Undertaking Resettlement Outcome Evaluation

Emergency Response Equipment at LNG Plant - Ready

Mangroves Starting to Grow Back at Pipeline Landfall

REPORT OF THE:

INDEPENDENT ENVIRONMENTAL & SOCIAL CONSULTANT

ENVIRONMENTAL & SOCIAL COMPLIANCE MONITORING

PAPUA NEW GUINEA LNG PROJECT

Site Visit: October 2014

Prepared for

Export-Import Bank of the United States

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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
CV	check valves
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 Trichopera (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
HRA	Health Risk Assessment
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
MLV	Main Line Valves
MOC	Management of Change
MOF	Marine Offloading Facility
MOH	Medicine and Occupational Health
MoU	Memorandum of Understanding
MSDS	Material Safety Data Sheet
MTPA	Million Tons per Annum
MWMA	Mobile Waste Management Areas
NAQIA	National Agriculture Quarantine and Inspection Authority
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
PDS	Project Design Specification
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
PRM	Practical Risk Management
PS	Performance Standard
PVT	Personal Viability Training
Q	Quarter
QMP	Quarantine Management Program
QRF	Quick Response Force
RAP	Rapid Assessment
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
VAM	Vehicle Access Monitor
VLO	Village Liaison Officers
VMP	Vehicle Monitoring Procedure
WAA	Waste Accumulation Area
VAM	Vehicle Access Monitor
WAP	Workplace Assistance Program
WASH	Water, Sanitation and Hygiene
WMA	Wildlife Management Area
WMP	Vehicle Monitoring Procidure
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 thirteenth 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 the Production phase of this development. This visit was conducted from October 20 - 28, 2014 in PNG.

As a development that has fully entered Production, gas is obtained from the Hides Field, processed at the Hides Gas Conditioning Plant (HGCP) and sent to the LNG Plant about twenty kilometers northwest of Port Moresby on the coast of the Gulf of Papua. There, the gas is liquefied and the resulting LNG product (approximately 6.9 million tons per annum) is loaded onto ocean going tankers and shipped to gas markets overseas. At the time of this visit, 33 tankers of LNG had been shipped from the jetty at the LNG Plant. All of the Engineering, Procurement, & Construction) EPC construction contractors are fully demobilized.

Environmental and Social Management System (ESMS)

Production has assumed responsibility for all aspects of operations. All of the EPC Construction Contractors have demobilized and the only major activities that also fell under the umbrella of Construction are the ongoing well drilling and the Permanent Facilities Compound (PFC) construction.

The Environmental and Social Management Plan (ESMP) for Production defines EMPNG's environmental and social commitments, except for the biodiversity management plans associated with EMPNG's biodiversity offset program, which have carried over from Construction and are equally applicable to Production. The ESMP and associated biodiversity management documents define the roadmap to achieve Lender compliance as defined in the International Finance Corporation (IFC) Performance Standards and Equator Principles.

The ESMS is still being rolled out. Although the ESMS and associated Environmental and Social Management Plans have been developed, many of the associated plans and procedures where the on-the-ground details are provided are still being finalized although they are effectively working documents. EMPNG retains responsibility for many of the social plans and the biodiversity programs, but contractors are required to implement many of the requirements of the ESMP. All contractors have basic ESMP awareness, but there are many contractors serving Production and it is a challenge for all of them to have full knowledge of their ESMP responsibilities. EMPNG has undertaken a risk-based analysis to identify the most critical contractors and has also started a three-phase program to train and work with contractors such that KPIs are defined and their individual responsibilities for implementing and reporting on their ESMP commitments are understood. A November 2014 SSHE workshop for top-tier Contractors including Lancos is planned to help assure that the requirements of the ESMP are understood. During the next visit we plan on reviewing the roll-out of the ESMS, in particular to contractors.

An important aspect of the ESMS that is a requirement of PS1 for a Production company is emergency response. Production has assumed full responsibility for emergency response programs, which are now fully in place in terms of contractors and equipment and regular drills are being conducted. The only work to fully develop the ER System is the finalization of some Tactical Response Plans. The most important ones are done and the remaining TRPs relate to relatively minor situations.

Pollution Prevention

Waste management continues to be well managed. The first landfill cell at the Hides Waste Management Area (HWMA) has reached 80 percent capacity, primarily with the last of the construction demobilization waste. Nearly 10,000 tons of this waste were disposed between July and September 2014. Demobilization of C1 camp (500+ rooms) is expected to generate more than 700 cubic meters of waste that will also need to be disposed primarily in the landfill, but there is space available and the second cell is prepared. The hazardous waste incinerator at the HWMA continues to operate and has now been successfully tested for the disposal of waste oil, should it be necessary to consider this option. The incinerator at the Hides plant that will eventually be used to replace the large incinerator at the HWMA has been periodically tested and is ready to be operated as required.

The only remaining Construction-phase WWTPs are those at Moro B, HQ3 (used for drilling – now for Logistics), and the HGCP main and lower camps. The reason that the two old WWTPs at HGCP have not been decommissioned is because there are still too many people for the new Permanent Tri-Star WWTP at Rotator Camp to be made operational. It has been commissioned, but is on standby, waiting for the number of users to decrease to approximately below 500 (the workforce is still about 700); expectations are for it to go online Q1 2015. The first bi-annual discharge water quality tests were completed in July 2014 with full compliance where effluent enters the environment. This does not mean that all of the WWTPs are functioning perfectly. The LNG Plant system continues to be compliant, the small Drilling WWTPs are generally functioning well, but the HDCP plants have had difficulty with fecal coliforms, requiring that the effluent be treated with chlorine prior to environmental discharge. A single contractor (Total Waste Management – TWM) is now responsible for the management of all of the WWTPs, which will hopefully lead to a more uniform management of these facilities and improved results. Another change has been the relocation of the field laboratory in Komo to the HGCP, the move completed in July 2014. The HGCP laboratory has more resources than the Komo lab, so it is also expected that this change will help to improve wastewater management.

Now that Production has assumed responsibility for environmental management, ambient air quality and stack emissions testing are now requirements for monitoring. There has been a steady decrease in flaring since April at both HGCP and LNG Plant. For example, at the LNG Plant approximately 100 MSCFD of gas was being flared in April, whereas by September the flaring had been reduced to a rate of 9 MSCFD. There are no regulatory requirements for the amount of flared gas, but the amounts are well within EMPNG's target of 35 MSCFD. The first round of twice yearly (for first two years) stack emissions testing associated with commissioning had started at the time of the last IESC visit at the HWMA incinerator in June, but the results were not available at that time. The first results (at all of the permanent inside-the-fence incinerators) met the EMP requirements. Testing of the remainder of the turbine exhaust stacks associated with commissioning will be completed in Q4 2014. The first round of routine stack emissions testing will start in February 2015 and is expected to be completed by April 2015. Ambient air test results are reported to be compliant with ESMP requirements.

Erosion and Sediment Control

The combination of heavy rains and weak, volcanic soils in PNG pose challenges for Production to control erosion. At the time of this visit, erosion had exposed the pipeline in two places, but the response was immediate and no harm was done. A comprehensive system of pipeline surveillance is in place, both aerial and on-the-ground, including community-based surveillance that identified the second exposure of the pipeline. Another significant landslip was observed at Well Pad G, also a target of near-term remediation. Where the IESC observes a need for improvement is at the Komo Airfield and to a lesser degree at the HGCP. In these areas problems that were small at the time of the last IESC visit in June have turned into significant earthmoving projects. One recommendation to resolve this situation is to have a maintenance crew to keep small problems from getting out of control and to avoid a full investigation, design, procurement, and construction process. In particular, past problems at Komo have led to ecological and community impact that should not be repeated during Production. Also, the use of used tires with the EcoFlex concept for slope stabilization should be reconsidered. There have been failures to EcoFlex stabilization, but the failures have been due to improper deployment rather that the concept itself.

Ecological Management and Biodiversity

Several Protocols and Registers supporting implementation of the EMP are being developed and are in use as working drafts. The Biodiversity Monitoring Plan will be reviewed again to ensure the stress/target/response relationship to adaptive management will work, and tie into the EMP ecological performance indicators. Following errors detected in previous analyses (PMA-1), remote sensing imagery is being re-processed and re-analyzed for 2009, 2011 and 2013, and the Protocol re-written accordingly – revised reports for all years are expected by our next visit. The Condition Survey (PMA-2) protocol has still not been made available, as it is being restructured; it is not yet clear to us how the surveys will determine the change in condition of focal habitats and ecological sensitivities (and thus how adaptive management will work in practice with the EMP) – until we are able to ascertain this through access to the protocol, we cannot comment on the adequacy of approach. The Initial Post-Construction Biodiversity Assessment desktop studies are well underway, and will be followed up by field verification shortly; early data analysis indicates the as-built project footprint being 2,373 ha, which is 15% less than that estimated in

the EIA. The Protocol for the ongoing Rapid Biodiversity Assessment surveys (PMA-3) looks comprehensive, and the initial studies are likely to occur during Q1 2015.

Regarding offset efficacy (PMA-4) and the demonstration of no net loss, and in response to the IESC concerns stated in our June 2014 report, EMPNG's contractor is developing a White Paper on how these points will be addressed and the Offset Framework and Delivery Plan documents amended. Unfortunately, this White Paper was not available at the time of the October visit, so our concerns expressed previously remain valid (how conservation gains and thus no net loss will be measured and demonstrated for the duration of the project's residual impacts; articulating how conservation gains are in addition to that which would have occurred anyway; developing a timeframe within which various conservation gains will be realized, and no net loss maintained; and that uncertainties and risks of failure inherent in implementing area-based offsets are adequately identified, understood and taken into account). In general, recent progress in implementing the various components of the offset program is being hampered by resource issues of local partners. However, the Lake Kutubu WMA Resource Centre is open, and being used for WMA Committee and community business. In addition, although progress has been slow in developing the conservation modules with the University of PNG, it is anticipated that the first scholarship intake will occur early 2015.

Recommendations focus on: ensuring a Pre-Disturbance Protocol is written to support EMP implementation; seeking advice from a range of technical advisors, and consideration of an independent external Technical Review Panel to guide the offset program.

Freshwater and Marine Biophysical Monitoring

The overall biophysical monitoring undertaken in Caution Bay and in the Omati Delta has been undertaken for the past several years as part of their Environmental Permit with the basic goal of determining "the actual impact of dredging and spoil disposal on the biophysical environment, fisheries resources, indigenous use of the areas and shipping." In Caution Bay, measurements have included: sediment plume modeling; sediment chemistry analysis; water quality and sedimentation; marine ecology; and mangrove monitoring. Except for mangrove monitoring, which will need to be undertaken over several years, the results do not show that there has been significant Project impact. In the Omati Delta, measurements have included: Omati River modeling; dredge monitoring studies; sediment chemistry analysis; sediment benthic communities studies; and pre- and post-dredging river morphology studies. The basic conclusion from all of these studies, except for the ongoing monitoring of mangrove regrowth, is that no further monitoring is warranted. The IESC concurs with that opinion.

Omati River and Caution Bay Fisheries Studies

The overall scope of the fisheries studies undertaken at Caution Bay and the Omati Delta has been to assess if any economic displacement has occurred to communities as a result of Project activities. This effort has included in-village voluntary surveys of fishers, the grievance management process, and community. The voluntary surveys of fishers have focused on an evaluation of any changes to the catch per unit effort (CPUE) and have been undertaken with results reported since Q1 2012. External factors, in particular weather conditions that have caused fishers to change their fishing grounds, appear to be more important than any Project-induced effects and community interviews and the grievance mechanism process have not identified that the fishers consider the Project to have been any impediment to their livelihood. Although EMPNG plans an additional survey before the end of the year, the IESC considers that these surveys no longer need to be continued.

Induced Access

The anticipated formal request from the government for the transfer of the Kikori River Bridge has still not been received. The current status of vehicle access controls are discussed and summarized. A vehicle monitoring procedure has been setup and monitors put in place; this will provide a useful post-construction baseline of road use. This process is intended to assess risks posed by a vehicle/owner in relation to damaging activities enabled by enhanced access via project roads and tracks. Currently those without a permit are not stopped from using the road, and monitoring only occurs during daylight hours. Eventually an authorized permitting system will be in place for all regular legitimate vehicle owners. At MLV-1 the boom-gate is still not in place, due to security concerns and community disagreements. At MLV-2, the project has declined the recommendation to utilize existing security cameras for real-time monitoring of the retained access track to the ecologically sensitive Homa-Benaria Ridge, stating it was not feasible to position the cameras to achieve both security management and access monitoring. The access-related

Level 1 Non-Conformance is closed and replaced by an Observation, reflecting that vehicle access is not yet fully controlled, but in recognition of the Projects recent efforts to better understand road use through monitoring. To date, there have been two instances of locked boom-gates being compromised, with padlocks either damaged or stolen (MLV-2 and Angore).

Recommendations focus on: considering a 'Valid to' date stamp on each permit awarded, to enable future review then re-authorization; follow up investigations in the event of a non-legitimate access violation; and undertaking a review of OSL's access control procedures and practices, to provide an assurance of effectiveness (as several EMPNG access controls rely on OSL manned gates).

Reinstatement and Regeneration

We observed community groups engaged in RoW maintenance, and the results of their work. As described in the Erosion Control section, some areas of the RoW have suffered from slope instability and soil erosion, although teams are in place resolving issues. A completed construction-phase reinstatement register was not available to the IESC to track reinstatement/closure of various RoW sites, quarries, shoo-flies and tracks. Hides Ridge side-casting continues to show re-vegetation progress, but as predicted will take time to fully re-generate. Reinstatement maintenance and vegetation management at Komo, HGCP and the LNG Plant are now the responsibility of Operations. At all three sites, re-vegetation is generally progressing well, apart from localized slope stability issues hampering progress at Komo and HGCP. At the LNG Plant, re-vegetation is progressing so well in some areas that enhanced vegetation management measures are required to reduce levels of fuel load in plant-matter, and thus fire risk (as communities on the boundary fence regularly initiate fires when hunting).

Recommendations focus on: seeking advice from BioTropica on enhancing regrowth in areas at Komo; and establishing a simple but effective monitoring process to be able to demonstrate long-term mangrove restoration progress at the LNG Plant pipeline landfall.

Invasive Species, Pests and Plant Pathogens including Quarantine Management

Ongoing weed management now falls under the responsibility of Operations, with guidance and monitoring by the Environment Team and BioTropica. The second 2014 weed audit by the Project's external specialists, BioTropica, is partially complete, hampered by heavy rains in the lowland areas of the RoW. Anglestem willow primrose currently continues to pose the highest Upstream risk; it has increased in both abundance and distribution in the Moro/Kutubu area. In addition, candlestick senna may pose a threat to the wetland habitats of Lake Kutubu. In response, EMPNG is contracting BioTropica to train a response team in herbicide application; a campaign of weed control is planned for the Moro/Kutubu area shortly. Outbreaks of spiked pepper at two well-pads on the Hides Ridge are proving difficult to eradicate, and increased monitoring and removal is taking place. General training and awareness raising continues, and company policy is being reinforced where environmental staff have noticed examples of personnel bringing P1 weeds onto site for ornamental decoration.

Quarantine performance is gradually improving across all contractor and EMPNG groups. The volumes of consignments are reducing as more contractors are demobilized. Vigilance is still required however, and the pattern of lessons learned in experience to date is clear: the need for effective and consistent fumigation at the point of origin; the importance of using only ISPM-15 treated wooden pallets; and the need for properly completed documentation accompanying the consignment.

Recommendations focus on: the need for regular internal analysis of weed data on a management zone basis; re-emphasis of company policy on P1 weeds at site inductions; all Production-phase contractors to be made fully aware of their quarantine responsibilities (and contracts to reflect these responsibilities and liabilities), regardless of scale of contractual relationship or location/volume of imports.

L&CA Structure and Staffing for Resettlement

L&CA now has a management team that reports directly to the Lead Country Manager. The Compliance team within L&CA continues to be responsible for resettlement outcome evaluation. IESC verifications indicate that data discrepancies and delays in implementation of some resettlement activities resulting from earlier inadequate management have been resolved by new management. This management needs to be maintained throughout the remainder of the resettlement program.

Standard of Living – Internal Evaluation and IESC Verification

The IESC has verified standard of living outcome evaluation results of a sample of 69 households. Overall results of the outcome evaluation and verifications include 32 declined households, 281 maintained households, and 310 improved households. The main causes for decline are less secure tenure and/or access to services/road/water. The number of declined households is fairly low given that households selected their own site, selection was inhibited by limited land availability and intra- and inter-clan conflicts, and services and roads are generally lacking. L&CA will reassess seven of the 32 households by end of 2014 to determine if some easy assistance can raise them to maintained conditions. The standard of living closeout report will be prepared and submitted to the IESC by mid-January.

Livelihood Restoration – Livelihood Program Status

Field Days intended to complete delivery of chickens/ducks, and planting materials were conducted, but verification interviews indicate that adequate training, particularly for animals, was not provided. Given the lack of reporting by the program, it is unclear at this point whether the program achieved its goal. Gaps in this program are likely the result of inadequate communications between ANUE and the Project regarding the livelihood requirements for Project-affected households and lack of consistent monitoring and evaluation *during implementation*. L&CA is working with ANUE to assess the agricultural program and update the status of the food security of participating economically displaced households. Food security results will be considered as a factor in the final livelihood outcome analysis. Any remedial measures need to be implemented by the end of Q1 2015 in order for the livelihood outcome evaluation to be completed. See Appendix B for a report on outcome evaluation and verifications.

Livelihood Restoration – Internal Evaluation and IESC Verification

L&CA conducted a second evaluation of a 25% sample (97 households) of the economically displaced households. The IESC verified seven households, but again found discrepancies in data, insufficient information, and some faulty analysis. Thus, additional training, a thorough review of the data (currently underway), and a third evaluation will be done (December 2014-January 2015) to finalize the livelihood restoration results. The IESC provided hands-on training in survey and assessment methods while in the field and will conduct verification of the third evaluation results in February 2015.

The review has shown a significant decrease in the number of economically displaced households entitled to livelihood restoration (Type 2). The data were assessed on a household-by-household basis to determine the correct category for each household, reducing the number of entitled households from 250 to 54. The majority of households removed from the Type 2 category belong in the Type 3 category encompassing households whose gardens were minimally affected and whose livelihoods were restored by compensation.

Once the third evaluation and IESC verifications have been completed, L&CA will prepare the livelihood outcome closeout report. L&CA will provide status reports to the IESC during preparation and will submit a draft to the IESC by the end of January. L&CA and IESC will review the draft during the IESC Social Expert visit (tentatively set for 10-17 February 2015). See Appendix B for a report on outcome evaluation and verifications.

Compensation

Compensation for crops has been determined to have been greater than full replacement value, thus no top up for crop compensation is needed. The IESC requests confirmation by end November 2014 that compensation paid for lost productive trees was full replacement value.

The complaint made by a few households during IESC verifications regarding compensation payments to non-authorized persons has been investigated and found to be groundless. All payments were made either to the entitled person or to an authorized person.

Resettlement Completion Audit

The Terms of Reference for the audit has been completed. Discussions are underway with the proposed auditor. The next step is for the auditor to review the TOR to assess the amount of time needed for the field work and to recommend any additions or changes. The audit will likely occur during the Q2 2015, depending on completion of all resettlement commitments and the final results of the outcome evaluation and food security assessment.

Community Impacts Management

The Project continues to engage frequently with communities on safety, focusing in upstream areas on pipeline safety and in the plant area on flaring and waterway safety near the jetty. The Project has organized Drilling Well Pad & Work Site Community Committees for Well Pads PWD and G. Field officers and VLOs continue to provide the Project with information on security issues and conditions in their respective areas. Inter-clan clashes continue and isolated incidents affect communities and sometimes the Project.

Construction demobilization is effectively complete. The IESC observes that demobilization went smoothly and without any notable negative impacts on local communities due to careful planning, consultation with communities and workforce, and continuous impact monitoring.

Project Induced In-Migration (PIIM)

The IESC recommends that in-migration monitoring be suspended as it has served its purpose of measuring and responding to any in-migration issues. Results show that no significant in-migration directly related to the Project occurred and that some of the migration that did occur was composed of people who moved temporarily to a project affected area to qualify for compensation and/or royalties.

Procurement and Supply

The Project is developing a long term strategy for the Operations phase national content program with planning led by a National Content Steering Team, and a National Content Manager is being recruited. Services Outline Agreements have been concluded with the Hides Gas Development Company (HGDC) and LABA Holdings Limited. Workforce training focuses on technical and advanced skills. Trainees from earlier programs are being accelerated into operating areas.

The IESC requests that presentations for future IESC visits include data on the number of PNG Nationals (disaggregated by location) directly employed and engaged in training by the Project and by contractors, number and type of contracts awarded to PNG contractors, and number of training and business development support measures for Landowner Companies.

Community Support

The Production CDS program is nearing finalization. The IESC notes that the number of programs is rather large and objectives overly ambitious. The IESC recommends reducing the number and narrowing the range of programs for the first few years to assist in identifying the most potentially beneficial and self-sustaining elements. In terms of outcome evaluation, progress has been made in refining outcome indicators, but the objectively verifiable factors that will be measured, particularly for the Level 3 indicators (project level), need to be defined prior to implementation so that any baseline data for measuring change over time can be collected. The IESC continues to recommend that an outcome evaluation and reporting Procedure be developed and strictly enforced by the Project and its implementation contractors. This will help avoid the issues that arose during the resettlement process.

Stakeholder Engagement and Consultation

The Project continues to engage widely with communities in the upstream and plant areas. The main topics of discussion in the upstream include land, compensation payments, livelihoods, pipeline safety and in the plant area include agricultural improvements, schools, flaring, and first gas. Engagements with the communities near the Project Facilities Compound (Port Moresby) were held to explain extension of the boundary fence. VLOs are playing an important on-going and informal role in community consultation.

Grievance Management

The annualized grievance closure rate for the last 12 months is 85%, though the monthly closure rate in a few months fell below the 75% target, largely because of complex grievances (e.g., compensation) and difficulty of finding some grievants. Project responses include weekly grievance reviews and additional training. The number of grievances overall has declined since Production began as a result of reduced work fronts, community engagement, and VLO work. The number of issues has slightly increased and is likely caused by improvements in issue capturing. Most frequent issues concern employment requests, community health and safety, and royalty and benefit sharing.

Benefit sharing

The Project recognizes that the delays in finalization of the payment process that is caused by lack of Government funding and other distractions is a risk to the Project (illustrated by threats to block access to the plant) and, in the opinion of the IESC, is actively pursuing avenues to expedite the process.

Labor and Workforce Conditions

The Project provided the IESC with useful information on the hiring and contracting processes and workplace conditions of its direct hires and the procurement, contracting, and contractor management processes for its contractors. Requirements and standards are consistent with IFC PS2, National legislation, and ExxonMobil's Standards of Business Conduct. Monitoring requirements are clearly set out in Table 4.1 and Chapters 4 (Monitoring) and 5 (Reporting) of the Labour and Working Conditions Management Plan – Production. For selected contractors, special instructions are included in contracts that cover, among other things, safety, health, and environmental requirements and a Standard Commercial Agreement that require contractors to flow down requirements to their sub-contractors. Some contracts include Exhibits (such as Exhibit V) and Special Requirements that include the obligations for compliance with IFC PS 2 (Labour and Working Conditions) and PNG legislation, as well as National content requirements for service providers. Management of contractor compliance is done through the Operations Integrating Management System (OIMS).

In terms of camp accommodation, the Project has taken over the two main construction camps (HGCP and LNG plant) and is providing support to drilling camps and Moro camp. The main camps are undergoing significant upgrades.

The IESC looks forward to receiving information during future visits that shows evidence of performance against the requirements of IFC PS2 (Labour and Working Conditions), National legislation, and the Project's labor related Management Plans and results and responses to any grievances, issues, and employee suggestions.

Gender in the Workforce

The IESC would like information how female workforce issues will be addressed during Production, including whether female employees will have access to "women's champions/confidants" and health/hygiene/nutrition training (as recommended by the IESC in its October 2013 report).

Community Health

The Production community health program plans to continue the relationship established with the PNG Institute of Medical Research (IMR) and work collaboratively to better understand the disease burden of PNG and also how it can impact inside-the-fence health. Ongoing initiatives include assisting IMR in their efforts to follow up on active TB surveillance in the LNG Plant area and measuring change in prevalence rates in community since initial surveillance conducted in 4Q2013 and helping IMP with reporting for ongoing Studies: Maternal and Child Health; Non-communicable Disease; Healthy Pregnancy; and Sentinel Surveillance (Febrile & Diarrheal).

The Integrated Health and Demographic Survey System (iHDSS) surveillance that was a major effort to evaluate if the Project had impacts to community health has been effectively complete for the Construction phase. This survey involved continuous demographic surveillance of over 54,000 individuals at four locations (Hides and LNG Plant areas and two comparison locations - Karkar Island and Asaro). The main Project impacts have been positive with respect to employment and educational attainment. Health Surveillance data from PNGIMR show TB prevalence in Hiri, Kikori and Kar Kar to be a major problem. Other significant health issues reported are STI's and HPV (Human Papilloma Virus). HPV is the leading cause of cervical cancer and is the leading cause of death in PNG woman. Cervical cancer from HPV is vaccine preventable. Another significant health issue in the community in Hiri is non-communicable diseases relating to weight gain with 38% of the population overweight or obese and 21% with elevated glucose levels indicating pre-diabetic or actual diabetic levels. These NCD markers reported can be considered typical for a semi-urban suburb of Port Moresby where improved incomes and easier access to processed foods becomes apparent. The NCD survey results do indicate more needs to be done to educate the workers and the community about NCD's and healthy eating programs in the Hiri area. The Project's plan is to continue to support iHDSS implementation in the monitoring of community health in Hides, LNG plant communities and two control sites until end of 2017 to allow for the capturing of the post-Construction and early Production periods.

Occupational Health and Safety

The overall statistics associated with both safety and occupational health aspects of the construction phase of the PNG LNG Project continue to be excellent. Production has not had a Lost Time Incident (LTI) with 5,688,065 total man-hours through the first three quarters of 2013 and the first three (3) quarters of 2014. From the standpoint of occupational health, the Project has a well-developed program as indicated by key performance indicators (leading indicators) and management of illness cases (lagging indicators). KPIs for these indicators show that there is room for improvement, but systems and initiatives are in place towards that end. The H&S program being implemented is a "best practice" system.

1 INTRODUCTION

D'Appolonia S.p.A. (D'Appolonia), located in Genoa, Italy, was appointed as the post-financial close Independent Environmental and Social Consultant (IESC)[1] for the Papua New Guinea Liquefied Natural Gas Project (PNG LNG or the "Project") being developed by 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 to evaluate compliance with commitments made by EMPNG within their Environmental and Social Management System (ESMS) including health and safety. The benchmark for the ESMS is now the Production Environmental and Social Management Plan (ESMP) and associated commitments made within the ExxonMobil Operations Integrity Management System (OIMS) and the documents associated with biodiversity management. As Drilling is still part of the Construction phase until the end of the drilling program, it is still governed by the PNG LNG Project Environmental Management Plan (which is bridged to as a reference document by the current 'PNG Drilling Environmental Management Plan') and also is based on the Environment Permit from the PNG Department of Environment and Conservation (DEC) that the Construction EMP's are based on. The Construction of the Permanent Facilities Compound (PFC) also still follows the requirements of the Construction EMP.

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. Emphasis has been placed on evaluating conformance based on written information provided by EMPNG and observations made in the field including discussions with EMPNG 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.

1.1 PRODUCTION OPERATIONS OVERVIEW

Production has achieved stable operations reflected by steady-state flare volumes and the HGCP process gas from six online wells (B1, B2, C1, C2, D1, D2) and excess reservoir capacity has been established.

[1] *IESC Team members in the field: William J. Johnson (Field Team Lead - Earth Scientist/Management System Specialist), Kerry Connor (Social Development Specialist), Louise Johnson (Biodiversity and Natural Resource Management Specialist)). IESC Team members not in the field: Giovanni De Franchi (Project Manager and Team Lead); Mark Pedersen (Aquatic/Marine Specialist).*

Gobe associated gas from OSL is now being supplied. In terms of Project Completion as part of the Loan Agreement, the 120-day Completion Test has already started and is expected to be complete on or about January 14, 2015. Activities have also included planned Level 1 inspections of GE compressors and inline inspection (pigging) activities have started. Production Operations expects to deliver reliable volumes to meet LNG cargo commitments with continued enhancement of LNGP compressor/turbine controls. Free-On-Board cargos to reduce interim ships are expected to start in the near future.

At the time of the IEC field visit, a total of 33 LNG cargos had been shipped from the LNG Plant jetty. The two ExxonMobil LNG tankers constructed specifically for use on this Project are near completion. The first vessel (Papua) is expected to be delivered in January 2015; the second vessel (Kumul) is expected to be to be delivered in April 2016.

Drilling conducted a simultaneous rig move, with Rig 703 moving from Hides Well Pad G to Hides Well Pad F (the Deep Well not considered part of the PNG LNG Project) and Rig 702 moving from Hides Well Pad PWD to Angore Well Pad B. The PWD (Production Water Disposal) well has been drilled, but is currently not being used as the existing wells have not yet started to produce water that would need to be injected. The PWD Well has not yet been perforated, but this was started at the time of this IESC field visit. The two wells at Well Pad G still need to be perforated and brought online to the HGCP, an activity planned to take place before the end of the year.

Moro Camp B is still expected to be transferred to OSL at some point and the Komo Airfield Camp is still being used by Production, although at some point the Komo airfield is expected to be transferred to the PNG Government. The old C1 Camp at Hides is planned for demolition, but the EPC3 camps are being maintained pending whether or not there could be future expansion at the LNG Plant.

Construction continues at the 28 Ha Permanent Facilities Compound near the Port Moresby Airport with Head Office Building interior works (overhead services) and facade installation (curtain wall) underway. Projected occupation for this facility is Q2 2015, somewhat delayed from previous estimates.

After a peak workforce of 21,220 by the end of 2012, demobilization of EPC Contractors is complete and by the end of June the total Project workforce was just over 2,250 compared to almost 7,800 in the previous quarter. Papua New Guineans made up 58 percent of the Project workforce at the end of Construction, compared to 44 percent recorded in the first quarter.

1.2 SOURCES OF INFORMATION

The main sources of information used to prepare this thirteenth 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 EMPNG employees. 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 – Biodiversity and Ecological Management;
- Section 6.0 – Social;
- Section 7.0 – Labor and Human Resources; and
- Section 8.0 – Health and Safety.

The Cultural Heritage discussion presented in previous reports has not been included, as Production Operations have not had any chance finds, nor has there been any news to report. 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. Significant 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°	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
Environmental Management – Erosion and Sediment Control							
[2]M13.1	Oct' 14		Erosion and sediment control along the pipeline ROW and Well Pads appears to well undertaken. Erosion and sediment control at the Komo Airfield and to a lesser degree at the HGCP have not been as well managed.	IESC Observation	EMP Section 13.0	Open	In Komo and at the HGCP problems that were small at the time of the last IESC visit in June have turned into significant earthmoving projects. One recommendation to resolve this situation is to have a maintenance crew to keep small problems from getting out of control and to avoid a full investigation, design, procurement, and construction process. In particular, past problems at Komo have led to ecological and community impact that should not be repeated during Production.
Environmental Issues – Biodiversity and Ecological Management							
M12.1	June '14		EMPNG's commitment is to control access to project roads and infrastructure, so as to prevent potentially damaging 3rd party activities through enhanced access. EMPNG access controls for Above Ground Installations and project roads/infrastructure are discussed as part of each IESC visit. Several instances of insufficient access control have come to light, where current practice in not in compliance with that stated within the Upstream EMP.	IESC Observation	Upstream EMP Section 17 and IFC Performance Standard 6	Open	EMPNG has made progress in moving towards a situation where access to project roads/tracks/infrastructure is controlled: • The company has developed a vehicle monitoring procedure, and monitors are in place at Kopi, Gobe, Kikori River Bridge and Benaria village. Vehicle access monitors are recording vehicles using the road. Vehicles without permits are not turned away, but are told they need to apply for a permit and informed of the process. • At Gobe, the old Chevron/OSL gate is now reinstated and manned with a monitor, as above. • At MLV-1, the boom-gate is not yet in place. Community is using the temporary construction bridge and RoW to access the track to Benaria Station. Vehicle access monitor is based at Benaria village, not at the bridge. The IESC believe the vehicle monitoring exercise will gather useful information relevant to establishing a post-construction vehicle-use 'baseline'. However, the permit system will take several months to be fully established, to the point where the majority of regular, legitimate vehicles have been assessed for risk, and have a permit in place. Until the access permit procedure is fully operational at all manned gates, and all unmanned gates are locked, then access to

[2] *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. M13.1 refers to issue 1 found in visit 13).*

N°	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
							project infrastructure is not yet fully controlled. In recognition of the recent work achieved by EMPNG to understand road usage and have dialogue with those requiring legitimate access, the Level 1 non-conformance is downgraded, but retained as an Observation until that time that access at all locations is fully controlled.

3 ENVIRONMENTAL AND SOCIAL MANAGEMENT

3.1 ENVIRONMENTAL AND SOCIAL MANAGEMENT SYSTEM

The cornerstone to the Environmental and Social Management System (ESMS) for the PNG LNG Project is the Environmental and Social Management Plan (ESMP) for Production (see Figure 3.1), which defines EMPNG's environmental and social commitments, except for the biodiversity management plans associated with EMPNG's biodiversity offset program that have carried over from Construction and are equally applicable to Production.

Documents applied during the Construction phase of the Project discussed in previous IESC reports including the Construction ESMP, the Lender Environmental and Social Requirements (LESR) document and the Environmental and Social Milestones (Milestones Schedule) have limited reference. The Milestones Schedule was prepared as Appendix H3 to the Common Terms Agreement (CTA) and is applicable until D'Appolonia signs the Completion Certificate, now scheduled for Q1 2015, but the commitments have been fulfilled and this document no longer refers to the Milestones Schedule. The remaining requirement associated with the LESR is the Resettlement Completion Audit, which is also a requirement of Performance Standard (PS) 5, but unrelated to the construction Completion Certificates (see Section 6.7.2.2).

Figure 3.1: Production Environmental and Social Management System Structure

The two EMPs associated with the Production ESMP are associated with implementation documents (Protocols, Registers and Templates) that give the detailed requirements of what needs to be done on the ground to fulfill the commitments defined in the EMPs. Rollout of these completed tools commenced early March 2014 and the high priority Protocols, Registers, Templates are being field-tested. Approximately 30% of these documents have received final approval by SHE management and endorsed by Operations Management. The target for compete endorsement was expected to be late Q4 2014 at the time of the June 2014 IESC field visit, but this schedule is slipping and the anticipated schedule is not expected for Q1 2015. Fully endorsed implementation documents will be provided to IESC for information.

EMPNG retains responsibility for many of the social plans and the biodiversity programs, but contractors are required to implement much of the requirements of the ESMP. All contractors have basic ESMP awareness, but there are many contractors serving Production and it is a challenge for all of them to have full knowledge of their ESMP responsibilities. EMPNG has undertaken a risk-based analysis to identify the most critical contractors and has also started a three-phase program to train and work with contractors such that KPIs are defined and their individual responsibilities for implementing and reporting on their

ESMP commitments are understood. A November 2014 SSHE workshop for top-tier Contractors including Lancos is planned to help assure that the requirements of the ESMP are understood. During the next visit, IESC plans on reviewing the roll-out of the ESMS, in particular to contractors.

The Production team for implementing the ESMS is fully in place and Construction management has demobilized. As noted in the IESC report for the June 2014 field visit, the transition to Production from the standpoint of organization and staffing has gone well. A key factor to this transition has been the retention of key staff from the Construction Phase into Production. Production has successfully recruited a significant number of key Construction staff to work with the Production team and this has enabled what the IESC perceives to be an exceptionally smooth transition to Production.

In August 2014 IESC participated in a Lessons Learned workshop in Houston, Texas to review the positive aspects of the Construction phase and areas where improvements could have been made. There was generally good consensus between ExxonMobil's internal findings and the observations made by the IESC. As is typical with most major development projects the lessons learned focused on planning and having the right people in place with knowledge of the requirements of major development.

3.2 MANAGEMENT OF CHANGE

No new MOCs requiring Lender notification have been enacted since the last IESC field visit in June. The issue of the Kikori Bridge has not progressed since the last visit and there is no new news to report. The 9th production well (Hides F1) is currently being drilled for which the MOC was approved in February 2014. Another previously reported MOC relates to the maintenance of the Benaria Bridge. This bridge was supposed to be removed by SpieCapag after completion of pipeline construction, but the PNG Government plans to construct a permanent bridge near the location of the temporary bridge and has requested that the temporary bridge be maintained until the permanent one can be constructed (estimated to be constructed Q3 2014). The Government bridge has not been constructed and the situation is basically the same as previously reported.

The process of enacting an MOC within the context of the ExxonMobil OIMS system was reviewed in detail during this visit. The OIMS procedures for starting an MOC have been computerized and the procedures and criteria for an MOC requiring Lender notification and/or approval; are clearly defined within the new software.

3.3 INCIDENTS

Since the last IESC field visit there have been no significant security incidents directly associated with the Project. There was a security incident involving two ex-pats who were injured at the Para Camp (Lanco facility) near the HGCP, but both have returned to duty. The January 14, 2014 murder of a guard in a local market adjacent to MLV-1 has not been resolved, as the perpetrator still has not been apprehended.

Several brush fires have taken place at the LNG Plant since the last IESC field visit, including a large one around the flare pit. The fires were managed within the existing emergency response system with no issues to report. Several solutions are being sought to prevent community fires from spreading to the plant, including proactive burning and the use of herbicides. A plan is expected to be prepared before Q1 2015 in consultation with the Project's weed consultant, Biotropica.

3.4 EMERGENCY RESPONSE

Now that the PNG LNG Project has entered Production, emergency scenarios need to reflect that gas and condensate have the potential for explosion and that the potential for serious emergencies is much greater than during construction. This has been well-recognized by EMPNG.

Based on a risk assessment, EMPNG recognizes seven key risk scenarios: a process event (major hydrocarbon leak and fire/explosion); a building fire; a spill (land and sea with the most significant hazard being a marine release); a remote incident (vehicle collisions/medical emergency); aviation (fixed or rotary wing crash); a wild fire (with the most significant scenario being a grass fire); and work execution (accident associated with confined space, work at heights and hot work). Based on these scenarios EMPNG has developed response strategies that rely on key barriers: Emergency Management Plans; response equipment; response teams; and training/drills.

Production has assumed full responsibility for emergency response programs, which are now fully in place in terms of contractors and equipment and regular drills are being conducted. The only work to fully

develop the Emergency Response System is the finalization of some Tactical Response Plans. The most important ones are done and the remaining TRPs relate to relatively minor situations. An emergency response center has been established and an Emergency Response Advisor is in place in POM. Emergency response teams are in place at the HGCP and the LNG plant site. The headquarters for the Emergency Response team at the LNG Plant was visited by the IESC during this field visit and the team was found to be fully-equipped and staffed with no special issues to report. The only issue with respect to being fully prepared for emergency response was that EMPNG had not received approval by the PNG DEC to use dispersants in the case of a marine spill, but this permission was obtained at the time of our field visit. Furthermore, a Marine Incident Protocol has been established and tested through drills to be aligned with Government expectations.

3.5 COMPLETION CERTIFICATE

Given that the Project has now met all the requirements of the Milestone Schedule, and has advanced from the Construction ESMP to the Production ESMP, we continue to see 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 POLLUTION PREVENTION

4.1 WASTE AND WASTEWATER MANAGEMENT

4.1.1 Project Strategy

EMPNG's objectives are to apply the waste management hierarchy (wastes will be preferentially reused, recycled or recovered) and to manage and dispose of waste at EMPNG facilities and licensed third party facilities only. EMPNG's objectives are also to avoid significant impacts associated with the release of pollutants to surface water and groundwater and meet applicable discharge criteria. These applicable discharge requirements are those tabulated in Chapter 9 of the Upstream and LNG Plant EMPs.

4.1.2 Observations

Waste Management

Waste management has been fully transferred to Production. The most significant observation is that waste generated as part of the demobilization of the remaining EPC Contractors has been managed. The large spike of landfilled waste in the Upstream Area (nearly 10,000 tons), as shown on Figure 4.1: Project Waste Profile

represents demolition debris. At the time of the IESC field visit, the landfill at the Hides Waste Management Area (HWMA) at Kopeanda was observed to be well-groomed, indicative that this large amount of waste had been effectively managed. It will still be necessary to dispose of the demolition debris from the demobilization of C1 camp (500+ rooms), which is expected to generate more than 700 cubic meters of wastes. Long-term disposal requirements will also be associated with the demobilization of Drilling, as well as the waste generated from routine Production activities, but Cell 2 still represents a solution for long-term disposal.

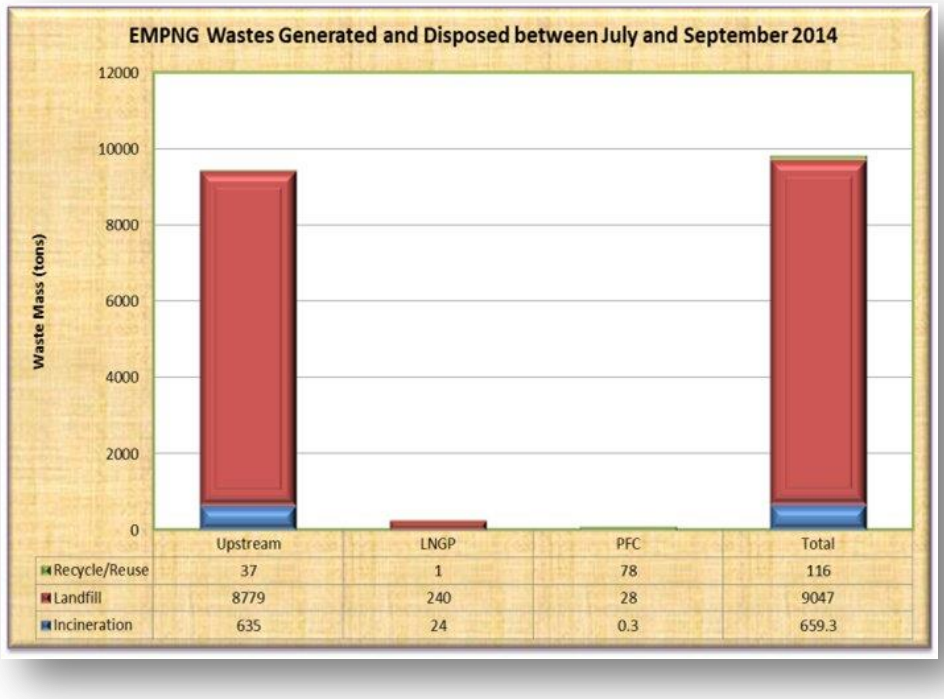

Figure 4.1: Project Waste Profile

One aspect of waste management under Production versus how waste was previously managed is waste management is now under the control of only two qualified contractors:

- Total Waste Management Ltd – Responsible for Upstream, PFC and LNGP and Marine Facilities; and
- Ecocare Engineering Ltd – Responsible for LNGP Landfill operation.

It is expected that having only two prime contractors will help to consolidate and improve the efficiency of waste management.

Highlights of EMPNG's waste management program from the IESC field visit in October 2014 include the following:

- cell 1 at the HWMA at Kopeanda is about 80% filled; Cell 2 is ready for use;
- the hazardous waste incinerator at the HWMA continues to operate and has now been successfully tested for the disposal of waste oil, should it be necessary to consider this option. The incinerator at the Hides plant that will eventually be used to replace the large incinerator at the HWMA has been periodically tested and is ready to be operated as required;
- as part of the demobilization process, new and used chemicals returned to suppliers in Lae;
- recycling programs continue to function with waste oil sent to third-parties (200,000 liters in Q3); more than 100 moxy tires at Kopeanda WMA have been sent to Port Moresby to be reused as fenders at wharf;
- drilling continues to show exceptionally effective waste management: 7,386 tons of clean cuttings have been generated at the Thermal Cuttings Cleaner (TCC) through Q3 2014 and sent to the Kopeanda landfill for use as cover material, allowing for 8,176 barrels of oil to be sent to the Liquid Mud Plant (LMP) for recycling; and
- LNG Plant: of the two incinerators that were used for construction one was decommissioned, but has been resurrected for use while the other (rotary kiln unit) is undergoing repairs; the landfill is operational – Cell C is still empty.

Wastewater Management

There are still some WWTPs that are remnants from Construction: Moro B, HQ3 (used for drilling – now for Logistics), and HGCP main and lower camps. The last rounds of wastewater testing associated with the plants operated by the EPC Contractors showed generally good compliance, in particular EPC3 at the LNG plant with 100% compliance. Drilling has also achieved generally good compliance. The only significant problems are associated with the old Construction-phase WWTPs still used at the HGCP. The main problem is fecal coliforms, but results are still not good at HGCP for fecal coliform, but chlorine is added to the discharge chamber of the STP for disinfecting treated effluent before discharge into the retaining pond and there are no off-spec environmental discharges from these plants. The first bi-annual discharge water quality tests were done in July 2014 with full compliance where effluent enters environment.

Permanent Tri-Star WWTP at Rotator Camp at HGCP commissioned, but on standby, as it does not have the capacity for the current number of people (about 700) who would contribute to this plant. Once the workforce is reduced to below about 500, it is expected that the plant can go online – forecasted for Q1 2015.

Total Waste Management (TWM) assumed responsibility for the management of all WWTP operations and operational requirements on June 1, 2014. TWM undertakes process control sampling on a weekly basis at all WWTPS and is supported by a field laboratory at HGCP (relocated from Komo) that has improved testing capabilities from what was available during Construction.

4.2 HAZARDOUS MATERIALS MANAGEMENT AND SPILL PREVENTION

4.2.1 Project Strategy

EMPNG's objectives are to prevent spills of hydrocarbons and chemicals and to respond effectively to spills should they occur. EMPNG also has standards for materials management where objectives are to avoid significant impacts associated with the procurement and use of raw materials and to use materials that are less hazardous or otherwise preferable from an environmental perspective, where practical.

4.2.2 Observations

Spill management continues to be effective. Since the last IESC visit, there were no reportable spills. Spill records continue to be properly maintained 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. An internal non-conformance was assigned for the lack of posted MSDS sheets for chemicals transitioning from Construction to Production, but this issue has been resolved.

The biggest focus for Production is spill response associated with major spill events, including incidents that could take place with vessels in Caution Bay. This subject is reviewed in Section 3.4 – Emergency Response.

4.3 AIR QUALITY

4.3.1 Project Strategy

EMPNG's objectives are to avoid significant impacts associated with the release of pollutants to air and meet applicable emissions and air quality criteria.

4.3.2 Observations

Flaring is a primary source of emissions at both the HGCP and LNG plants. Since April 2014, the large flares associated with startup have been reduced significantly, as Production has entered a steady-state mode. For example, at the LNG Plant approximately 100 MSCFD of gas was being flared in April, whereas by September the flaring had been reduced to a rate of 9 MSCFD. There are no regulatory requirements for the amount of flared gas, but the amounts are well within EMPNG's target of 35 MSCFD.

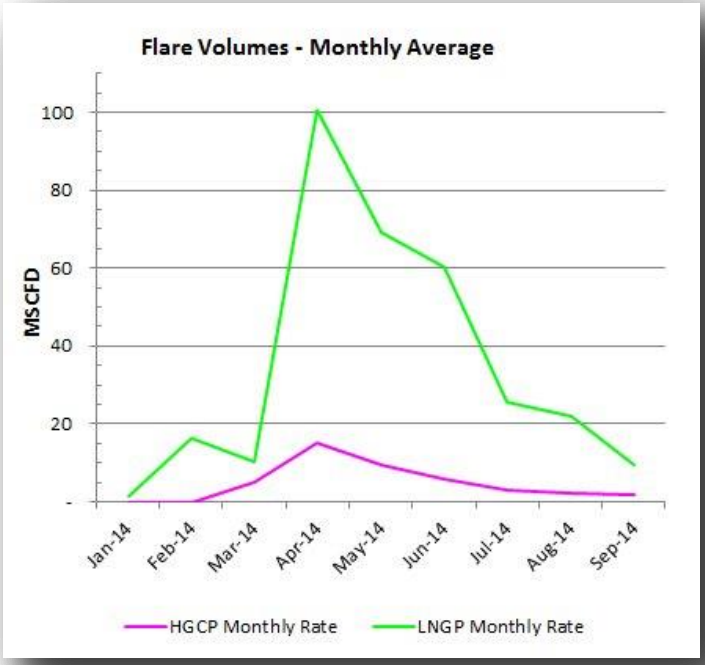

Figure 4.2: Flare Emissions since Startup

At the HGCP, major emissions sources include: compressor gas turbine exhausts; main power generator exhausts; the MEG (monoethylene glycol) Vent Gas incinerator; diesel generators; as well as the two waste incinerators, one at the HWMF and the other at the HGCP. At the LNG plant the main sources of air emissions include: compressor gas turbine exhausts; main power generator exhausts; regeneration gas furnace exhausts; and hot oil system furnace exhausts; as well as the waste incinerator. The first round of twice yearly (for first two years) stack emissions testing associated with commissioning had started at the time of the last IESC visit at the HWMA incinerator in June, but the results were not available at that time. The first results (at all of the permanent inside-the-fence incinerators) met the EMP requirements. Testing of the remainder of the turbine exhaust stacks associated with commissioning will be completed in Q4 2014. The first round of routine stack emissions testing will start in February 2015 and is expected to be completed by April 2015. Ambient air test results are reported to be compliant with ESMP requirements.

Dust is becoming less of an issue due to revegetation efforts at all former construction sites and road watering was observed to still be taking place at Hides. Greenhouse gas emissions are reported in the EMPNG Environmental and Social reports to the Lenders and the results are not repeated here.

4.4 EROSION AND SEDIMENT CONTROL

4.4.1 Project Strategy

EMPNG's objectives are to control significant erosion and prevent sedimentation of surface waters.

4.4.2 Observations

The combination of heavy rains and weak, volcanic soils in PNG pose challenges for Production to be able to adequately control erosion. At the time of this visit, erosion had exposed the pipeline in two places, but the response was immediate and no harm was done. A comprehensive system of pipeline surveillance is in place, both aerial and on-the-ground, including community-based surveillance that identified the second exposure of the pipeline. Another significant landslip was observed at Well Pad G, also a target of near-term remediation. The sidecasting along Hides Ridge was associated with significant flow of clayey soils during the construction phase, but where observed in the field the flows have stabilized and the landslip at Well Pad G is the exception, rather than the rule.

Where the IESC observes a need for improvement is at the Komo Airfield and to a lesser degree at the HGCP. In these areas problems that were small at the time of the last IESC visit in June have turned into significant earthmoving projects. In particular, past problems at Komo have led to probable ecological and community impact that should not be repeated during Production.

Several places were observed where erosion has undercut the EcoFlex stabilization that was based on the use of used tires. Nevertheless, it is clear that the failures were due to improper deployment rather that the concept itself. EcoFlex should have results similar to the use of gabions, but are easier to deploy and offer the possibility of recycling a problematic waste.

4.4.3 Recommendations

None arising from this review.

5 BIODIVERSITY AND ECOLOGICAL MANAGEMENT

5.1 INTRODUCTION

This section provides a record of IESC Observations and Recommendations associated with EMPNG's ecological management (terrestrial, marine and freshwater) including: the ecological monitoring of areas potentially impacted by the project to ensure the Biodiversity Strategy is being adequately implemented; the planning and implementation of the biodiversity offset program (to address those residual impacts remaining after impact avoidance and mitigation); the reinstatement and re-vegetation of areas cleared by the Project, including the Right-of-Way (RoW), camps, quarries, etc.; the management of issues related to invasive species, pests and plant pathogens (including importation quarantine management); and the avoidance of project-related induced access through the construction/retention of roads and the RoW corridor.

The whole Upstream Project area is deemed to be Critical Habitat, in accordance with IFC Performance Standard 6 (2006)[3]. EMPNG's overall strategy for biodiversity and ecological management is described in the Biodiversity Strategy and both Production-phase EMP's and associated documents.

Records from the EIA baseline studies and the Pre-Construction Surveys (see previous IESC reports for background) serve to establish the ecological conditions prior to any ground clearance or infrastructure development. These records include information on the presence of weeds, and the locations of ecological sensitivities such as (but not restricted to): pinnacles that contain bat colonies; potential Bulmer's fruit bat (*Aproteles bulmerae*) 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 *Phytophthora cinnamomi*). These detailed records are being compiled into Registers (i.e. Focal Habitats Register and Weed Register) , and information on existing and ongoing ecological condition will be collected through continuing monitoring studies.

5.2 ECOLOGY AND BIODIVERSITY STRATEGY

One of EMPNG's objectives is to avoid impacts to specific features of ecological importance. The Biodiversity Strategy (currently Rev.3) was developed to inform and guide the long-term mitigation of biodiversity within the Upstream area. The Strategy provides an overview of EMPNG's overall approach to mitigating impacts on biodiversity in alignment with the mitigation hierarchy. The goal of the Strategy is to retain the biodiversity values of the Upstream Project Area on a regional scale for the long term. In order to achieve this goal, the following objectives have been defined:

- to maintain the ecological intactness of the Upstream Project Area as a whole;
- to conserve the priority ecosystems;
- to protect focal habitats; and
- to account for residual impacts.

In order to achieve these objectives, avoidance, mitigation and monitoring of biodiversity values will take place at three levels:

(i) The large scale, which is the entire Upstream Project Area;

(ii) The medium scale, which is represented by particularly valuable areas referred to as 'priority ecosystems'; and

(iii) The small local-scale which are sensitive habitats referred to as 'focal habitats'.

The Biodiversity Monitoring Program (BMP) comprises four Programmed Monitoring Activities (PMAs) to ensure effective implementation of the Strategy. The PMA's 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;

3 *IFC Performance Standard 6: Biodiversity Conservation and Sustainable Natural Resource Management (2006)*

- PMA-2 Condition Surveys, designed to monitor focal habitats, reinstatement and erosion control works, control of access and community encroachment, and the potential spread of invasive species and disease along the ROW and at facility/infrastructure sites (through aerial and ground-access);
- 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, both in/around areas affected by the project and in protected areas enhanced and/or established through the offset program; and
- PMA-4 Efficacy of Offset Projects, to be tailored to monitor the outcomes of each biodiversity offset project.

To address residual impacts on critical habitat, and in accordance with the Biodiversity Strategy, EMPNG has developed an Offset Delivery Framework and Plan, providing detail on offset design and implementation.

5.2.1 Observations

5.2.1.1 Implementation and Monitoring of the Biodiversity Strategy

The list of biodiversity-related supporting materials being developed to support implementation of the two EMP's continues to evolve. The majority of these are currently in use as working drafts, and some are being field tested. We had the opportunity to read some of the draft Protocols whilst in country. Comparing the list (of ecologically-relevant documents to be developed) provided during this trip with the list provided in June (and EMP), the current status is:

- a Pre-Disturbance Survey Protocol (detailed in our last report) is not currently listed as being developed. We had previously recommended that this should include the important elements of disturbance mitigation measures implemented via the various Construction phase management plans;
- a Register of Focal Habitats and Ecological Sensitivities is being developed and is in use as a working draft;
- a Noise Monitoring Procedure is being developed and is in use as a working draft;
- an Induced Access Protocol is being developed and is in use as a working draft; A Register of Roads, Infrastructure and Access Controls is currently being developed and is in use as a working draft;
- a Regeneration Monitoring Procedure is being developed and is ready for field-testing;
- an Invasive Species Monitoring Protocol is being developed, and is in use as a working draft. A Quarantine Procedure is being developed. A Weed Identification Manual has already been developed; and
- a Freshwater Monitoring Procedure is complete, and ready for field testing.

Although reported in our June report that the Biodiversity Strategy Rev.3 was completed, EMPNG informs us they are undertaking further internal revision. They advise that a completed Rev.3 document is imminent and will be posted to the Project website shortly after completion.

Following revision to the Biodiversity Monitoring Plan (BMP) resulting from previous IESC comments (and some version control), we now have a near-final version for review; the IESC will complete this post-visit. Outstanding issues we will look to have resolved is how triggers within the stress/target/response model will work in an adaptive management approach; and clarity on how this ties into the EMP ecological performance indicators. Once resolved, the IESC hopes that the BMP can then be considered final.

Implementation of the Programmed Monitoring Activities (PMA) to operationalize the BMP continues:

- PMA-1 Remote sensing: following the review by ExxonMobil's internal remote sensing expert, much progress has been made on the re-analysis of the 2009 (baseline), 2011 & 2013 satellite imagery by EMPNG's external contractors, Coffey International, and the EMPNG Biodiversity team. The land cover and disturbance classifications are now complete. The imagery for each of the three years is being re-processed, re-classified and re-analyzed accordingly. The overall approach to the analysis of satellite imagery has been further refined, and now RapidEye imagery will be used for localized direct disturbance around the Project footprint (minimum of five km out

from the boundary of Project infrastructure), whereas Landsat imagery will be used to identify and assess broad-scale indirect impacts across the whole of the Upstream area. The Protocol is being updated accordingly. The 2009 baseline, 2011 and 2013 analysis reports are expected to be finalized by the time of our next visit;

- PMA-2 Condition surveys: EMPNG anticipates that Condition Surveys will commence during 4Q 2014. However, the Protocol on how Condition Surveys will be implemented remains in draft form; IESC has not been able to access a copy. We have outstanding concerns on how the surveys will determine the change in condition of focal habitats and ecological sensitivities (and thus how adaptive management will work in practice with the EMP). As reported previously, there is only high-level detail in the BMP on this, so we are currently unable to vouch for the adequacy of the approach, but we look forward to resolving this when the opportunity arises to see the Protocol. If condition surveys are to be conducted before the end of the year, we would expect the Protocol to be in a usable state prior to commencement;
- PMA-3 Biodiversity surveys: the IESC was provided with a copy of the draft Protocol to read whilst in country; the surveys will be based on the Rapid Assessment (RAP) approach, written by one of the world's specialists in planning and undertaking RAP surveys. The Protocol appears comprehensive and EMPNG has asked that we forward any suggested additions post-visit. It is anticipated the first survey will be undertaken during 1Q 2015, and every two years thereafter;
- PMA-4 Offset efficacy: EMPNG is preparing a White Paper on how biodiversity offset efficacy will work in practice with regard to both outputs and outcomes, and how no net loss will be achieved and demonstrated. This paper was not available at the time of our visit; see further detail in Section 5.2.1.2 below.

The Initial Post-Construction Biodiversity Assessment (IPCBA) is underway, to identify the type and total area of forest lost or degraded, and identify the focal habitats/sensitive features that were either lost/degraded or successfully mitigated during construction. It will also identify the focal habitats/sensitive features that will be included for inspection as part of the PMA-2 Conditions Surveys for ongoing monitoring. Desktop studies commenced in May 2014, and so far have:

- measured and evaluated the Project as-built footprint (estimated at 2,373 ha, which is 15% less than that estimated in the EIA);
- mapped the types of forest lost; and
- mapped the focal habitats/sensitive features recorded during the PCS and subsequent fieldwork records, and those determined to have been lost or degraded as a result of construction activity identified and mapped.

We consider the smaller as-built footprint being less than that anticipated at the time of the EIA is partly due to the drive during pipeline construction to keep construction RoW widths to a minimum, and should be commended. We look forward to learning of the other IPCBA outputs and results following the forthcoming field verification studies, to be reported on during our next visit.

5.2.1.2 Biodiversity offsets to address residual impacts

Framework and Delivery Plan

In our June 2014 report, the IESC highlighted several technical concerns related to EMPNG's approach to biodiversity offsets, as detailed in their Biodiversity Offset Framework and Delivery Plan documents. EMPNG is currently developing a White Paper on how these points will be addressed and the Plan documents amended. The White Paper is being prepared by EMPNG's external advisor, but was not available at the time of our visit. Therefore the concerns expressed in our last report remain valid, i.e., it is our opinion that there are risks to the effectiveness, transparency and sustainability of EMPNG's offset program if they are not able to adequately demonstrate:

- how conservation gain derived through offset will be tracked and monitored, through measuring both outputs and outcomes, so that achieving the goal of no net loss of biodiversity can be determined and maintained for the duration of the project's residual impacts;
- that conservation gains are additional to the gains that would have occurred were the offset projects not implemented, i.e., gains compared to the situation without offset;

- when various conservation gains may be achieved, and a timeframe over which no net loss can be achieved and sustained, i.e., the duration of the project's residual impacts. This will obviously need to be adapted over time, as knowledge is gained and offset implementation progressed; and
- that uncertainties and risks of failure inherent in implementing area-based offsets are adequately identified, understood and taken into account when designing and implementing the offset. For example, the risks of community representatives losing buy-in to supporting a protected area, the uncertainty of how area-protection objectives can be achieved and maintained, how future land-use change decisions may affect the success of the offset achieving its intended goal, risks from losing wider stakeholder trust through inadequate transparency, etc. During discussion on this trip, EMPNG stated they had compared the Project's approach against each of the Indicators within the Business and Biodiversity Offset Program (BBOP) Standard, and that helped to identify risks to be managed. We agree that this is a useful process, but this approach to identifying risks and uncertainties does not fully appreciate the situations that EMPNG's offset program should prepare for.

On the other hand, the IESC believes that other essential high-level principles related, for example, to the wider landscape context (protected area planning for the Kikori catchment), and broad intention to achieve like-for-like biodiversity exchanges (through using elevation as a surrogate for representativeness, seeking offsets in three broad elevational zones) *are* reflected in the current approach and offset component design.

We therefore anticipate continued dialogue on those areas where the current approach could be improved, when EMPNG's White Paper is completed and made available.

The Offset Delivery Plan and Framework documents have not been made public, but a detailed Summary is being developed which will be made public at some stage. Although EMPNG has stated they do not intend to publish detail on the actual loss/gain calculation numbers, the IESC has stressed the importance in publishing information on the loss/gain methodology and metrics chosen, the rationale for this choice, and any assumptions made in the calculation of loss/gain. This will aid transparency and enable more informed dialogue with external stakeholders.

Ongoing design and implementation

Implementation of elements of the Project's offset program has continued (see previous IESC reports for background). Several factors outside the control of EMPNG are having an impact on the completion of planning and implementation of several of the components. The lack of sufficient conservation capacity within PNG will likely have an effect on the success of short-term aspects of the offset program. We predict the capacity development aspects that will be developed through the EMPNG offset program will successfully contribute to the cadre of people able to work on conservation issues within PNG, but it will take time to develop an adequately trained, qualified and experienced resource base from which offset program partners can pull in suitable staff. In the interim, EMPNG is currently sourcing additional internal resources in an attempt to ensure that Project staff is able to provide support where necessary and appropriate.

A summary of the status of the components of the Offset Delivery Plan is as follows:

- 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:
  - detailed work-plans and budgets for each of the three NGO's are still being developed. The Memorandum of Understanding and tri-partite agreement between the NGO's is not yet finalized. Resourcing issues have contributed to the delay, but the MOU sign-off and award of funding is anticipated in the near future. EMPNG remains cognizant that overseeing multiple-NGO arrangements requires careful management and planning;
- 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:
  - further contractual delays have held up finalizing the scope of work with the Institute of Biological Resources (IBR);the award of funding is now targeted for Q4 2014. The Conservation Forum event and first Quarterly Newsletter are now planned for 2015;

- 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:
    - two workshops have been held recently to progress the writing of course modules. All modules are on track to be complete and packaged by the end of Q4 2014. There have been significant delays in reaching this point, but this is primarily due to the nature of the collaboration with University, and the thoroughness of their internal processes for both lecturer recruitment and course inclusion into the Faculty. Once the modules are complete and scholarship candidates selected, it is anticipated that first intake is scheduled for early 2015,
    - a recent associated highlight is that the United Nations Development Program (UNDP) has agreed to support the Strengthening Conservation Capacity Program (the broad educational initiative established in 2003 which EMPNG has adopted as part of this component) is providing funding for the training of community rangers. This will complement the modular course EMPNG is currently working to develop with UPNG;
- Component 4: Support to existing protected areas. Support to the Lake Kutubu WMA (Wildlife Management Area) is the primary focus for achieving this component, representing the mid-elevational zone. The Project's Lake Kutubu WMA Enhancement Plan (WMA-EP) contains three work streams: conservation design and WMA Management Plan; enhance organizational capacity; and local and provincial government land use planning.
    - the opening ceremony for the Lake Kutubu WMA Resource Centre was held on 6th Sept 2014, and the building has been handed over to the community to be used for WMA Committee meetings and dialogue. Agreement on the way forward with the WMA Committee has been reached. EMPNG advises that the Lake Kutubu Enhancement Plan is now complete; a draft version of EMPNG's Enhancement Program document for Phases 1 & 2 indicating elements for each of the three work-streams has now been shared with the IESC – a copy of the final version will be sought. The Project's WMA-EP Coordinator is now working at the Lake on program implementation;
- 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), as an offset representative of residual impacts in the lower elevation zone. The creation of an expanded community-based legally-designated protected area will build on the existing Aird Hills WMA as a nucleus for conservation. To achieve this, EMPNG has engaged with the Barging Route Waterways Committee (BRWC), who were previously supported through the Project's community investment program, and continue to engage with the Aird Hills WMA Committee and community. Potential representative offset locations for the upper elevational zone (montane >1200m) have not yet been determined.
    - Lower elevational zone: Discussions are ongoing on the formalities of setting up the forestry certification scheme, and a proposal received from a local NGO partner is being discussed with PNG Forestry Stewardship Council and other stakeholders. However, there have been no face-to-face meetings with the community for nearly a year, and there is the risk of losing community engagement. EMPNG is currently considering the challenges associated with logistics in the area, and the feasibility of offset success,
    - Higher elevational zone: EMPNG continue to look for opportunities for a montane offset, and are trying to meet with representatives of the Hela Provincial government to initiate dialogue on potential offset sites in that province.

5.2.1.3 Freshwater and Marine Ecology

The overall biophysical monitoring in Caution Bay and in the Omati Delta has been undertaken for the past several years as part of their Environmental Permit with the basic goal of determining "the actual impact of dredging and spoil disposal on the biophysical environment, fisheries resources, indigenous use of the areas and shipping." In Caution Bay, measurements have included: sediment plume modeling; sediment chemistry analysis; water quality and sedimentation; marine ecology; and mangrove monitoring. The

results of the marine surveys in Caution Bay were reviewed during the June 2014 IESC field and the results show that there has been no significant Project impact. During this visit, mangrove monitoring was reviewed in the field. Except for the areas where mangroves were removed for pipeline and jetty construction, the Project has not had measurable impact. Where mangroves were deliberately removed for the pipeline RoW, recovery is, as predicted, slowly taking place. Monitoring will need to be undertaken over several years to confirm that this trend continues. IESC considers that the other marine biophysical monitoring no longer needs to be conducted.

In the Omati Delta, measurements have included: Omati River modeling; dredge monitoring studies; sediment chemistry analysis; sediment benthic communities studies; and pre- and post-dredging river morphology studies. During this visit, the pre- and post-dredging river morphology studies were reviewed in detail and the bathymetric data show that the riverbed has fully recovered from the placement of the pipe.

The IESC concludes that, on the basis of the various monitoring studies conducted in Caution Bay and the Omati Delta, the observed impacts are consistent with those described in the EIS and accordingly, with the exception of the ongoing monitoring of mangrove regrowth at the pipeline landfall, no further monitoring is warranted at either of these locations.

The Freshwater Ecological Monitoring Program undertaken in the Hides area was intended to confirm the predictions of the EIS and form the basis of a corrective action program should this be required. The 2013 freshwater survey results were expected shortly after the February 2014 site visit. During the June 2014 site visit the 2013 freshwater survey results were expected, but not presented. The IESC was told the 2014 Freshwater work was being conducted, but the Project was dealing with some security issues at some sample sites. Although results from 2013 and 2014 monitoring were expected during this field visit, none were provided.

5.2.1.4 Omati and Caution Bay Fishing Studies

The overall scope of the fisheries studies undertaken at Caution Bay and the Omati Delta has been to assess if any economic displacement has occurred to communities as a result of Project activities. This effort has included in-village voluntary surveys of fishers, the grievance management process, and community. The voluntary surveys of fishers have focused on an evaluation of any changes to the catch per unit effort (CPUE) and have been undertaken with results reported since Q1 2012. External factors, in particular weather conditions that have caused fishers to change their fishing grounds, appear to be more important than any Project-induced effects and community interviews and the grievance mechanism process have not identified that the fishers consider the Project to have been any impediment to their livelihood. Although EMPNG plans an additional survey before the end of the year, the IESC considers that these surveys no longer need to be continued.

5.2.2 Recommendations

1. If not currently being developed, the IESC recommends development of Procedures/Protocols related to a Pre-Disturbance Survey Protocol.
2. When considering certain aspects of EMPNG's approach to offsets, as outlined in our June monitoring report, and repeated above, we encourage the Project to seek input from their technical advisors and specialist NGO partners to ensure the best possible guidance is provided to make the offset program effective, transparent and sustainable.
3. We encourage EMPNG to consider the value of establishing some form of external Technical Review Panel to guide offset design and implementation.
4. The IESC encourages the project to provide results of the freshwater ecology studies as soon as possible.

5.3 INDUCED ACCESS

EMPNG's objective is to control vehicle access to Project roads and infrastructure, to prevent potentially damaging third party activities through enhanced access.

EMPNG has retained a number of RoW construction access tracks/roads for permanent use during the Production-phase, so as to allow emergency access, maintenance and delivery of fuel to above ground

installations (AGIs), such as main line valves (MLV), check valves (CV) and cathodic protection stations (CP). Background on the justification for access and method of access control is provided in the EMP (an updated Table 17-1 to be included in a future EMP revision and in previous IESC reports, along with IESC opinion on the status and effectiveness of each vehicle access control.

EMPNG is developing measures to monitor and control access at each of these locations, so that only approved, legitimate vehicles can use project roads, and ensure that tracks/roads created by the project do not allow ecologically damaging outcomes in these areas e.g. spread of weeds, commercial logging, etc.

5.3.1 Observations

As noted previously, the PNG Government is expected to request the retention and transfer of ownership of the Project's Kikori River Bridge (also known as the Kaiam Bridge). A formal request from the Government for this transfer has still not yet been received. Although EMPNG has a commitment to control vehicular access to all project roads and infrastructure built/maintained for the project, they remain cognizant that additional situations could arise where the government requests retention or transfer of temporary project infrastructure.

EMPNG is currently planning to retain permanent access to 12 AGIs, versus the 18 reported previously (and listed in the EMP). Table 5.1 summarizes the current vehicle access control status at Project roads/tracks/infrastructure:

Table 5.1: Current status of Vehicle Access Controls

Access location	AGI	Current vehicle access control status
Hides Ridge		Manned station at vehicle wash. All vehicle access is logged.
CV-1	X	Unmanned boom-gate installed and locked, near Angore.
Angore		Boom-gate installed, not permanently manned yet. Permanent measures to be implemented post-drilling.
MLV-1 Benaria	X	No boom-gate currently installed. Vehicle Access Monitor at Benaria village, not at bridge/project infrastructure. EMPNG advise that when gate installed, VAM will no longer be required, as it will be locked.
MLV-2 Homa-Benaria Ridge	X	Boom gates (two) installed and locked, one at MLV-2 and one at the intersection of the tax-credit public road and MLV-2 access road.
MLV-3	X	Boom-gate installed and locked.
MLV-4	X	Boom-gate installed and locked.
CV-2	X	Rely on OSL road controls at Moro.
Agogo tie-in	X	Boom-gate installed and locked.
Kutubu MLV	X	Boom gate installed and locked.
CP-1 (on OSL Manu-Kantobo road)	X	Rely on OSL road controls at Manu & manned reinstated boom-gate at Gobe.
Kantobo-Mubi EMPNG road (Heartbreak Hill)		EMP states a locked unmanned boom-gate to be at KP164 – not currently in place. Relying on OSL road controls at Manu and manned reinstated boom-gate at Gobe.
Gobe-Mubi EMPNG road		Boom gate now reinstated at Gobe and manned with Access Monitor – Vehicle Monitoring Procedure (VMP) in place (see bullets below on VMP).
Gobe MLV	X	Boom gate installed and locked.
CP-2	X	Boom gate installed and locked.
Kopi scraper station	X	Boom gate installed, not currently locked, manned with Access Monitor – VMP in place. EMP states locked boom gates at each end of old logging track/ EMPNG road.
KP232		Boom gate installed and locked. Shoo-fly access roads to KP 236, 239 and 242 are no longer required, will be reinstated, therefore locked boom-gates will not be installed.
Kikori River Bridge		Boom gate installed and manned with Access Monitor – VMP in place.

In our last report, a Level 1 non-conformance was raised due to the non-installation/non-operation of a number of access restrictions that EMPNG was to put in place, e.g., unmanned locked gates such that access was not being controlled at several locations. Since June, EMPNG has taken steps to partially address this situation.

- a Vehicle Monitoring Procedure (VMP) has been developed to determine how legitimate vehicles (certain third party commercial, government and community vehicles) should obtain access along a project road, with a view to ultimately allowing EMPNG to ensure that damaging ecological impacts do not occur along those roads as a result of that access. This VMP is intended to assess the risks from each individual vehicle requesting access through an EMPNG access control station to a project road. On assessment of any risks, and approval by the Operations Upstream Superintendent, a permit is issued for vehicles to use the project road through manned gates. Where a vehicle does not have a permit, they are informed that they need to apply for a permit according to the VMP. Currently, the vehicle monitor makes a note of the vehicles passing through, but does not withhold access. Vehicle monitoring takes place only during daylight hours.
- EMPNG advise this procedure is being implemented at the following locations, where a Vehicle Access Monitor is in place:
  - the boom-gate at the Gobe/EMPNG road intersection near Gobe airfield (the old OSL/Chevron gate) has now been reinstated, and is manned with a monitor,
  - a manned boom-gate is installed on the Kikori shore base to Kikori scraper station road; and
  - a manned boom-gate is installed at the Kikori River bridge at Kaiam; and
- for MLV-1, the Vehicle Access Monitor is located in Benaria Village, not at the temporary EMPNG bridge to the MLV-1/RoW (Note: the temporary bridge is being retained at the request of the government until they build a permanent bridge in a position away from the RoW).

Due to ongoing security issues at MLV-1, vehicle records are phoned into EMPNG, but were not available to the IESC. We were shown vehicle logs for all locations (but records for MLV-1 were missing).

The IESC believe the vehicle monitoring exercise will gather useful information relevant to establishing a post-construction vehicle-use 'baseline'. However, the permit system will take several months to be fully established, to the point where the majority of regular, legitimate vehicles have been authorized, and have a permit in place. Until the access permit procedure is fully operational at all manned gates, and all unmanned gates are locked, then access to project infrastructure is not yet fully controlled. In recognition of the recent work achieved by EMPNG to understand road usage and have dialogue with those requiring legitimate access, the Level 1 non-conformance is downgraded, but retained as an Observation until the time that access at all locations is fully controlled (see Issues Table Section 2).

We recognize there may be occasions where non-legitimate access will be forcibly demanded at a manned gate – such an event has not occurred to date. If this were to occur, EMPNG has instructed security guards and vehicle access monitors not to physically stop these vehicles due to personal safety concerns. In the event of a non-legitimate access violation, we would expect EMPNG security and the relevant E&R/L&CA personnel to be alerted and the violation investigated.

To date, there have been two occasions where unmanned locked gates have been tampered with:

- padlock damage at MLV-2, as noted in our June 2014 report. We have previously recommended EMPNG make use of already installed security cameras at MLV-2, for use in real-time detection of non-project vehicles approaching the ecologically sensitive Homa-Benaria Ridge (a Priority Ecosystem as per the Biodiversity Strategy) using the MLV-2 access track. This recommendation has not been taken up, and EMPNG will instead rely on regular physical checks of the two locked boom-gates from the public road to MLV-2; and
- since our last visit, a padlock was removed from one of the locked boom-gates between Angore Wellpad-B and the main RoW. On investigation, EMPNG advises us they were not able to find any evidence of impacts along the RoW or retained access track to CV-1.

5.3.2 Recommendations

1. With regard to the VMP, we would recommend that each authorized access permit defines an end date, so that the potential risk from access of that vehicle can be reviewed and permit renewed, i.e., the permit is valid for two years, then reviewed and re-authorized.

2. In the event of an access violation, we recommend that it be investigated and corrective actions implemented.
3. Where EMPNG relies on OSL manned gates to subsequently control access to EMPNG infrastructure, there is significant reliance on OSL's access controls working effectively and reliably. We recommend EMPNG undertake a review to validate OSL's access control procedures and practices, and gain assurance from OSL of their responsibilities in assisting EMPNG achieve its vehicle access control commitments. This will be a focus area for a future IESC visit.

5.4 REINSTATEMENT AND REGENERATION

EMPNG's objectives are to establish stable landform conditions at temporary work areas disturbed during construction, and create ground conditions conducive to natural regeneration so as to achieve vegetation succession according to established benchmarks.

5.4.1 Observations

An updated version of the Construction phase reinstatement register was not available during our visit. The IESC wishes to track the reinstatement management/completion of all roads, quarries, camps, shoo-flies, etc. used during pipeline and site construction. We therefore hope to provide a summary of completion-status in our next report.

RoW reinstatement observed from the chopper between Hides Wellpad-G to Tamadigi appears to be generally progressing well, with many steep sections appearing stable with vegetation regrowth. However, as reported in the Erosion & Sediment Control section earlier, several instances of slope instability have occurred. Community groups currently being engaged for RoW 'maintenance' are providing early notifications of RoW stability issues to EMPNG, supplementing information gained by EMPNG's regular aerial overflights. We observed community teams working to control vegetation growth on the RoW. On Hides Ridge, areas of side-cast rock resulting from spine-line road construction continue to show re-vegetation progress; newer areas less so, but black algal growth (the first step towards soil development and subsequent revegetation) is noticeable on limestone rock faces created two- three years ago.

At HGCP, Komo and the LNG Plant, vegetation management tasks are now addressed by operations teams as part of broader site management, with the Environment team and BioTropica providing advice and reinstatement monitoring. At HGCP, regeneration is occurring in some areas, where slope stability and soil erosion measures are able to work effectively. However, localized slope failure and soil erosion issues are hampering reinstatement progress; a more immediate focus on maintenance and remediation would contribute to more successful reinstatement (see Recommendation in Section 4.4.3). At Komo, response teams are targeting slope and drainage failure areas, and therefore reinstatement has stalled in some zones. In flat stable areas, re-vegetation is progressing. On compacted slopes on the airstrip, both targeted and natural re-vegetation is proving less successful. Further seeding may assist in stabilizing surface soil layers, but advice should be sought from BioTropica on the most appropriate steps to take.

At the LNG Plant, vegetation re-growth has been sufficiently successful that risks from the spread of fire during the regular dry season (May-Nov) now need to be being managed through regular vegetation cutting. IESC was informed that fires occur regularly in the area, primarily starting outside of the boundary fence as communities attempt to corral and hunt wildlife. BioTropica's findings in April had noted the increase in tall tropical grasses, with the associated increase in biomass presenting a high level of risk of fire – whilst on site in October, we observed that grasses had been cut back to a low height across most the site. Mangrove regeneration at the pipeline landfall continues, albeit slowly, as predicted in the EIS. There is evidence that some plantings from previous active-restoration attempts are surviving, but the majority have not. We observed occurrences of natural re-generation. The sandalwood tree identified in the pre-EIS baseline is being monitored; there has been some community interest in cutting the tree as it matures. EMPNG intends to discuss the value placed on the tree with the communities in an attempt to offer it some protection.

5.4.2 Recommendations

1. Seek advice from BioTropica on the most appropriate steps to take at Komo to further encourage growth on areas still lacking in vegetation.

2. Progress ideas on regular (annual?) monitoring of small designated areas of restoring mangrove at the pipeline landfall at the LNG Plant site – otherwise re-generation progress is difficult to ascertain and demonstrate. Discussions were held with EMPNG staff in relation to location of monitoring points in each of the tidal zones.

5.5 INVASIVE SPECIES, PESTS AND PLANT PATHOGENS

EMPNG's objectives are to prevent priority invasive species, pests and plant pathogens from entering or becoming established at (or in the vicinity of) their facilities and infrastructure, and ensure containment of existing priority invasive species, pests and plant pathogens already present. Supporting the Upstream and LNG Plant EMP's are an Invasive Species Management Protocol, and a Register of Invasive Species, Pests and Pathogens.

EMPNG's approach to weed management utilizes 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 disturbed 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.

EMPNG seeks to manage the primary threat of spread of *Phytophthora cinnamomi* by preventing the spread or introduction of Type A2 into unaffected areas, in particular ecologically sensitive areas susceptible to senescence. With regard to quarantine, EMPNG had developed and adopted quarantine requirements which aim to prevent the importation and spread of foreign invasive species, pests, pathogens or disease; quarantine requirements are contained within a Quarantine Procedure.

5.5.1 Observations

Weeds

Operations site teams are now responsible for ongoing weed management, with guidance and monitoring by the EMPNG Environment Group and BioTropica. At the LNG Plant, a vegetation management plan is in use and EMPNG is currently evaluating is this type of plan is appropriate at other sites. The Production-phase Invasive Species Protocol (providing detailed guidance to implement the requirements of the EMP) and Invasive Species Registers (recording site specific observation and actions) are in draft-form and in use.

At the time of our visit, EMPNG's external weed specialists, BioTropica, have part-completed the second annual audit of 2014; southern sections of the RoW, some areas previously flooded due to bad rains, will be visited within the following few weeks. Initial findings, coupled with those from their Apr/May 2014 audit, indicate that anglestem willow primrose (*Ludwigia leptocarpa*) currently continues to pose the highest Upstream risk. Audit findings from the Moro-Kutubu area indicate the P1 weed has increased in both abundance and distribution. The final report from BioTropica's Apr/May audit indicates that candlestick senna is also now becoming a concern near Kutubu, where it can threaten wetland habitats. In response, EMPNG has commissioned BioTropica to assist in the development of a training package for herbicide and weed/vegetation management, for use at project sites; specifically, representatives from Mosquito Zone will be trained to implement and oversee local site herbicide application. A targeted campaign of weed control is planned for the Moro/Kutubu area. On the Hides Ridge, spiked pepper (*Piper aduncum*) at Wellpad-B is still proving difficult to control, and is now also at WP-C; physical removal and increased weed monitoring continues.

EMPNG continues to provide general training in weed awareness and identification to field teams and contractors, including L&CA officers working with communities along the RoW between Omati to Moro. The IESC encourages EMPNG's philosophy in empowering people working in the field to be able to identify and report any sightings of weeds in their work environment. A few issues have arisen, such as personnel bringing P1 weeds onto site for planting as ornamentals around the camps; once the problem was identified, EMPNG advise us that targeted awareness-raising has occurred. We suggest that site inductions should more strongly emphasize company policy regarding invasive species.

Quarantine

EMPNG and Contractor performance data for 1Q-3Q 2014 are included in the following two IESC graphs, presenting information on:

- top graph: the proportion of consignments requiring a NAQIA inspection on arrival into PNG (showing numbers of consignments within the graph bars), and
- bottom graph: the proportion of those inspections that result in the need for fumigation of that consignment i.e. the inspection outcome.

Data for two new organisations are presented that have not been shown previously: WG-PSN is the contractor Wood Group Production Services, and the Production Operations team. NAQIA 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 EMPNG or their Contractors. However, fumigations are typically triggered by a suspicious item (e.g. insect) found during the NAQIA inspection, and hence are usually preventable by good housekeeping and management at the packing source of the consignment.

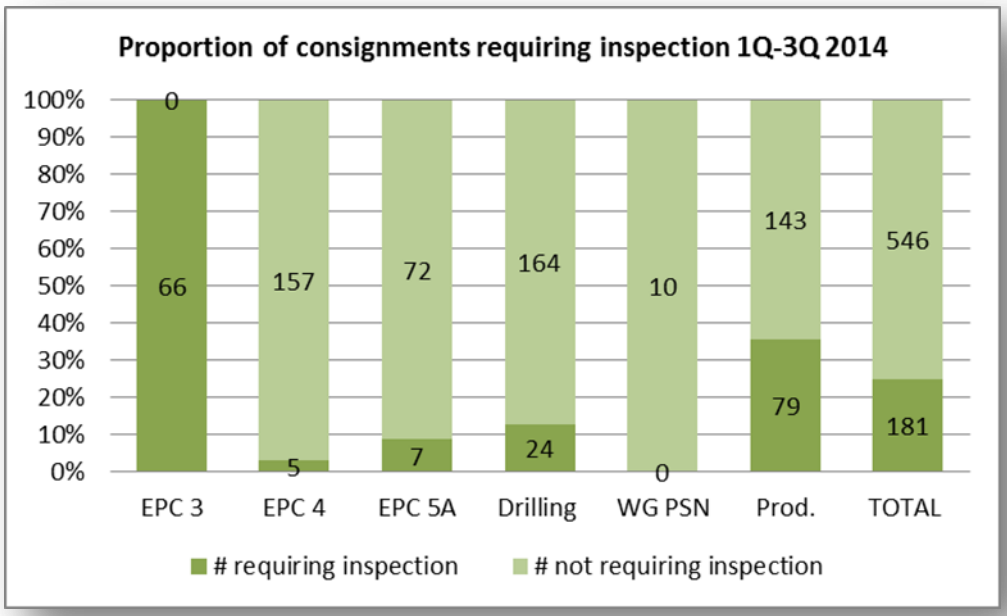

Figure 5.1: Proportion of Consignments Requiring Inspection

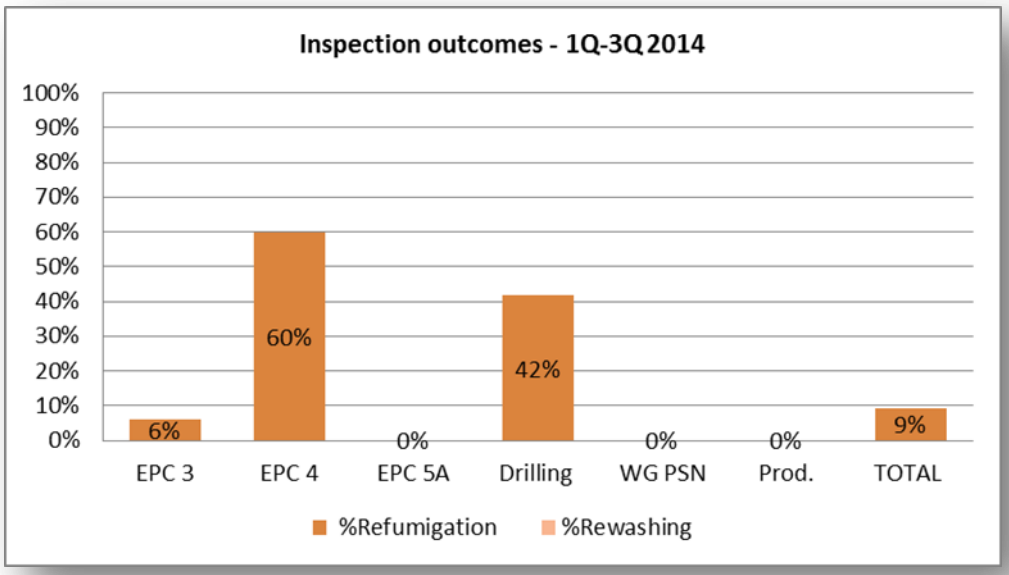

Figure 5.2: Inspection Outcomes – Indicating the need for Fumigation following Inspection

Key points on Contractor performance in relation to fumigation include:

- EPC3 has now demobilized – no new data since 1Q;
- EPC4 demobilized during 3Q. Consignment characteristics have changed, with 3Q imports being primarily documentation and with nil NAQIA inspections warranted. During 1Q and 2Q, inspections of 36 consignments resulted in five inspections, three of which then required re-fumigation; EPC4 had targeted the performance of their shippers to address previously very high (82%) re-fumigation levels;
- The Drilling organization had targeted the improvement of fumigator practices at the point of consignment origin. Results for 3Q indicate improvement over 2013 performance (42% of consignments needing re-fumigation YTD, versus 83% in 2013); and
- Wood Group consignments during 2Q & 3Q have not resulted in any NAQIA inspections, and although a third of Production consignments have attracted inspections, no re-fumigations were necessary.

A few common themes have arisen from quarantine management experiences to date: the need for effective and consistent fumigation at the point of origin; the importance of using only ISPM-15 treated wooden pallets; and the need for properly completed documentation accompanying the consignment.

As construction-phase Contractors now demobilize, and production-phase contracts are negotiated and awarded, we feel it is important that EMPNG factor the need for responsible quarantine management into any new agreements, and risk assessments undertaken regardless of the scale of the financial relationship or the location/volume of expected consignments. Quarantine risks can arise from any importation by any Contractor, and all must be aware of their responsibilities to comply with EMPNG policy and stated commitments. The common themes highlighted above need to be fully understood by Contractors.

5.5.2 Recommendations

1. The IESC continues to encourage EMPNG to use their management zone approach when analyzing weed data internally, to provide additional focus on specific zone priorities and track progress, rather than relying solely on external audit reports.
2. At site inductions and tool-box talks, re-emphasize the importance of adhering to company policy on invasive species, to eliminate instances of P1 weeds being brought onto site by personnel.

3. Production-phase Contractors with the need to import items should be made fully aware of their quarantine responsibilities to comply with Company procedures, and Contracts include appropriate text to take account of these responsibilities/liabilities. Risk assessments for all relevant Contractors should be undertaken, regardless of the scale of the financial relationship or the location/volume of expected consignments.

6 SOCIAL

6.1 INTRODUCTION

6.1.1 Scope of Social Review for this Site Visit

The IESC consulted with a variety of people and groups during our October 2014 visit. The social review considered the usual range of the Project's social labor related programs, while the field visit focused on finalizing verification of standard of living, verifying results of the second livelihood restoration evaluation, and identifying the actions needed to close out the resettlement program.

Activities included the following:

- presentations by relevant project departments;
- discussions and working sessions with resettlement evaluation team members;
- verification interviews with a sample of physically and economically displaced households; and
- in-field training sessions for the outcome evaluation team.

6.1.2 Waiver

The IESC social review is substantially based on documents and data provided by the Project and interviews conducted with project staff, project affected people, 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. Accordingly, the IESC makes no representation as to the substance of any reported 'perceptions' or 'beliefs' of interviewees and notes that hearsay evidence should not be treated as proof of any specific statement or concern expressed.

6.2 LAND ACCESS, RESETTLEMENT, AND LIVELIHOOD RESTORATION (L&CA) - STRUCTURE

6.2.1 Project Strategy

The Land Access, Resettlement and Livelihood Restoration Management Plan – Production applies to any new land access required during the Production phase and for managing the commitments for land that was obtained in the construction phase. This Plan supersedes the Resettlement Policy Framework developed for construction phase land acquisition. Livelihood restoration obligations for displacement that occurred during the construction phase, as well as evaluation of resettlement and livelihood restoration outcomes and the independent external audit of the resettlement and livelihood program, are also covered by this Plan and will be concluded in the Production phase.

The Plan defines the principles and approach to be used to manage the inter-linked activities related to accessing land, resettlement, and livelihood restoration. The content of the Plan is consistent with IFC Performance Standard 5 (Land Acquisition and Involuntary Displacement).

6.2.2 Observations

L&CA now has a management team that reports directly to the Lead Country Manager. L&CA staffing is currently 93% PNG nationals. The L&CA Compliance group continues to be responsible for resettlement outcome evaluation. One of the outcome evaluation supervisors has left the Project, and has been replaced by a PNG National with previous experience in the Project's social programs and an expatriate data specialist who is rationalizing the resettlement evaluation and livelihood restoration data. The outcome evaluation and IESC verifications have revealed data discrepancies and delays in implementation of some resettlement activities, particularly identification of economically displaced households and implementation of livelihood restoration activities. The IESC observes that inadequate management of resettlement activities in the past has contributed to these gaps. This issue has been resolved by current compliance management, and it is critical that this management be maintained throughout the remainder of the resettlement program.

Implementation of the community development support program falls under the Public and Government Affairs (P&GA) Manager. The experienced staff person who oversaw development of the CDS plan has returned to P&GA. The Village Liaison Officers (VLOs), who all are from local communities, are providing information vital to maintaining productive relationships with the communities.

The IESC considers the L&CA organizational structure and staffing satisfactory and the transition to Production efficient largely because of the retention of most key staff from the Construction Phase.

6.2.3 Recommendations

Compliance Management

1. Maintain current compliance management throughout remainder of the resettlement program.

6.3 MANAGEMENT OF DISPLACEMENT IMPACTS

6.3.1 Observations

6.3.1.1 Standard of Living of Physically Displaced Households

The Project evaluated the *standard of living of 100% of the 626 physically displaced household*, including follow up visits recommended by the IESC following its verifications in June 2014. The IESC has verified standard of living outcome evaluation results for a sample of 69 households. See Appendix B for more detailed information on the verification process, contextual analytical factors, and results.

Overall results of the internal evaluation, incorporating changes made by the IESC verification of 69 households, are provided in Table 6.1.

Table 6.1: Results of Standard of Living Outcome Evaluation and IESC Verifications

Category	No. Households
Declined	32
Maintained	281
Improved	310
Deceased (single householder)	3
Total	626

Less secure tenure and/or difficulty of access to services/water were the main reasons the *internal outcome evaluation* assigned households to the declined category. In the context of the clan ownership of land in the highlands, the Project had no choice but to leave relocation site selection to the affected households. Some displaced households found it difficult to find land offering secure tenure and good access because land is generally and increasingly limited by intra- and inner clan conflicts. In addition, the area has few roads, services, or good water sources, thus access to services is generally a challenge. Nonetheless, the final number of households in the declined category (32) is low, and may be reduced further through the reassessment of seven of the declined households to verify conditions or provide minimal assistance (for example, water tanks) to raise them to maintained conditions.

6.3.1.2 Livelihood Restoration of Economically Displaced Households

Livelihood Program Implementation Status

Field Days intended to complete delivery of chickens/ducks, and planting materials were conducted, but verification interviews indicate that adequate training, particularly for animals, was not provided. The *ANUE Livelihood Rationale and Methodology for Supply of Small Livestock and Crops to Resettlement Households* indicates that the plan was to include "initial training in basic poultry management, followed up with at least two extension and mentoring visits to monitor skills and provide trouble shooting advice." According to respondents, the only "training" they have received was a quick instruction at the time of delivery to build structures for chicks and ducklings. Deliveries were not well planned and often made at unexpected times when households were engaged in other activities and unable or unclear on how to build the structures. As a result, the animal husbandry program was not as successful as expected.

Gaps in the livelihood restoration program may have resulted from (i) inadequate communication between ANUE and the Project on the requirement to include all entitled economically displaced households in the program and to report separately (from non-displaced program participants) on the displaced households and (ii) lack of consistent monitoring and evaluation during implementation by both ANUE and the

Project. L&CA is taking responsibility to work with ANUE to prepare assessments of the agricultural program and update the status of the food security of participating economically displaced households. L&CA Compliance has held two teleconferences with ANUE and is meeting with ANUE on 10 November in Port Moresby.

The food security assessment measures the achievement of each household against a target of 600 m^2 of sweet potato garden per adult equivalent. The last survey was done in September 2013, thus needs to be updated. The assessment will document implementation of program components and identify gaps and any needed remedial measures. The status of food security will be considered as a factor in the final outcome analysis. Remedial measures, thus, need to be implemented by the end of Q1 2015 in order for the livelihood outcome evaluation to be completed.

Livelihood Outcome Evaluation and Verification Results

The June IESC verification found the results of the first livelihood evaluation to contain inadequate information, thus asked for a second evaluation. L&CA conducted the second evaluation of a 25% sample (97 households) of the originally reported number of 417 economically displaced households (218 Type1A/B physically and economically displaced and 199 Type 2 economically displaced only). This evaluation placed only one household in the declined category and a very large number of households in the improved category. The IESC verified seven households, but again found discrepancies in data, insufficient information, and some faulty analysis (for example, assigning improved conditions to households that had replaced lost assets). Table 6.2 below shows the overall results of this evaluation and changes resulting from IESC verification of 17 households (10 in June and 7 in October). These are given as preliminary results. The final results will be done once a thorough review of the data and a third outcome evaluation and verification is conducted evaluation to be conducted December 2014 – January 2015). The IESC provided hands on training in survey and assessment methods and will conduct verification of the third evaluation results in February 2015.

Table 6.2: Results of 2nd Livelihood Outcome Evaluation and IESC Verification

Category	No. Households
Declined	2
Maintained	7
Improved	88
Total	97

The review is underway and indicates some significant differences between the reported number of Type 2 economically displaced only households to be offered livelihood restoration (initially reported as 199) and the actual number of Type 2 households needing livelihood restoration. The review found first that 250 households were categorized as Type 2 in the database used for livelihood outcome evaluation. The data were then assessed on a household-by-household basis to determine the correct category for each household. The results indicate that impact on only 54 households qualifies them as Type 2 (needing livelihood restoration). The category breakdown is shown in Table 6.3 below.

Table 6.3: Categories of Economically Affected Households

Number Households	Corrected Impact Category
250 households in original database as Type 2	Households originally identified as Type 2
135	Type 3 households – minimal impact to livelihoods thus entitled to minor compensation to replace odd trees and garden crops or livelihood associated small structures (pig and chicken houses, firewood sheds, ditches, etc.). Received a range of payment, some as low as 200-300PGK
7	Households already covered by livelihood restoration under the 1A/B category (both physically and economically displaced)
9	Speculative trade stores constructed to obtain compensation

Number Households	Corrected Impact Category
7	Trade stores not in use (not trading) at time of census and survey
2	Businesses provided other kinds of livelihood restoration support (wages, lease of offices, etc.)
1	A one-off payment of compensation to break a work stoppage (for fuel tank outside the footprint)
35	Households with non-impacted land - compensated for anticipated garden loss, but land not lost or otherwise impacted and gardens remained available for use to changes in project plan (e.g., HHR, ROW)
54	**Final number of Type 2 households**

6.3.1.3 Resettlement Completion Audit

The Resettlement Completion Audit is the remaining social requirement of the Lender Environmental and Social Requirements (LESR) to be met. While the audit is called a "completion" audit, it is not a part of the construction Completion Certificate requirement.

Discussions are underway with the proposed auditor who has demonstrated experience in resettlement, compliance with relevant performance standards (former IFC Principal Social Specialist), and has worked in PNG. The next step is for the auditor to review the TOR to assess the amount of time needed for the field work and to recommend any additions or changes. The audit will likely occur during the Q2 2015, depending on completion of all resettlement commitments and the final results of the outcome evaluation and food security assessment.

6.3.1.4 Compensation

Top Up Payments

The assessment to determine if crop compensation was full replacement value (FRC) concludes that compensation was greater than FRC. The IESC has seen the results for sweet potato, peanuts, and pineapple. The IESC requests confirmation by the end of November that compensation paid for lost productive trees was full replacement value (replacement value plus lost income until seedlings become productive trees).

Compensation Payment Process

The last IESC report noted that some affected households complained that the Project paid their compensation to persons other than themselves without their authorization. The Project has reviewed payment records and found that compensation was signed for by either the entitled person or by a person with authorization from the entitled person.

6.3.1.5 Resettlement Documentation

The last outstanding resettlement document (CRP for the Permanent Facilities Compound) has been released to the public.

6.3.2 Requirements

Standard of living

The following actions will be conducted in order to close out the standard of living program.

1. Assessment of evaluation data to ensure consistent and sufficient information. TBD end November 2014.
2. Reassessment and/or implementation of remedial action for seven households (See Annex B for list). TBD end 2014 (depending on community availability during Christmas season).
3. Prepare Standard of Living close out report (draft to be submitted to the IESC in early January 2015. Review to be done during February IESC Social Expert visit in February).

Report will include:

– findings of standard of living results;

- reasons for declined conditions (project and non-project caused) and any remedial actions;
- reasons why some affected households could not be visited; and
- report and all supporting evidence (database, data evaluation results, and bases of decisions on status of households), photographs, etc.

Livelihood Restoration

The following actions will be conducted in order to close out the livelihood evaluation process.

4. Complete data assessment to correctly identify economically displaced households (TBD end November);
5. Conduct 3rd evaluation (same sample as 2nd evaluation) using improved methods (TBD mid-January 2015);
6. Desk assessment of data to ensure consistency and add known background information;
7. Team leader to supervisor surveyors during evaluations as much as possible;
8. Include prompts (type of additional questions to be asked) in survey guide (completed during IESC October visit);
9. Do not rush interview process;
10. Assess results of interviews and decide category *as a group* at the end of each day;
11. IESC to verify results of third livelihood evaluation (TBD 10-17 February 2015);
12. L&CA and ANUE complete food security assessment and assessment of agricultural program implementation (end 2014), considering:
    - clarify whether all economically displaced households entitled to livelihood restoration were offered participation in the program,
    - input delivery status from beginning of implementation,
    - reasons why some affected households could not be visited,
    - all components implemented (evidence training not done as planned, animal husbandry particularly affected),
    - achievement of targets for each activity,
    - achievement of targeted outcomes for security,
    - identification of targets not achieved, reason for non-achievement, and time-bound corrective actions;
13. Combine results of food security assessment for final categorization of livelihood restoration outcome (Submit to IESC for review by mid-February 2015);
14. Implement any remedial actions indicated by results of final assessment - any additional assistance to be provided to declined households whose conditions can be shown to result from livelihood program inadequacy. (Known gaps to be filled as soon as possible and final gap closure report based on results of third outcome evaluation and verification to be implemented and reported to IESC by mid-March 2014);
15. Prepare livelihood outcome report (L&CA to provide status reports to IESC during draft preparation, submit draft to IESC by January 2015, L&CA and IESC to review draft during IESC Social Expert visit tentatively set for 10-17 February). The report will include, at minimum:
    - clarify whether all economically displaced households entitled to livelihood restoration were offered participation in the program,
    - input delivery status from beginning of implementation,
    - reasons why some affected households could not be visited;
16. All components implemented (evidence training not done as planned, animal husbandry particularly affected):
    - findings of livelihood restoration evaluation and IESC verification results,

- reasons for declined conditions (project and non-project caused) and any remedial actions,
- reasons why some affected households could not be visited,
- report and all supporting evidence (database, data evaluation results, and bases of decisions on status of households), photographs, etc.

Compensation

1. Confirm that compensation paid for productive trees was full replacement value (replacement cost and compensation for lost income/subsistence until trees become productive).

6.4 COMMUNITY IMPACTS MANAGEMENT AND SECURITY

6.4.1 Project Strategy

Project commitments to community impacts management during Production are contained in the Community Health, Safety and Security Management Plan – Production that addresses health, safety and security from a community perspective. See Section 8.2 in this report for IESC comments on Community Health.

The objectives of this Plan are to:

- avoid or limit risks to and impacts on the health, safety and security of the community during the production phase from both routine and non-routine circumstances through implementing targeted prevention programs to reduce risks, along with the implementation of an effective monitoring and evaluation program;
- ensure that safeguarding of personnel and property is conducted in an appropriate manner that avoids or limits risks to the community's safety and security; and
- maintain a monitoring and evaluation program that is community-based, participatory, transparent and covers all phases of production and decommissioning.

Elements of the Production Community Development Support Management Plan also apply as it relates to community development support activities undertaken to mitigate the impacts or potential risks generated by Company activities with the objective to avoid or reduce the risk of adverse social impacts on Papua New Guinean communities during production.

6.4.2 Observations

6.4.2.1 Community Safety and Security

The potential for safety and security risks *to communities* differs between the construction and the operations phase, with construction posing a larger and more diverse group of risk factors, such as external workers, vehicle accidents, and so on. Safety risks to communities during production are more limited in type, but some have a potentially wider impact, such as spills, explosions, and other technical failures. These are addressed by the Emergency Response Plan (see Section 3.4).

The Project continues to engage frequently with communities on safety. Focus in the upstream areas is primarily on pipeline safety through implementation of a pipeline RoW safety campaign. Safety focus in the plant area has been on providing information to communities on flaring and waterway safety near the jetty. Grievances related to vehicle incidents have declined due to the speed reduction in drilling areas. The Project has organized Drilling Well Pad & Work Site Community Committees for Well Pad PWD and G and constructed a camp at Angore. The Committees are critical to maintaining positive relationships with the area clans.

Field officers and VLOs continue to provide the Project with information on security issues and conditions in their respective areas. The Royal Papua New Guinea Constabulary (RPNGC) continues to have responsibility for security outside project facilities, but the Project also continuously monitors security and staff must notify officers prior to any travel outside project activities.

Inter-clan clashes continue to occur and isolated incidents affect communities and sometimes the Project. Some of these incidents are indirectly affected by the Project in terms of the expanded perspective of highlands community members and the introduction of cash into these communities which, in turn, can result in heightening of inter- and intra-clan conflict. There are some indications of conflict between youths and elders within clans. This is typical response to change by traditional hierarchical groups such as those found in the highland communities. The Project response is to continue monitoring and to help

stabilize communities through community livelihood and governance support programs. See also Section 3.3 for information on security incidents.

6.4.2.2 Demobilization and Local Communities

Construction demobilization is effectively complete. The IESC observes that demobilization went smoothly and without any notable direct negative impacts on local communities due to careful planning, consultation with communities and workforce, and continuous impact monitoring.

6.4.3 Recommendations

None arising from this review.

6.5 PROJECT INDUCED IN-MIGRATION

6.5.1 Observations

The in-migration monitoring process has served its purpose to measure and respond to in-migration associated with construction opportunities. Results show that no significant in-migration directly related to the Project occurred and that some of the migration that did occur was composed of people who moved temporarily to a project affected area to qualify for compensation and/or royalties. The IESC, thus, recommends that in-migration monitoring be suspended. Data from the IDHSS will continue to be useful for other purposes, such as health programs.

6.5.2 Recommendations

1. Discontinue in-migration monitoring.

6.6 PROCUREMENT AND SUPPLY MANAGEMENT

6.6.1 Project Strategy

The Project strategy is defined in the Procurement and Supplier Management Plan – Production. The objectives of this Plan are the same as they were for construction:

- maximize procurement from local suppliers and economic benefit 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 EMPNG environmental and social standards and commitments are adequately communicated by the contractor to its subcontractors and suppliers and included in their contractual arrangements (as outlined in Table 4.1 of the Plan – *Risks and Impact Mitigation*).

The Production Operations Manager is responsible for implementation of this Plan and owns this Plan from an OIMS functional perspective. Contract Owners and Site Managers are responsible for contractor management in relation to this Plan on a day-to-day basis. Contract administrators monitor the actual compliance to the conditions of each contract.

6.6.2 Observations

The Project is in the process of developing a long term strategy for the Operations phase national content program. The goals of this strategy are to promote:

- Papua New Guineans in leadership positions;
- a nationalized workforce;
- PNG businesses providing goods and globally competitive services; and
- competition among PNG businesses.

Planning is to be led by a National Content Steering Team; a National Content Manager is being recruited. Planning activities to date have included quarterly liaison with Land Owner Companies (LABA and HGDC), assessing future use of the now self-sustaining Enterprise Center, training in national content strategy and requirements for all ExxonMobil Contract Owners, and a lessons learned workshop with development and construction phase contractors.

Services Outline Agreements have been concluded with the main contractors - Hides Gas Development Company (HGDC) and LABA Holdings Limited. The HGCP agreement covers provision of services and

goods that replace those provided during construction by EPC contractors (such as road maintenance, bus transportation, fuel farm management, provision of industrial consumables, etc.). The LABA Holdings agreement covers services such as managing ground transportation at the LNG site, running a local mini-mart and ice making facility, and engaging with Security and Camp and Catering.

Training of workforce to facilitate achievement of national content goals focuses on technical and advanced skills training in areas such as instrumentation, electrical, mechanical, and logistics. Trainees from earlier programs are being accelerated into operating areas. The next training intake is scheduled to begin in Q2 2015. Training is given to employees based on requirements of an employee's role and developmental need.

6.6.3 Recommendations

The IESC requests that presentations on national content for future IESC visits include the following information:

- number of PNG employees directly employed by the Project (disaggregated by local and national and by gender);
- number of PNG employees participating in training (disaggregated by type of training, gender, local and national);
- number and type of contracts awarded to Papua New Guinean contractors and subcontractors;
- number of PNG employees for each contractor (disaggregated by local and national and by gender); and
- number and type of capacity building trainings and business development support measures provided to Landowner Companies.

6.7 COMMUNITY SUPPORT STRATEGY

6.7.1 Project Strategy

Project commitments related to community development support are described in the Community Development Support Management Plan – Production. This Plan covers all community development support activities undertaken by the Project. This includes activities undertaken by the Land and Community Affairs team (L&CA), Public and Government Affairs (P&GA) and the Medicine and Occupational Health team (MOH), as well as to other functions undertaking relevant community support initiatives.

The objectives of EMPNG community development support activities are to:

- promote development of conditions that strengthen communities' ability to benefit from the Project's presence;
- avoid or reduce the risk of adverse social impacts on PNG communities;
- provide opportunities for sustainable development benefits in a culturally appropriate manner; and
- ensure that the development process fosters full respect for the dignity, human rights, aspirations, cultures and natural resource-based livelihoods of Indigenous Peoples, thus meeting both local regulatory and IFC *Performance Standard 7: Indigenous Peoples (2006)* requirements.

6.7.2 Observations

6.7.2.1 Programs

CDS projects started during the construction phase include 15 projects in the upstream, four remaining in the RoW, and one in the PNG plant area will continue into 2015. The next steps in finalizing the Production CDS program are:

- finalize and obtain approval for CDS implementation strategy;
- finalize CDS Program Planning, Monitoring & Evaluation Procedure;
- finalize geographical area and M&E Plan; and
- develop contracts with key service partners.

Table 6.4 below shows the key CDS programs and activities proposed for 2015. The number of programs in the livelihood, education, and health categories seem rather large and the objectives perhaps overly ambitious. The IESC observes that reducing the number and variation in programs for the first few years of implementation would assist in identifying the most potentially beneficial and self-sustaining elements on which assistance would be targeted for the longer term.

Table 6.4: CDS Key Programs and Activities for 2015

Component	Upstream	Right of Way	Plant Site	National
Education	• ANUe School Agriculture • School Board Training • Small infrastructure support • Science Ambassadors • PNG LNG Scholarship	• CDI Youth Development Support • Small infrastructure support • PNG LNG Scholarship	• School Board Training • Small infrastructure support • Science Ambassadors • PNG LNG Scholarship • National Research Institute Applied Research Teaching	• Science Ambassadors • Support to leadership programs for young people (LPNG; Mike Manning Youth Camp; The Voice Inc.; Badili Club; BPW Club).. • Port Moresby Nature Park – Education program • National teachers Award
Health	• PNG IMR Support • Small infrastructure support • Tribal Foundation Medical Supplies	• Small infrastructure support	• PNG IMR Support • Tribal Foundation Medical Supplies • Small infrastructure support	• PNG IMR Support • Texas Children's Hospital
Livelihood	• ANUe Livelihood • WiMP Literacy Project • Small infrastructure support • World Bank Solar Light	• ANUe Livelihood Program • WiMP Literacy Project • Lake Kutubu Wildlife Management Area Committee support • Small infrastructure support	• ANUe Agriculture • Small infrastructure support	• Advancing PNG: Women Leaders Network • JCU – Irrawaddy Dolphin Project • Canberra University - Piku Project • Port Moresby Nature Park
Law & Justice	• DFAT – Law & Justice • Small infrastructure support	• Small Infrastructure Support	• Small infrastructure support	• Village court secretariat • DFAT – Law & Justice

6.7.2.2 CDS Outcome Evaluation

Progress has been made in refining outcome indicators. The actual measurement of outcomes (the objectively verifiable factors that will be measured), particularly for the Level 3 indicators, need to be defined prior to implementation because these are the factors that may require baseline data against which to measure change over time. As the IESC understands the process, the Level 1 (program level) indicator for the ANUE livelihood program, for example, is the "level of economic activity not dependent upon the Project occurring within Project areas." This would be measured by the Level 2 indicator results of the "number of women's groups established which have become self sufficient and sustaining." Their self sufficiency and sustainability, in turn, would be measured by the Level 3 indicators – "Women's groups and most members integrating livelihood components into group activities and household farming systems" and "women empowered, good leadership, specialist skills, financial literacy, food-health literacy." The factors that will be measured to determine if members are integrating livelihood components into the households farming systems and are empowered, have good leadership or specialist skills, and financial and food-

health literacy need to be defined and any baseline data for comparison (pre-project conditions) need to be collected.

The IESC continues to recommend that an outcome evaluation and reporting procedure be developed and strictly enforced by the Project and its implementation contractors. This will help avoid the issues that arose during the resettlement process.

6.7.3 Recommendations

1. Consider reducing the number of projects for the first two years.
2. Complete the outcome evaluation procedure describing each step in the process including specific factors that will be measured particularly for level 3 indicators, indicator measurement data needed and baseline data collection methods, data analysis process, responsible entities for each task, evaluation schedules, and detailed reporting procedures). The Procedure would also provide a more detailed reporting guideline (restated from last IESC report).
3. The IESC would like to see the standard contract language regarding monitoring and evaluation and reporting that will be included in the contracts for implementing CDS projects. Reiterated from last report.

6.8 STAKEHOLDER ENGAGEMENT AND CONSULTATION

6.8.1 Project Strategy

The Project commitments with respect to stakeholder engagement are contained in the Stakeholder Engagement Management Plan – Production. This Plan describes the processes and actions applicable during production. The overall objective for stakeholder engagement during Production remains to keep all stakeholders informed with respect to their specific interests, engage people in decisions that directly affect them, and maintain stakeholder confidence and trust in the Project and its activities through open, informative, inclusive and timely communications. A *Village Liaison Officer Strategy* for the Production Phase supports implementation of the Management Plan and the Land and Community Affairs Plan.

The stakeholder engagement program will be the responsibility of the Community Affairs Manager, in turn part of the L&CA Manager's responsibilities (as shown in Figure 3.1). P&GA also has a role in stakeholder engagement, specifically with respect to government and national level stakeholders. Complimentary, topic-specific stakeholder engagement activities are also undertaken by a number of other teams, for example, biodiversity, community health and human resources.

6.8.2 Observations

The Project continues to engage widely with communities. In 2014 to date, 2,697 engagements involving 178 communities (37,449 attendees) have occurred. Communities engaged included 163 (20,250 attendees) in the upstream areas and 15 (17,199 attendees) in the LNG Plant site area. The main issues discussed with upstream communities are land, compensation payment, livelihoods, pipeline safety, and schools. Plant area community discussions have focused mainly on agricultural improvements, schools, flaring, and first gas. Engagement with the communities near the Project Facilities Compound were held to explain the extension of the boundary fence.

The Village Liaison Officers (VLOs) are playing an important on-going and informal role in community engagement by promptly conveying information to and from the project, thus reducing for misunderstanding and conflict.

6.8.3 Recommendations

None arising from this review.

6.9 GRIEVANCE MANAGEMENT

6.9.1 Project Strategy

The Project's grievance for management of project related individual and community grievances is described in Section 6 of the Stakeholder Engagement Plan– Production.

6.9.2 Observations

The annualized grievance closure rate for the last 12 months is 85%, though the monthly closure rate in April, May, and September fell well below the 75% target. Closure delays during these periods are attributed to the complexity of many grievances (such as those regarding compensation) requiring time consuming investigation and the difficulty in locating grievants for resolution purposes. The Project's intense focus on first gas during the first half of 2014 also caused some delays. In response, the Project is holding weekly grievance resolution reviews and providing additional training on to staff on grievance and issue resolution.

The number of grievances since operations began is averaging 11 per month, compared to an average of 32 during the construction phase. This reduction is attributed to reduced work fronts, continuous community engagement, and the work of the Village Liaison Officers. Land grievances, typically disputes over assessments and payments, continue to dominate. Environment related grievances have declined due to the reduced footprint, and vehicle related grievances have declined due to the speed reduction for project vehicles.

Issues are averaging 290 per month, and though this represents a slight increase over the construction monthly average, the increase is likely caused by improvements in capturing issues and timely feedback. The most frequent issues concern employment requests, community health and safety including ROW safety, and royalty and benefit sharing.

6.9.3 Recommendations

None arising from this review.

6.10 STATE CLAN BENEFITS INTERFACE -UPDATE

6.10.1 Strategy

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 and effective delivery of cash benefits without having any actual control over the process.

6.10.2 Observations

The Project recognizes that the delays in finalization of the payment process that is caused by lack of Government funding and other distractions is a risk to the Project (illustrated by threats to block access to the plant) and, in the opinion of the IESC, is actively pursuing avenues to expedite the process.

The status of preparation for payment of clan benefits is:

- Phase 1 (clan vetting) is completed – only two court cases registered challenging Ministerial Determinations;
- Lack of Government funding has precluding any additional work beyond the Clan Vetting Process. Note that first payments were planned for July 2014. The percentage of royalties for each vetted clan has been determined, but the clans themselves have not yet determined the percentage of royalties that will go to each clan member. In the interim, royalties are deposited in a trust fund account;
- The push by the PNG Department of Treasury (DoT) for a third party Fund Manager is stalled due to the excessive bids submitted by the selected bidders;
- EMPNG has submitted to the GoPNG a mechanism to cover EMPNG services provided to GoPNG – Facility Services Agreement (FSA) cleared by State Solicitors Office; and
- DoT provided K5M to DPE in September and plans are underway to implement CVP Phase 2 for Pipeline Segment 8 (Kido) and LNGP site.

The Project's next steps are to:

- provide assistance to finalize the Facility Service Agreement per GoPNG procurement process;
- continue to work with DPE to assist in preparation for Phase 2 execution at the Pipeline;
- segment 8 and LNGP sites; and

- Continue to support DPE to lobby government funding for phase 2 (upstream).

The main on-going challenges are:

- lack of funding to Department of Energy;
- government's slow progress toward execution of Phase 2 in the upstream areas following completion of plant site and pipeline segment 8;
- government distractions (other gas developments, Petroleum Authority establishment, etc.);
- court disputes; and
- landowner expectations of royalty payments.

7 LABOR AND HUMAN RESOURCES

7.1 INTRODUCTION – PROJECT STRATEGY

Project commitments are defined in the Labour and Working Conditions Management Plan – Production (the "Plan"). The Plan describes the requirements and expectations in terms of compliance, reporting, roles, supervision and training with respect to labor and working conditions, including camp accommodation. It covers all production activities for Upstream Facilities, the Pipelines and the LNG Plant. This Plan is expected to be adopted and applicable to EMPNG contractors, recognizing that EMPNG's effectiveness in managing third parties will vary in accordance with the leverage EHL EMPNG is able to exercise. To the extent that EMPNG can exert influence over its supply chain, the principles in this Plan will also apply.

The objectives of the Plan are to:

- promote fair and equitable labor practices for the fair treatment, non-discrimination and equal opportunity of workers;
- establish, manage and promote a healthy management-worker relationship;
- protect workers' rights including migrant and third party workers; and
- promote healthy, safe, secure and comfortable accommodation that does not impact negatively on the communities in the surrounding area.

7.1.1 OBSERVATIONS

The Project provided the IESC with useful information on the hiring and contracting processes and workplace conditions of its direct hires and the procurement, contracting, and contractor management processes for its contractors. During Operations, the Project has direct control over the implementation and performance monitoring of labour standards and workforce conditions for most of the workforce, including camp management. Site rules and security applicable to camp occupants are incorporated into site based induction packages.

These requirements and standards are consistent with IFC PS2, National legislation, and ExxonMobil's Standards of Business Conduct. The monitoring requirements are clearly set out in Table 4.1 and Chapters 4 (Monitoring) and 5 (Reporting) of the Labour and Working Conditions Management Plan – Production.

For all contractors, contracts include special instructions that cover, among other things, safety, health, and environmental requirements and a Standard Commercial Agreement that require contractors to flow down requirements to their sub-contractors. Contracts include Exhibits (such as Exhibit V) and Special Requirements that include the obligations for compliance with IFC PS 2 (Labour and Working Conditions) and PNG legislation, as well as National content requirements for service providers. Management of contractor compliance is done through the Operations Integrating Management System (OIMS) to qualify contractors, pre-mobilize contract crews, and monitor contractor performance. Performance monitoring includes annual forums, quarterly SSHE sharing, annual stewardship review (self-monitoring and performance scorecard), quarterly stewardship review (self-monitoring report, and daily site activity progress report.

In terms of camp accommodation, the Project has taken over the two main construction camps (HGCP and LNG plant) and is providing support to drilling camps and Moro camp. The main camps are undergoing upgrades. For HGCP these include noise reduction, fire resistance, aesthetic improvements, and bathrooms. The IESC stayed at the HGCP camp, and notes that it is comfortable and longer term camp dwellers gave positive responses to questions regarding camp conditions. Improvements to the LNG plant camp included integrated site utilities, improved drainage, increased security for female accommodation, and some other critical security and maintenance activities are underway. Furniture upgrades are in process for both camps and additional maintenance to improve livability is being assessed.

The Alliance JV's (HAG and LAG) have been maintained through competitive bids to minimize transition risks for and ensuring experienced operator and landowner representation in camp catering and services. The contracts are standardized and focus heavily on quality, service, and workforce nationalization. The segregation of menus and access restrictions to recreation services have been removed. Improved internet services have been installed and occupants no longer have to pay expensive deposits for keys to recreational facilities. Finally, Camp Committees have been established to get feedback from occupants on

facilities and services, develop recreational programs and assist in prioritizing service or equipment upgrades.

7.1.2 RECOMMENDATIONS

The IESC appreciates the information received during this visit on the processes and structures related to labor and working conditions. The IESC looks forward to receiving information during future visits that shows evidence of performance against the requirements of IFC PS2 (Labour and Working Conditions), National legislation, and the Project's labor related Management Plans. Categories of this information are listed below.

1. Monitoring reports for both direct hires and contract workers that:
   - demonstrates compliance with applicable legal and other requirements (National legislation, IFC PS 2),
   - documents the implementation and effectiveness of labour management and mitigation measures and assesses actual impacts against predicted impacts (See Table 4.1 Labour and Working Conditions Management Plan – Production); and
   - results of measurement of indicators (See Table 5.2 and Section 6 of the Labour and Working Conditions Management Plan – Production);
2. Grievance reports summarizing grievances, closure rates, and resolution measures.
3. Results of and Project responses to employee forums.
4. The IESC would like information how gender issues will be addressed, including whether female employees will have access to "women's champions/confidants" and health/hygiene/nutrition training (as recommended by the IESC in the report from the October 2013 visit). Repeated from last report.

8 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 success of both programs has been based on the understanding that community and occupational health and safety are linked and interdependent on one another.

8.1 OCCUPATIONAL HEALTH AND SAFETY

8.1.1 Project Strategy

Occupational health and safety is managed independently of the Production ESMP within the ExxonMobil Operations Integrity Management System (OIMS), which is summarized within the ESMP such that the linkages between OIMS and environmental and social management are well defined. The ultimate goal of managing personnel safety is to achieve an incident-free workplace where "Nobody Gets Hurt". Specific, measurable objectives that contribute to this goal are:

- reduce at-risk behavior (both on and off-the-job) and manage hazards associated with the work environment to significantly reduce Occupational Integrity (OI) risks; and
- hazard identification and correction programs are comprehensive and widely used across the Unit.

OIMS also provides the structure for identifying and managing health exposures with the following goals:

- protect the health of personnel on company premises and the public in proximity to our operations from adverse health effects that may result from our operations; and
- protect the personnel on company premises from environmental and health hazards prevailing in the environment.

The concept of protecting company personnel from health hazards prevailing in the environment is recognition that there needs to be a linkage between occupational and community health programs.

8.1.2 Observations

8.1.2.1 Worker Safety

The overall statistics associated with both safety and occupational health aspects of the construction phase of the PNG LNG Project continue to be excellent. Production has not had a Lost Time Incident (LTI) through the first three (3) quarters of 2014with a total of 5,688,065 man-hours worked. At the end of Q3 2014, the Total Recordable Incident Rate (TRIR) was 0.32, down 11% from Q2 2014. In terms of lagging indicators, the number of Observations and Interventions (O&I) that have been conducted has increased by 21% from 1Q14 to 3Q14 (570 more conducted). Near Miss incidents reported over the same period are up by 3% (69 more reported in 3Q14). The number of hazards reported increased by 5% (284 more reported in 3Q14). Both the leading and lagging indicators demonstrate that the EMPNG worker safety program is functional and effective.

8.1.2.2 Worker Health

From the standpoint of occupational health, the Project has a well-developed program as indicated by key performance indicators (leading indicators) and management of illness cases (lagging indicators). KPIs for these indicators show that there is room for improvement, but it should be noted that the KPIs associated with Production are more stringent that their Construction-phase equivalents. The main finding from internal auditing was that Material Safety Data Sheets (MSDSs) were not always readily available for some of the hazardous chemicals left over from the EPC Contractors and the situation has been resolved. Medical services have fully transitioned to Production. An Industrial Hygiene Assessment program is currently ongoing with an exposure assessment process for Production activities underway to identify areas where special protection is required. The Health Assessment program continues for food safety, potable water systems, camp hygiene/sanitation, vector surveillance and control services and IDOM (Infectious Disease Outbreak Management). The worker health program continues to be closely linked to the community health program.

8.1.3 Recommendations

The H&S program continues to be implemented is a "best practice" system. We do not offer any recommendations arising from the present review.

8.2 COMMUNITY HEALTH

8.2.1 Observations

The Production community health program plans to continue the relationship established with the PNG Institute of Medical Research (IMR) and work collaboratively to better understand the disease burden of PNG and also how it can impact inside-the-fence health. The NGO undertaking programs to enhance community health awareness, Population Services International (PSI), completed their programs with the end of construction at the end of Q2 2014. PSIs activities took place over a four-year period with a Grant totaling USD 3.9million. The total number of people reached during program is estimated to have been 25,500. Ongoing initiatives of the Medicine and Occupational Health (MOH) group include assisting IMR in their efforts to follow up on active tuberculosis surveillance in the LNG Plant area and measuring change in prevalence rates in community since initial surveillance conducted in 4Q2013 and helping IMR with reporting for ongoing Studies: Maternal and Child Health; Non-communicable Disease; Healthy Pregnancy; and Sentinel Surveillance (Febrile & Diarrheal).

The Integrated Health and Demographic Survey System (iHDSS) surveillance that was a major effort to evaluate if the Project had impacts to community health has been completed. This survey involved continuous demographic surveillance of over 54,000 individuals at four locations (Hides and LNG Plant areas and two comparison locations - Karkar Island and Asaro). The iHDSS represents significant scientific progress in terms of understanding the high disease burden in PNG (TB is epidemic in Kikori) and helping to mold more effective public policy. Although interpretation is still ongoing and civil unrest in Hides prevented some of the surveys to take place, initial results of the iHDSS surveys were presented by the PNG IMR in a comprehensive report dated September 2014, which identified the main Project impacts as being positive with respect to employment and educational attainment. Health Surveillance data from PNGIMR show TB prevalence in Hiri, Kikori and Kar Kar to be a major problem. Other significant health issues reported are STI's and HPV (Human Papilloma Virus). HPV is the leading cause of cervical cancer and is the leading cause of death in PNG woman. Cervical cancer from HPV is vaccine preventable. Another significant health issue in the community in Hiri is non-communicable diseases relating to weight gain with 38% of the population overweight or obese and 21% with elevated glucose levels indicating pre-diabetic or actual diabetic levels. These NCD markers reported can be considered typical for a semi-urban suburb of Port Moresby where improved incomes and easier access to processed foods becomes apparent. The NCD survey results (in Hiri villages 38% overweight or obese vs. ~7% in Karkar with Hides not reporting) do indicate more needs to be done to educate the workers and the community about NCD's and healthy eating programs in the Hiri area. The Project's plan is to continue to support iHDSS implementation in the monitoring of community health in Hides, LNG plant and two control sites until end of 2017 to allow for the capturing of the post-Construction and early Production periods.

8.2.2 Recommendations

None arising from this review.

APPENDIX A

IESC 13TH MONITORING VISIT – TRIP SUMMARY

TRIP SUMMARY

***October 19**:*

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

***October 20 - 21**:*

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

***October 22**:*

IESC Environmental Team - Port Moresby – updates on current activities presented by EMPNG; travel to Komo in late morning and reviews Komo area in afternoon; IESC Social Representative – travels to Komo in morning and undertakes Monitoring & Evaluation (M&E) Planning. All go to HGCP Camp for lodging.

***October 23**:*

IESC Environmental – Helicopter flyover including: Hides Wellpad Access Road; Pipeline RoW; and access controls field observation (weather restricted access to Kikori area); IESC Social – Monitoring and Evaluation (M&E) verifications in Hides area (livelihood restoration/standard of living).

***October 24**:*

IESC Environmental – Environmental Site inspections including: Hides Ridge; Hides area reinstatement works; HGCP; Kopeanda waste management location; IESC Social – continued Monitoring and Evaluation (M&E) verifications in Hides area (livelihood restoration/standard of living).

***October 25**:*

IESC Environmental Team – fly to POM in morning and tour LNG Plant area in afternoon – overnight in POM; IESC Social – continued Monitoring and Evaluation (M&E) verifications in Hides area (livelihood restoration/standard of living), because it was not practical to fly to Moro, which was originally planned – overnight in Hides Camp.

***October 26**:*

IESC Environmental Team – prepares for closeout; IESC Social flies to POM in morning and prepares for closeout meeting in afternoon.

***October 27**:*

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

October 28:

- Closeout meeting in morning;
- IESC team departure.

APPENDIX B

IESC VERIFICATION OF INTERNAL E OUTCOMES OF STANDARD OF LIVING OF PHYSICALLY DISPLACED HOUSEHOLDS AND LIVELIHOOD RESTORATION OF ECONOMICALLY DISPLACED HOUSEHOLDS

1. Introduction – Status of Outcome Evaluation and IESC Verification of Results

This report presents the findings of the internal evaluation and IESC verification of the standard of living of physically displaced households (referred to as Type 1A) and livelihood restoration of economically displaced households (referred to as Type 1B – economically and physically displaced and Type 2 – economically displaced only). The report includes:

- summaries of the results of the internal outcome evaluation and IESC verification for standard of living and livelihood restoration;
- observations on results; and
- outstanding actions to close out the resettlement program.

See IESC *PNG LNG- Production Monitoring Report, 10-874-H11, Site Visit: June 2014, Appendix B* for additional details on evaluation and verification processes and context specific considerations for analysis of data.

Standard of Living: The Project has completed internal outcome evaluation of the *standard of living of 100% of the 626 physically displaced household*, including follow up visits recommended by the IESC following its verifications in June 2014. The IESC verified standard of living outcome evaluation results using a sample of 69 households. Of these, verification was done for 19 households primarily from unsafe areas the IESC could not visit was done through an analysis workshop involving the IESC, the outcome evaluation team leader, and field survey teams from the relevant areas. Of the 64 households in the declined category, the IESC verified 42 with the result of nine remaining in the declined category, 30 households moved to the maintained category, and three elevated to the improved category. The IESC was unable to verify the status of the remaining 22 households because they have relocated to areas deemed by Project Security to be unsafe.

Livelihood Restoration: The Project has undertaken two internal evaluations of *livelihood restoration outcomes outcome evaluation* using a sample of the economically displaced households understood at that time to include 417 households of which 218 households were both physically and economically displaced and 199 (Type 2) households were economically displaced only.

The first round included about 50% and the second round 25% of economically displaced households (97). The IESC conducted verification in June of 10 of the 11 households found by the first evaluation to have declined livelihood conditions. Verification resulted in only 4 of the 10 households assigned to the declined category. The IESC concluded, however, that the outcome evaluation data were insufficient and sometimes inconsistent to conduct accurate verification, thus asked that a second evaluation be done following additional training for the surveyors.

The IESC undertook to verify the results of the second evaluation which showed only one household in the declined category and a very large proportion of households in the improved category. This exercise indicated that the information from the second outcome evaluation was still insufficient and the data inconsistent. The IESC, thus, asked for another review of the data and a third round of outcome evaluation. The review is underway and indicates some significant differences between the reported number of Type 2 economically displaced only households to be offered livelihood restoration (initially reported as 199) and the actual number of Type 2 households needing livelihood restoration. The review found that 250 households were categorized as Type 2 in the database used for livelihood outcome evaluation. The data were then assessed on a household-by-household basis to determine the correct category for each household. The results indicate that impact on only 54 households qualifies them as Type 2 (needing livelihood restoration). The category breakdown is shown in the table below.

In addition to data inconsistency issues, the survey teams were not collecting sufficient information. The IESC provided hands on training in survey and assessment methods, and the teams will participate in additional training. The third livelihood outcome evaluation will be done once the data have been reconciled and the teams sufficiently trained (ETA December 2014-January 2015). The IESC will conduct verification of the third evaluation results in February 2015 (tentatively set for 10-17 February).

Results of Data Assessment - Categories of Economically Affected Households

Number Households	Corrected Impact Category
250 households in original database as Type 2	Households originally identified as Type 2
135	Type 3 households – minimal impact to livelihoods thus entitled to minor compensation to replace odd trees and garden crops or livelihood associated small structures (pig and chicken houses, firewood sheds, ditches, etc.). Received a range of payment, some as low as 200-300PGK.
7	Households already covered by livelihood restoration under the 1A/B category (both physically and economically displaced)
9	Speculative trade stores constructed to obtain compensation
7	Trade stores not in use (not trading) at time of census and survey
2	Businesses provided other kinds of livelihood restoration support (wages, lease of offices, etc.)
1	A one-off payment of compensation to break a work stoppage (for fuel tank outside the footprint)
35	Households with non-impacted land - compensated for anticipated garden loss, but land not lost or otherwise impacted and gardens remained available for use to changes in project plan (e.g., HHR, ROW).
54	**Final number of Type 2 households**

2 Summary of Evaluation and Livelihood Restoration Results

2.1 Standard of Living

2.1.1 Summary of Results

The overall results of the internal evaluation of the 626 physically displaced households, including changes resulting from the IESC verification of the 69 households, are:

Category	No. Households
Declined	32
Maintained	281
Improved	310
Deceased (single householder)	3
	626

The table below shows the categorization differences between the internal outcome evaluation and the IESC verification of the 69 verified households.

Category	Number Households Pre-Verification	Number Households Post-Verification
Declined	42	10
Maintained	17	44
Improved	10	15
	69	69

Less secure tenure and/or difficulty of access to services/water were the main reasons the *internal outcome evaluation* assigned households to the declined category. In the context of highlands land ownership/use,

the Project had no control over self-relocation site selection. Given that choices of land on which a household can live are generally and increasingly limited by intra- and inner clan conflicts and there are few roads, services and good water sources available in the area, the final number of households in the declined category (32) is low, and may be reduced further through reassessment of seven households in the declined category needing additional information to verify conditions or minimal assistance to raise them to maintained conditions.

Some of the households in the verification sample were elevated from declined to maintained or improved because security of tenure or poor access on their own were found not to indicate an overall declined standard of living, as long as other factors, standard of living and economic conditions, were the same as or better than pre-displacement conditions. Additionally, some households, particularly those that were displaced from land the project did not use, were elevated because they have relocated back to their original areas and sometimes to their original dwellings and gardens since the outcome evaluation was conducted.

See IESC PNGLNG- Production Monitoring Report, 10-874-H11, Site Visit: June 2014, Appendix B for a more detailed discussion of context specific considerations.

2.1.2 Standard of Living Program - Closeout Actions

The following actions will be conducted in order to close out the evaluation process.

- desk assessment of evaluation data to ensure consistent information transferred from surveys to database. TBD end of November 2014;
- reassessment and/or implementation of remedial action for eight households in declined conditions. TBD end of 2014.

Household No.	Reassessment Issue
28	Provision of drinking/cooking water tank
112	Provision of drinking/cooking water tank
267	Provision of drinking/cooking water tank
519	Vulnerable household – assess to determine if vulnerable assistance is properly targeted for specific vulnerable condition
529	Tenure status to be verified
534	Clarify whether head of household is female and living on father's land (would be secure)
852	Verify whether tenure is wife's family land

- on completion of the seven reassessments and implementation of any remedial actions, the standard of living program will be completed. TBD end 2014 (depending on community availability during Christmas season); and
- prepare Standard of Living close out report. Draft will be provided to IESC in early January. Review with IESC will be done during February IESC Social Expert visit. The report will include, at minimum:
  - findings of standard of living results;
  - reasons for declined conditions (project and non-project caused) and any remedial actions;
  - reasons why some affected households could not be visited; and
  - report and all supporting evidence (database, data evaluation results, and bases of decisions on status of households), photographs, etc.

2.2 Livelihood Restoration

2.2.1 Summary of Preliminary Results

The table below shows the overall results of the second internal evaluation of a 25% sample (97 households) of the 417 economically displaced households originally identified, including changes resulting from the IESC verification of 17 (10 in June and 7 in October) households.

Note that these are preliminary results based on incomplete evaluation data.

Results of 2nd Livelihood Outcome Evaluation and IESC Verifications

Category	No. Households
Declined	2
Maintained	7
Improved	88
	97

Category changes made by the IESC to date include:

- June verification: 5 households moved from declined to maintained and 1 household moved from declined to improved; and
- October verification: 2 households moved from improved to maintained and 1 household moved from improved to declined.

2.2.2 Livelihood Restoration - Closeout Actions

The following actions will be conducted in order to close out the livelihood evaluation process.

- complete data assessment to correctly identify economically displaced households (TBD end November);
- conduct 3rd evaluation (same sample as 2nd evaluation) using improved methods (TBD mid January 2015):
  - assessment of data to ensure consistency and add known background information,
  - team leader to supervisor surveyors during evaluations as much as possible,
  - include prompts (type of additional questions to be asked) in survey guide (completed during IESC October visit),
  - do not rush interview process,
  - assess results of interviews and decide category as a group at the end of each day,
  - transfer data to database with full comments on regular basis, and review to ensure accuracy;
- IESC to verify results of third livelihood evaluation (TBD tentatively 10-17 February 2015);
- L&CA and ANUE complete food security assessment and assessment of agricultural program implementation (end 2104), considering:
  - clarify whether all economically displaced households entitled to livelihood restoration were offered participation in the program,
  - input delivery status from beginning of implementation,
  - all components implemented (evidence training not done as planned, animal husbandry particularly affected),
  - achievement of targets for each activity,
  - achievement of outcomes (particularly for food security, i.e., how many households have achieved the 600m2 sweet potato gardens),
  - identification of targets not achieved, reason for non-achievement, and time-bound corrective actions;
- combine results of food security assessment for final categorization of livelihood restoration outcome. (Submit to IESC for review by mid-February 2015);

- implement any remedial actions indicated by results of final assessment - any additional assistance to be provided to declined households whose conditions can be shown to result from livelihood program inadequacy. (Known gaps to be filled as soon as possible and final gap closure report based on results of third outcome evaluation and verification to be implemented and reported to IESC by mid-March 2014); and
- prepare livelihood outcome report (L&CA will provide status reports to IESC during draft preparation, submit draft to IESC in January 2015, L&CA and IESC will review draft during IESC Social Expert visit tentatively set for 10-17 February). The report will include, at minimum:
  - findings of livelihood restoration evaluation and IESC verification results,
  - reasons for declined conditions (project and non-project caused) and any remedial actions,
  - reasons why some affected households could not be visited,
  - report and all supporting evidence (database, data evaluation results, and bases of decisions on status of households), photographs, etc.

3.0 Outcome Evaluation Results for Standard of Living and Livelihood Restoration (2nd Evaluation/Verification)

This section contains the spreadsheets for standard of living and livelihood restoration respectively, showing for each household the indicator measurements, project internal evaluation results, IESC verification results, final results, and comments on conditions.