individuals. This outbreak was contained and the virus effectively eradicated. The current focus of MOH is to continue to provide health services at their current high level, while simultaneously transitioning towards production, when the number of staff and facilities will be reduced. ISOS is assembling a team for Production from the most outstanding performers from the Construction staff.

7.1.3 Recommendations

None arising from the present review.

7.2 WORKER SAFETY

7.2.1 Project Strategy

The process of safety culture is transitioning into Production. For 2014 the strategy encompasses several focus areas:

- Focus on fatal risk mitigation and SSHE fundamentals, with emphasis on working with hydrocarbons and energized facilities;
- Achieve flawless Simultaneous Operations (SIMOPS) execution as EMPNG prepares for Startup and transition to Production;
- Transfer knowledge, experience, tools, and selected SSHE staff to Production to ensure readiness;
- Apply discipline to demobilization related to workforce, construction equipment, and temporary facilities;
- Avoid assaults through optimization of existing Security/L&CA controls and enhancement of “situational awareness;”
- Avoid driving related high-potential (HIPO) incidents through utilization of existing controls and awareness initiatives;
- Maintain vigilance in implementing existing health control programs;
- Acquire government approvals for remaining plans/permits while maintaining relationships; and
- Achieve Lender Group/IESC approval of remaining CTA environmental deliverables and program delivery methods/tools and ensure Operations readiness to lead longer term implementation.

7.2.2 Observations

Worker Safety is also a “best” practice program and worker safety continues to be a primary focus of EMPNG and the EPC Contractors. Safety statistics presented by EMPNG show a continuing decrease in the Total Recordable Incident Rate (TRIR). In March 2012 this rate was 0.46 for the entire Project; in October 2012 this rate was further reduced to 0.39; in June 2013 it was 0.33; and it is currently (February 2014) at 0.14. The Lost Time Incident Rate (LTIR) has also continued to decrease and is currently 0.00. The zero LTI rate is exceptional. The Project completed more than 35million hours Lost Time Incident free since July 2013; EPC3 currently has more than 68 million hours Lost Time Incident free since the last Lost Time Incident in March 2012, whereas the upstream teams completed more than 15 million hours since July 2013 without a lost time incident.

7.2.3 Recommendations

None arising from the present review.

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 management associated with construction is drawing to a close. Since the last IESC field visit, what are probably the last excavations associated with the pipeline RoW were conducted with no significant findings to report. A site referred to as Henopi #2 located at approximately KP 6.5 considered to be of medium archaeological due to the presence of two liru-kui stones was excavated with three unit excavations, but nothing of archaeological significance was encountered. Five chance finds were turned over to EMPNG during the last quarter and five were also turned over to the National Museum. The process of documenting the cultural heritage sites within the Project GIS is nearly complete. With the construction footprint essentially established, the remaining work is mainly to finalize the few remaining excavation reports and make sure the Production staff understands what to do in case of chance finds. A regret from construction is that the National Museum has not been able to place Project findings on public display.

8.3 RECOMMENDATION

1. EMPNG is encouraged to continue to pursue a public display of the excavated artifacts.

APPENDIX A

IESC 11TH MONITORING VISIT – TRIP SUMMARY

TRIP SUMMARY

General Note: Potential risk after the murder of a guard at MLV-1 on January 14, 2014 restricted the IESC in the Highlands to visiting only the Komo area during this field visit.

February 9:

IESC environmental and social team members W. Johnson, L. Johnson M. Pedersen and K. Connor arrive in Port Moresby.

February 10:

IESC Environmental and Social Team - Port Moresby – updates on current activities presented by EMPNG:

February 11:

IESC Environmental and Social Team - Port Moresby – updates on current activities presented by EMPNG:

February 12:

IESC Environmental Team - Port Moresby – updates on current activities presented by EMPNG; in afternoon M. Pedersen visits LNG Plant communities.

IESC Social – travel to Komo and start livelihood restoration/standard of living assessments in the field around the Komo area.

February 13:

IESC Environmental Team – fly to Moro – undertake flyover of southern portion of onshore pipeline

IESC Social – continue livelihood restoration/standard of living assessments in the field around the Komo area.

February 14:

IESC Environmental Team –undertake flyover of northern part of onshore pipeline, land at Komo and undertake review of reinstatement at the Komo airfield

IESC Social – continue livelihood restoration/standard of living assessments in the field around the Komo area.

Entire IESC group returns to POM.

February 15:

IESC Environmental Team – morning visit to LNG Plant, significantly restricted due to heavy rain

IESC Social – morning workshop with EMPNG staff

Afternoon – miscellaneous communications and start of preparation for Closeout meeting.

February 16:

IESC Team – miscellaneous communication with EMPNG staff and preparation for Closeout meeting at hotel in POM.

February 17:

- Closeout meeting in morning;
- IESC team departure.

APPENDIX B

IESC STANDARD OF LIVING VERIFICATION RESULTS

IESC STANDARD OF LIVING VERIFICATION RESULTS

Kerry M. Connor, PhD

Verification locations and process

Verification by the IESC Social Expert of the internally analyzed standard of living data was conducted in the Komo area (KAF, KAAR, KP 0-5, KLF, HHR1D, TB1) for 100% of the declined households and about 90% of the households in the maintained category during the February 2014 IESC visit and a preliminary sample of households that were visited in the HGCP area (HGCP, HHR1D, HWMA) during the October IESC 2013 visit.

The verification process involved:

- Review of the profiles provided by the project, including photographs of structures and information on pre- and post-displacement conditions, family members, and results of the internal evaluation.
- Visits to each of the households accompanied by the evaluation team coordinators and the field team member for each area; and
- Discussions with the evaluation and field team members.

Summary of verification findings

The verification exercise found that of the 31 households verified, the outcome category of 14 households changed in light of information acquired by the verification visits and a more nuanced analysis that considered the livelihood restoration indicators collectively and in the context of socio-economic and cultural conditions.

Household categories changed as follows:

- 7 households moved from declined to maintained status;
- 4 households moved to improved status – 4 from maintained and 1 from declined status; and
- 2 households moved to declined status – 1 from improved and one from maintained status.

The Table below shows the following:

- Households with categories changed as result of verification and rationale;
- Households with categories confirmed by verification and comments;
- Households with categories preliminary – needing some additional information (highlighted in the table).

IESC Standard of Living Outcome Verification
Changes in Standard of Living Categories based on IESC Verification

FN No.	Area	Internal Evaluation Status	Verification Status	Comments
HOUSEHOLDS SHOWING STATUS CHANGED BY VERIFICATION				
10	Komo airport	Declined as result of insecure tenure. Was on father's land pre-displacement and is now on mother-in-law's land.	Maintained	Wanted to relocate near Komo and is purchasing land from in-laws. Once purchased will have security of tenure. First house burned down as result of family fight. Was initially composed of multiple families, all of which received supplementary packages and moved away. Household is now composed of one family.
28	Komo airport	Maintained	Declined	Very insecure tenure leading to poor access to water and other resources. May need an additional visit to determine if household qualifies as vulnerable for additional assistance.
65	KP 0-5	Declined – insecure tenure	Maintained	Has 2 residences – FN 99 main dwelling and FN 65 is for project work purposes.
99 (same)		Maintained	Maintained	
78	KP 0 - 5	Declined for lack of security of tenure	Maintained	Was able to return to his own land and received a second resettlement package.
79	KP 0-5	Maintained	Improved	Was in good financial and physical condition pre-displacement and is in good financial and physical conditions post-displaced. Had sufficient compensation to build another house semi-permanent structure.
91	KP 0-5	Maintained	Improved	Relocated on to a main road, improved structure, has coffee gardens, and is closer to water source
91	KP 0-5	Maintained	Improved	Relocated on to a main road, improved structure, has coffee gardens, and is closer to water source
79	KP 0-5	Maintained	Improved	Was in good financial and physical condition pre-displacement and is in good financial and physical conditions post-displaced. Had sufficient compensation to build another house semi-permanent structure.

FN No.	Area	Internal Evaluation Status	Verification Status	Comments
98	KP 0-5	Improved	Maintained	One of persons visited for preliminary verification in October 2013. Reason for the initial status of improved living condition appears to rest on two structures post-displacement compared to one structure pre-displacement. Quality of the structures, however, has not improved, thus maintained is a more accurate designation.
146	HGCP	Declined – access to water and services more difficult	Maintained	On balance, living conditions are maintained. Traded near road location for land security and compensation sufficient to improve housing both in terms of quantity and quality.
604	HHR 1D	Declined because of less access to health care	Improved	Less access to health care issue results from closure of the Komo clinic, rather than displacement. Security of tenure and housing/shop both significantly improved as has been able to relocate to own land very near Komo Station.
630	KAAR	Declined because was on road and is now rather far from road	Maintained	All indicators other than access to dwelling/gardens are positive. The land from which displaced was not used by the project. Chose new location because needed to claim this land they had taken from another clan.
663	HHR 1D	Declined because of insecure tenure and less access to health care	Maintained	Purchased land and indicates is secure because would receive compensation from owner if made to move. Distance to health care is because of the closure of Komo clinic.
691	HHR 1D	Declined	Maintained	Son has provided elderly father (Francis) with land/dwelling adjacent to son's guest house. Son is a LANCO CEO.

SAME INTERNAL AND VERIFICATION RESULTS				
73	KP 0-5	Improved	Improved	Able to relocate very near to pre-displacement location, housing from bush material to permanent, large garden area, secure tenure.
77	KP 0 - 5	Maintained	Maintained	
105	HGCP	Improved	Improved conditionally	Significant increase in number of structures and has community water source.
112	HGCP	Declined	Declined	Displaced from plant site and new land very far from services, water, etc. Family or part of family appears to be living on church land nearer services.
128 & 154	HGCP	Maintained	Maintained	
142	HGCP	Maintained	Maintained	
150	HGCP	Improved	Improved	Improvement in quality and standard of housing, able to move very near to pre-displacement secure land and road.
501	HWMA	Maintained	Maintained	
506	HWMA	Maintained	Maintained	
515	HWMA	Declined	Declined	Has 11 wives and many internal family problems, thus was unable to find patrilineal land on which to resettle. Is blind and receiving additional assistance.
518	HWMA	Maintained	Maintained	
529	HWMA	Declined	Declined	Very insecure tenure leading to poor access to water and other resources. Distance to services considerably increased.
532	HWMA	Maintained	Maintained	Consider her a VP - female head of household takes care of elderly parents and her children. Needs some assistance to improve extremely steep approach to house/garden.
534	HHR 1D	Declined	Declined	
602	HHR 1D	Maintained	Maintained in terms of adequacy of compensation	Note that two of the structures he built were burned in a recent tribal fight.
656	HHR 1D	Maintained	Maintained	Tenure not as secure, but housing same, water available from nearby well, and location very near road Komo Station is access improvement.