



Hides Gas Conditioning Plant - Operational



Jetty at LNG Plant - Operational



Komo Airfield - Operational

REPORT OF THE:

INDEPENDENT ENVIRONMENTAL & SOCIAL CONSULTANT

ENVIRONMENTAL & SOCIAL COMPLIANCE MONITORING

PAPUA NEW GUINEA LNG PROJECT

Site Visit: June 2014

Prepared for

Export-Import Bank of the United States

Export Finance and Insurance Corporation

Japan Bank for International Cooperation

Società Italiana di Assicurazione dei Crediti all'Esportazione

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ACRONYMS

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

GoPNG	Government of PNG
HDD	Horizontal Directional Drilling
HGCP	Hides Gas Conditioning Plant
HGSF	Hides Gas Security Force
HH	Highlands Highway
HRM	Human Resource Management
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	Resettlement Action Plan
RoW	Right-of-Way
RPF	Resettlement Policy Framework
RPNGC	Royal Papua New Guinea Constabulary
SELCA	Socio-Economic, Land & Community Affairs
SMP	Social Management Plan
SoL	Standard of Living
SSH&E	Safety, Security, Health and Environmental
STI	Sexually Transmitted Infections
TCC	Thermal Cuttings Cleaner
TOR	Terms of Reference
TOU	Thermal Oxidizer Unit
TRP	Tactical Response Plan
TSHD	Trailing Suction Hopper Dredger
TSS	Total Suspended Solids
UBSA	Umbrella Benefits Sharing Agreement
UNEP-WCMC	United Nations Environmental Program – World Conservation Monitoring Centre
U-PNG	University of PNG
WAA	Waste Accumulation Area
WAP	Workplace Assistance Program
WASH	Water, Sanitation and Hygiene
WMA	Wildlife Management Area
WPAR	Well Pad Access Road
WWF	World Wildlife Fund
WWTP	Wastewater Treatment Plant
YTD	Year to Date

EXECUTIVE SUMMARY AND CONCLUSIONS

This report represents the twelfth post-financial close field visit to Papua New Guinea (PNG) made by D'Appolonia S.p.A. of Genoa, Italy serving in the role of the Independent Environmental and Social Consultant (IESC) for the Papua New Guinea Liquefied Natural Gas (PNG LNG) Project with ExxonMobil PNG (EMPNG, formerly EHL – Esso Highlands Limited) as the Operator on behalf of Export Credit Agencies (ECAs) and commercial banks providing Project financing (Lenders). The purpose of this visit has been to monitor conformance with Project environmental and social commitments made during actual Project development. This visit was conducted from June 16 - 23, 2014 in PNG.

Since the last visit in February, the PNG LNG Project has transitioned to Production. Gas now being obtained from the Hides Field, processed at the Hides Gas Conditioning Plant (HGCP) and sent to the operational 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, six tankers of LNG had been shipped from the jetty at the LNG Plant. All of the Engineering, Procurement, & Construction) EPC construction contractors are either fully demobilized or nearing completion of their demobilization.

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

The transition to Production is effectively complete, approximately two months ahead of schedule. Although there are still a few EMPNG Project staff still working in PNG, the majority of the Construction phase staff have demobilized and the majority of the Project facilities have been turned over to Production, except for ongoing well drilling and the Permanent Facilities Compound (PFC) construction. The Production ESMP has received approval from the Department of Environment and Conservation (DEC). 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.

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. Documents applied during the Construction phase have limited reference. For this and future field visits the Production 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.

An important aspect of the ESMS that is a requirement of PS1 for a Production company is emergency response. Emergency response programs are well-advanced. Plans and procedures and equipment are fit for purpose at this stage of Production and emergency response teams are in place at the HGCP and the LNG plant. An Emergency Response Center has been developed in POM.

Pollution Prevention

Waste management continues to be well managed with emphasis currently being placed on the disposal of waste associated with the demobilization of the last remaining EPC Contractors, especially with respect to camps in the Hides area. The hazardous waste incinerator at the Hides Waste Management Area (HWMA) has been turned over to Production and will probably continue to be used as long as drilling operations in addition to Production activities generate a volume of waste to justify the use of an incinerator this large. Once Production activities are the only source of waste, a smaller incinerator located at the HGCP is expected to be used. Landfills at LNG site and at Hides can guarantee enough capacity to dispose of all construction wastes which are almost over. Significant results continue to be achieved in waste recycling and re-use options (scrap metals, waste oil, drilling cuttings, tires, etc). Local communities have benefitted from camp demobilizations in terms of excess furniture and cabinetry, although it has proved difficult to recycle the metallic components of demolished camps in the Hides area. Additional metal recycling companies have been identified for use by EPC3 at the LNG Plant site.

Most of the Construction-phase WWTPs have been decommissioned. The Production WWTP at the LNG plant was commissioned on March 31 and the new WWTP to service the HGCP for Production is in the process of being commissioned. Production has also assumed responsibility for the WWTP at the Komo airfield. It is expected that the success of these facilities will be determined by their performance in Q3 2014 and these results will be reviewed during the next IESC field visit.

Now that Production has assumed responsibility for environmental management, ambient air quality and stack emissions testing are now requirements for monitoring. Stack emissions at the Kopeanda incinerator have been conducted, but laboratory test results have not yet been received. Stack emissions testing will be conducted at the HGCP and LNG plant once startup activities are completed. Flaring is now taken place and ambient air measurements made at both the HGCP and LNG plant. Test results are reported to be within ambient air standards.

Ecological Management and Biodiversity

Several ecological documents and registers are being developed to support implementation of the EMP. The Revision 3 of the Biodiversity Strategy is -completed. A final draft Biodiversity Monitoring Plan is with the IESC for review. Faults found when assessing the PMA-1 remote sensing reports produced to date have meant a reanalysis of the satellite imagery is required. PMA-2 ecological condition surveys and the PMA-3 RAP-type Biodiversity surveys are planned for Q3/Q4 2014, along with the initial post-construction biodiversity surveys (to provide a first project-wide assessment of how well the Biodiversity Strategy has been implemented to date).

The IESC reviewed Rev.1 of the Offset Delivery Plan and Framework documents. With regard to the Framework, it is our opinion that EMPNG is yet to fully embrace some technical fundamentals that should be a key part of an offset program designed to achieve no net loss:

- Although having undertaken an initial biodiversity debt calculation several years ago, EMPNG have been reticent to fully embrace offset accounting. Without calculating the losses to biodiversity as residual impacts, or attempting to calculate the biodiversity gains generated by supporting conservation projects, EMPNG will have difficulty in demonstrating no net loss, a core IFC PS6 (2006) requirement for operations in Critical Habitat;
- For the conservation gains derived from an offset to be considered valid, EMPNG should be able to articulate and demonstrate that those gains would not have occurred anyway. A prediction of what would have happened, had the offset not occurred, will provide a starting point from which to calculate the conservation gain;
- Ideally, conservation gains are generated prior to any impact occurring e.g. as with Habitat Banking; if not, then within an acceptable timeframe. EMPNG should determine the timeframe over which various conservation gains can be expected, the timeframe by which NNL will be achieved, and the anticipated timeframe over which no net loss will be maintained;
- A key preventative offset management stage is to fully assess and understand the risks and uncertainties inherent in undertaking community-based conservation projects and achieving the desired conservation outcomes. Mechanisms for ongoing governance over the life of the offset should be developed.

We have discussed these findings with EMPNG and they have committed to considering how these offset fundamentals can be incorporated into their philosophy, design and implementation.

Recommendations focus on: consideration of the offset fundamentals detailed above, and incorporation into their offset philosophy and Framework; and encouragement to progress the consideration and selection of an offset candidate project at higher elevations (>1200m).

Freshwater and Marine Ecology

The 2014 Caution Bay marine ecology survey protocol agreed to with the IESC at the February audit was completed April 8-13, 2014. There was no evidence of coral stress or dead coral. Based on evidence to date, it is reasonable to conclude that the level of impact resulting from construction activities is minor, and as predicted in the EIS. No further monitoring is warranted.

The 2013 freshwater survey results were expected, but not presented. Freshwater work is being conducted, but the Project is dealing with some security issues at some sample sites. Results should be ready by time of next visit. The latest biannual Water Quality and Marine Sedimentation monitoring survey commenced in September 2013 and results are expected soon.

Omati River and Caution Bay Fisheries Studies

Final results for all quarters of 2013 and preliminary results of the Caution Bay and Omati River fisheries studies were made available during the site visit. Available information shows wide variation in species

composition and landings, influenced by weather, season and village activities throughout the years. It was noted when comparing Q1 2013 with Q1 2014 that the combined catch/unit effort for all four Caution Bay villages was down 92%. Training for fisheries survey continues to improve fisher participation and data quality.

Induced Access

Although anticipated, there has still not been a formal request from the PNG government for the retention of the Kikori River Bridge. However, there has been a formal request for a temporary retention of the RoW construction bridge over the Benaria River at MLV-1 (until the government builds a more permanent bridge). For access controls along the main RoW construction road, EMPNG is utilizing existing OSL road controls, and plan to install (at Kantobo OSL: EMPNG road junction) or resurrect old Chevron boom-gates (at Gobe) and provide guards at both so they are permanently manned. However neither of these boom-gates is currently in operation; EMPNG is in dialogue with local communities in both instances to try to ensure controls are in place/operational. However in the interim, access is not controlled along the EMPNG southern logistics route road between the public road at Gobe and the OSL road at Kantobo (see Issues Table).

There have been some changes to above ground installations (AGIs) access controls from those in the Upstream EMP available on the PNG LNG website; significant changes include the aforementioned temporary retention of the Benaria Bridge at MLV-1; an additional unmanned locked boom-gate is in place at CV-1; an additional unmanned locked boom-gate is in place at MLV-2 on the Homa-Benaria Ridge (there was a failed attempt to breach the original gate's padlock), and the project proposes use of a mobile vehicle wash-down station; three of the four shoo-fly accesses between Kopi and Omati noted in our previous report are not currently being progressed; unmanned locked boom-gates are now installed and in operation at many of the AGI's, apart from at MLV-1 and on the EMPNG shortcut section between Kopi scraper station and the Kopi shore base – access is not currently controlled at either of these locations (see Issues Table).

Recommendations focus on: commencing the in-depth risk assessments related to the anticipated government request of the Kikori River bridge (including the identification of mitigation measures, and whether any ecological protection opportunities could be generated); recognizing the importance of the Priority Ecosystem of the Homa-Benaria Ridge, using the security camera system already installed at MLV-2 to provide real-time monitoring for unauthorized use of the retained access road; where access is currently not controlled at MLV-1, Kantobo OSL:EMPNG junction, Gobe airfield and at the Kopi shortcut road, boom-gates should be installed (or resurrected) and made operable as per commitments related to controlling access to project roads and infrastructure; reiterating a previous recommendation to develop a procedure regarding the processes for pre-authorizing, allowing, and monitoring use by authorized vehicles through manned boom-gates.

Reinstatement and Regeneration

Reinstatement of the RoW is now 100% complete and environmental management of the RoW fully with Production personnel. In those RoW areas most recently completed, early stage re-vegetation is beginning and slope stability and erosion control measures appear generally well executed (observations were primarily from a chopper, but also by vehicle up Hides Ridge). Sporadic vandalism of sediment control structure is occurring, but the environmental team is working with L&CA to try to address this. Komo reinstatement is progressing, albeit more slowly than predicted; some slope failure and gully erosion has occurred. Reinstatement at the LNG Plant is progressing well, and the tall-tropical grasses are being cut regularly to lessen fire risk. BioTropica audited recently, and their headline conclusion is that site reinstatement conditions are improving. There are no recommendations arising from this review.

Invasive Species, Pests and Plant Pathogens including Quarantine Management

There has been an increased focus on training and raising awareness amongst staff on weed management. BioTropica conducted a further project-wide weed audit, and their headline conclusion was that weed abundance and distribution are generally static or in decline, with just a few exceptions, which EMPNG is focusing on.

IESC observed P1 weed Singapore daisy at Komo, also noted during BioTropica's audit a month earlier. There is currently a lack of clarity regarding the issuance of certificates following vehicle wash-down certificate at Hides Ridge a requirement of the EMP).

As Contractors demobilize and import fewer consignments, quarantine management issues decrease. EPC4 consignment inspections continue to result in a high level of fumigation, although there is significant improvement over 2013. EPC5A have seen a marked improvement in the number of fumigations required, but their work is complete. A high proportion of Drilling consignments inspections are still requiring further fumigation, but the team is taking constructive steps to involve the vendor in an attempt to improve the situation.

Recommendations focus on: clarification on the issuance of certificates at the Hides Ridge vehicle wash-down station; and P1 weed management at Komo.

L&CA Structure and Staffing for Resettlement

Three teams within L&CA, Compliance, Community Affairs and Land, manage most of these activities. Evaluation of resettlement outcomes falls under Compliance, though Field Teams are managed by Community Affairs as they serve a variety of purposes. This has worked effectively during construction, but as internal outcome evaluation has ramped up, field officers may not have had sufficient time to conduct the evaluation surveys. L&CA should ensure that field officers have sufficient time to do more in-depth surveying for the second livelihood restoration survey. In the event any additional land that requires displacement acquired during Production, adequacy of field staff should be assessed.

Resettlement Documentation

The IESC is satisfied with the CRP for the Permanent Facilities Compound and it may be released to the public.

Standard of Living – Internal Evaluation and IESC Verification

Internal outcome evaluation of standard of living was done for 100% of the 626 physically displaced households. IESC verifications of standard of living have been completed for 40 households to date. Of the 54 households the Project evaluation has categorized as declined, the IESC has verified 18 households. Results of verifications of the 40 households identified 6 households having living conditions that have declined since displacement, 23 households that have maintained pre-displacement living conditions, and 11 households that have improved their living conditions. Project evaluation staff will investigate further to determine whether any or all of the six declined households can be assisted to improve their standard of living. The IESC will verify the remaining households in the declined category during its October 2013 visit depending on its ability to visit households located in insecure areas and the ability of the Project to locate the six households that have left the area. EMPNG should complete and submit the results to the IESC prior to its October visit of the follow up assessment of the six households found to be living in conditions that have declined from pre-displacement conditions.

The IESC notes some inconsistencies in the Project's outcome evaluation data and in the relationship between the data and the standard of living category assigned. The IESC has requested a quality assessment of the data and additional training of field surveyors in conducting interviews that produce the information needed to support an accurate and nuanced analysis.

See Appendix 2 for more detailed information on the verification process, contextual analytical factors, and results.

Water Availability for Physically Displaced Households

Decline in access to water was not found to be a major issue, but the Project, through a third party, will distribute (by August 2014) small water catchment tank kits to any physically displaced household without a source of water.

Some households noted a decline in access to water because they are afraid to drink nearby creek water they believe the Project has polluted. L&CA should consult with the Environmental Management group to determine who is responsible for messaging about creek water monitoring results.

Top Ups for Crops/Trees

An acceptable simplified calculation model for compensation top up payments has been achieved. The model is based on estimated cost to produce crops minus compensation already paid for three garden types: mixed, sweet potato, and peanut/pineapple. Compensation will be in kind (probably tools) and will be distributed to all affected garden owners. Quite a long time has elapsed since the original compensation payments were made, thus the IESC would like see the in-kind top ups delivered prior to its October visit.

Livelihood Restoration – Remaining Input Delivery

Deliveries of animals (chickens/ducks) to remaining 298 households (out of 626 total) are in progress. Verification visits found that training is not being provided along with animal delivery and some households report animal deaths and disease. The reasons for these gaps are unclear, at least partly because ANUE (program implementer) has not submitted monitoring reports since sometime in 2012. The IESC recommends a “rapid assessment” of households who received animals earlier to identify the need for training and the type of training needed. For households receiving animals recently or in the near future, training should be provided by mid-October 2014.

Livelihood Restoration – Internal Evaluation and IESC Verification

Of the 417 economically displaced households, internal outcome evaluation was done for 100% of the 218 households that were both economically and physically displaced and about 50% of the 199 households that were only economically displaced. Results of this first internal evaluation found only 11 households in declined from pre-displacement conditions. The IESC verified 10 of the 11 declined households and found that only four households had conditions that had declined from pre-displacement, while five had maintained and one had improved livelihood conditions. The small number of declined households is largely due to most affected households having gardens elsewhere and positive effects of the livelihood restoration program. Final analysis of livelihood restoration will also consider the food security status of economically displaced households. L&CA should report to the IESC during its October visit the status of the agricultural livelihood component, achievement of food security targets for *economically displaced households*, and any corrective actions taken or to be taken.

See Appendix 2 for more detailed information on the verification process, contextual analytical factors, and results.

Resettlement Completion Audit

The Resettlement Completion Audit is the remaining requirement of the Lender Environmental and Social Requirements (LESR). This audit is not a part of the construction Completion Certificates requirement. The IESC has provided L&CA with a draft Terms of Reference (TOR) for the audit and will recommend auditor candidates. The Project should review the draft and discuss changes and additions with the IESC. The IESC suggests that there be an audit team composed of a team manager who is a senior resettlement expert with experience in resettlement evaluation and auditing and one or two field staff. The Terms of Reference should be completed during the IESC October visit.

Community Impacts Management

The number of security incidents in the highlands has decreased, at least partly because of demobilization and greatly reduced project activities. The security group conducted a full risk assessment and risk transfer process as the basis for production security management planning. Achieving secure conditions for both project and local communities will rest on productive interaction between the project and communities, especially along the pipeline which cannot be easily accessed by project staff.

In terms of demobilization impact on communities, field officers have received no complaints or other issues from communities, largely because of good planning and monitoring by the Project.

Project Induced In-Migration (PIIM)

During the construction phase, the Project implemented in-migration minimization measures, most of which related to recruiting and hiring practices. These measures were implemented, and appear to have had a positive effect on minimizing in-migration. Only minor in-migration directly related to the project can be expected during production, though the project may motivate other kinds of development that can attract people to the area. The IESC commends the project for developing an in-migration monitoring system designed to identify community and government support programs that respond appropriately to population and other changes over time. Data collected from May – November 2013 and reported in the March 2014 iHDSS report indicate that the Project has not induced in-migration. The IESC will appreciate a more detailed explanation of the process by which the relationship of the project to in-migration is determined.

Procurement and Supply

For future visit, the IESC requests presentation(s) covering procurement and supply monitoring results. Presentations should address (i) number and type of contracts awarded to Papua New Guinean contractors and subcontractors, (ii) number of PNG employees for each contractor (disaggregated by local and national and by gender), (iii) number and type of capacity building trainings and business development support measures provided to Landowner Companies, and (iv) performance against the IFC PS2 requirements included in contracts and examples of the contract language related to these requirements.

Community Support

Projects initiated during the construction phase that are still in progress include 12 projects in the upstream area, eight projects in the pipeline RoW, and three projects in the plant site area.

The IESC reviewed the latest draft of the Community Development Support Implementation Plan and sent comments on 22 May. The project responded positively to these comments during the IESC visit. The most substantive IESC recommendation applies to CDS program outcome evaluation. The IESC finds the discussion of evaluation in the implementation strategy lacking the detail necessary to guide an effective process. The IESC, therefore, strongly recommends preparation of a CDS Evaluation Procedure that describes each step in the process. The IESC also recommends that some of the program level (Level 1) indicators be replaced or supplemented by indicators that are more robust and better reflect the core themes of the CDS – livelihood support, health, education, and law and order/justice. The IESC has provided examples of more robust indicators.

CDS is developing baseline profiles of each geographic area for use in identifying the appropriate projects and methodologies. The IESC suggests that each profile be analyzed to produce a summary that sets out the main considerations in selecting projects, delivery methods, partners and cost sharing, and so on.

Stakeholder Engagement and Consultation

Project engagement with local communities continues with 377 engagement events conducted in the upstream areas and 111 events with LNG plant area communities. Upstream engagements focused on issues related to land agreements and payments, payments for other kinds of compensation reinstatement, traffic, and requests for employment. PNG area engagements focused on loading of first cargo and tanker trials, future community development support, and environmental issues (noise, flaring, etc.). The Village Liaison Officer (VLO) Strategy is a key element of continuing engagement and maintaining relationships with local communities during Production.

Grievance Management

The number of grievances has significantly declined and at the end of May 2014, there were zero grievances outstanding. The overall closure rate of grievances for 2014 to date is 71%, under the target of 75%. The annualized closure rate is 89%. The closure rate dropped below 75% in April, May and June due to staff changes and focus on first cargo engagements. The closure rate has returned to above 75% in subsequent periods. About two-thirds of the grievances filed during this period regarded pipeline RoW issues.

Benefit sharing

The Project continues to provide administrative and logistical support to the PNG government for various aspects of the benefit sharing process. The PNG Government is responsible and accountable for determination and payment of landowner beneficiary royalty and equity dividends. EMPNG's goal, thus, is to influence and support the Government to pay landowner State Cash benefits in accordance with PNG laws. In the opinion of the IESC, the project's efforts are having a constructive influence toward achieving safe, accurate and effective delivery of cash benefits, though a number of significant challenges remain.

Labor and Workforce Conditions

For future IESC visits, the Project will present full reports on implementation of the production Labour and Working Conditions Management Plan ("the Plan") in order for the IESC to verify compliance with IFC PS 2, PNG legislation, and other applicable requirements. Reporting will follow the list of topics given in Section 6.1 of the Plan for both EMPNG and its contractors. In addition to internal reports, the IESC should receive any assessment (see Section 5 of the Plan) or audit findings. The IESC asks to see the

Workforce Grievance Mechanism for Production and the language in contracts regarding adherence to the Labour and Workforce Management Plan for Production.

Demobilization

Demobilization is nearly completed. EPC 3 has 326 PNG nationals and 618 OCNs engaged primarily with subcontractors in camp demobilization and security. EPC 4 has 190 workers, most of whom will be demobilized in Q3 2014. Project field and grievance/complaints assessments, as well as IESC observations in the field, indicate that the demobilization program has gone well as a result of good planning and monitoring, communications with workforce and communities, livelihood monitoring and responsive community support projects.

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 April 2014 review by the Independent Scientific Advisory Board (ISAB) congratulated PNG IMR and PSI teams for their effective efforts implementing PiHP and Enhanced Community Health Program (EHP). The health program was also complemented for its focus on sustainable and translational activities for the PNG Health system and its strong engagement with partners.

Health and Safety

The overall statistics associated with both safety and occupational health aspects of the construction phase of the PNG LNG Project are excellent. The cumulative Lost Time Incident Rate (LTIR) for the construction phase is 0.01, which is remarkable. The Project has completed more than 44 million man hours LTI-free since July 2013. The one aspect of the construction phase that was unacceptable was the number of fatalities. This has been focus of a lessons learned exercise by the Project with the note that emphasis needs to be made on identifying potentially fatal activities and focusing training on those aspects. 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 have been consistently better than objectives since Q2 2012.

One of the reasons why the Occupational Health program has been successful is because of the effectiveness of the community health program. The Project has been aware of the community diseases that could be imported into the Project and has developed programs to prevent their influence on the Project workforce. The Occupational Health and the community health programs have been synergistic and mutually beneficial. The occupational health program successes are also related to Company and Contractor management engagement with appropriate resource allocation for occupational health program identification (HRA), implementation (PDS and project health team), with adequate KPI verification and stewardship.

Cultural Heritage Management

Cultural heritage management associated with construction is complete. In terms of achieving the basic goals of a cultural heritage program, EMPNG has been successful. Archaeological and human heritage sites were identified during pre-construction surveys and avoided where practical. Those that could not be avoided were appropriately mitigated. A chance find protocol was implemented to manage cultural heritage finds made during construction. Cultural remains from the field work were analyzed and appropriately interpreted and the results published such that future researchers have the results available to them. The location of cultural heritage sites is now fully documented with the Production Cultural Heritage Register and GIS system. The National Museum and EMPNG are working towards an exhibition of Project findings.

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. There is still some applicability of the Construction ESMP, specifically with respect to ongoing drilling and some activities such as pipeline reinstatement, but the Production ESMS is now fully rolled out.

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. Activities of the individual EPC Contractors associated with construction are no longer part of the IESC review as they have completed their work scopes and are either demobilized or in the process of demobilizing. 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 CONSTRUCTION STATUS

Construction is complete and all of the EPC Contractors discussed in previous IESC reports have either fully or partially demobilized. The remaining construction activity is drilling. Well Pad B – Hides B1 and B2 Wells were transferred to Operations late November 2013; Well Pad C – Hides C1 and C2 Wells were transferred to Operations early April 2014; Well Pad D – Hides D1 and D2 Wells were transferred to Operations at the time of this field visit. Rig 703 is currently in the process of drilling Hides G1 and G2

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

Wells at Well Pad G. Rig 702 is currently drilling the Produce Water Disposal (PWD) Well next to the HGCP. Camp modules for the drillers have been relocated from Wellpad D to Camp 7 in anticipation of the startup of drilling at Angore.

With respect to construction camps, the SpieCapag (EPC5A) camps have been demobilized and reinstated, except for Camp 5 at Moro (KP 93) being sold to OSL. Moro Camp B is also expected to be transferred to OSL at some point and the Kobalu and Juni camps are no longer occupied, but are under light guard pending their transfer to the PNG Government. The Komo Airfield Camp is still being used by Production, but at some point the Komo airfield is expected to be transferred to the PNG Government. A portion of the EPC4 construction camp (C Block in the HGCP Upper Camp) has been demolished with the remainder expected to be demolished soon, whereas 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. Projected occupation for this facility is Q1 2015.

After a peak workforce of 21,220 by the end of 2012, demobilization is effectively complete. Projections for demobilization show that the construction workforce will be close to zero by the end of June.

1.2 SOURCES OF INFORMATION

The main sources of information used to prepare this twelfth 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;
- Section 8.0 – Health and Safety;
- Section 9.0 – Cultural Heritage.

The basic findings of the review are presented in the form of observations, comments and recommendations that are generally described according to topics within each section. 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 ^o	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
Environmental Issues – Biodiversity and Ecological Management							
² 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 is not in compliance with that stated within the Upstream EMP.	I	Upstream EMP Section 17 and IFC Performance Standard 6	Open	At MLV-1, EMPNG was to install a locked unmanned boom-gate to restrict 3rd party access to the RoW and MLV-1 area. This boom gate is not yet in place, and vehicular access is not controlled. Between the Kopi Scraper Station and the Kopi Shore-base, EMPNG was to install locked unmanned boom gates and keep them operable. These boom gates and locks are installed, but EMPNG report they are currently kept open due to community needs and concerns, therefore vehicular access is not controlled. Along the 'Southern Route' RoW construction road between Gobe and Kantobo, EMPNG was to remove culverts at both Gobe and Kantobo, and install manned boom gates at Kantobo (at the junction with the OSL road), and resurrect/upgrade the old Chevron gate at Gobe so as to have a manned boom-gate at the junction with the public road. Currently the company plans not to remove the culverts, and the boom-gates are not operational. Although not observed, this situation could potentially allow public access up to Kantobo, and beyond onto the OSL road where their access control is at the Kutubu end of the road. EMPNG is currently working on issues related to installation and operation of each of these gates, but the situation as it stands means the company is currently not in compliance with their commitments. If, following a needs analysis/ risk assessment, vehicular access by the community is deemed appropriate, this should be according to commitments made in the Upstream EMP i.e. landowner vehicles may be sanctioned subject to prior approval from EMPNG and only once authorized by designated EMPNG personnel. To this end, EMPNG may need to consider these locked boom-gates being manned instead of unmanned e.g. operated as per OSL manned boom-gates. (Report reference Section 5.3.1)

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. M12.1 refers to issue 1 found in visit 12).

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. At the time of the last IESC field visit, approval of the two Environmental Management Plans (EMPs) associated with the ESMP were pending approval by the Papua New Guinea Department of Environment and Conservation (DEC). This approval was received on February 14, 2014 and the Production ESMP is a final, working document.

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 Construction ESMP is still applicable to the ongoing drilling program, the few remaining activities associated with the demobilizing EPC Contractors and some transitional activities, such as pipeline reinstatement. 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 5.4.2.3). The LESR also served to link ESMP and non-ESMP documents, for example the Biodiversity Strategy, but these links are now defined in the Production ESMP documents. For this and future field visits the Production 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.



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. Lower priority tools are in draft form. Periodic updates of these tools will occur until they are endorsed by SHE management, at which point they will be reviewed by Operations Management for final endorsement.

Target complete endorsement is late Q4 2014. Fully endorsed implementation documents will be provided to IESC for information.

The Production team for implementing the ESMS is in place. The few remaining Construction staff not demobilized provides support to the Production team, but activities are fully in the hands of Production staff. 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.

3.2 MANAGEMENT OF CHANGE

The status of the Class II MOC (requiring Lender notification) related to the turnover of the Kikori Bridge has not changed since the last IESC field visit. It is still expected that the PNG Government will present a formal request for the turnover of the bridge, but such a request has still not been received and the MOC is on hold. Another pending MOC was the addition of a 9th Production Well, but an MOC has not been prepared for this additional activity.

Since the last IESC field there has been one Class II change related 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). This bridge provides for continued road access into Main Line Valve Station (MLV1) and has become a means for local villagers to cross the river (pedestrian access). Removal of the temporary construction bridge prior to the construction of the Government's proposed permanent bridge could lead to community unrest and the increased potential for security incidents. This MOC was approved on April 1, 2014.

3.3 INCIDENTS

Since the last IESC field visit there have been no significant security incidents and the biggest issue has been theft of equipment during the demobilization process. The January 14, 2014 murder of a guard in a local market adjacent to MLV-1 has not been resolved, as the perpetrator has not been apprehended.

From an environmental standpoint, there was one significant incident that tested the Emergency Response Team whereby propane gas was released at the LNG Plant. This incident was appropriately managed.

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.

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. Specific to the LNG plant, a Marine Incident Protocol has been established and tested through drills to be aligned with Government expectations.

The Emergency Response Plans (ERPs) and the Oil Spill Contingency Plan (OSCP) are in place in a form suitable for startup activities and Final ERPs for Production have been drafted to the Rev. 0 level for the HGCP and the LNG Plant. Tactical Response Plans (TRPs) are intended to identify site-specific procedures for sensitive locations. For the HGCP area there are 16 Spill TRPs, of which 12 are complete and the remainder expected to be complete by the end of 2014. A total of 14 Spill TRPs apply to the LNG plant, of which five are complete and the remainder expected to be complete by the end of Q1 2015.

Spill response equipment is in place at both the HGCP and the LNG plant. The LNG plant has dispersant for use during a marine spill on site, pending Government approval for its use. Fire/rescue equipment is also in place at the HGCP and the LNG plant pending only the delivery of some additional fire trucks, expected to be on site by Q3 2014. Emergency response contractors are all in place. HES/Falck is present at both the HGCP and LNG plant sites and is finalizing the TRPs, undertaking training, and managing drills. Oil Spill Response Limited (OSRL) is also in country and also with the responsibility to finalize TRPs, commission equipment and undertaking training/drills. Practical Risk Management (PRM) is working offsite to prepare ERPs and undertaking training/drills. The program of drills is comprehensive and conducted a both desktop and field exercises involving other stakeholders including OSL with whom EMPNG has an agreement for mutual assistance.

3.5 FINANCIAL COMPLETION

As reported in the last IESC report, the suggestion was made that the timing of the Environmental and Social Completions Certificate could be accelerated. However, the timing of the Environmental and Social Completions Certificate, as defined in the Completion Guarantor documentation, is such that it be dated on or after the date of the Physical Completion Certificate and Operations Completions Certificate. This is currently targeted for Q1 2015 which means that the Environmental and Social Completions Certificate is expected to be finalized at about the same time.

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. Nearly all of the waste generated as part of the demobilization of the remaining EPC Contractors has been managed, although there is still some waste being generated such as demolition debris during the last stages of demobilization. As shown on

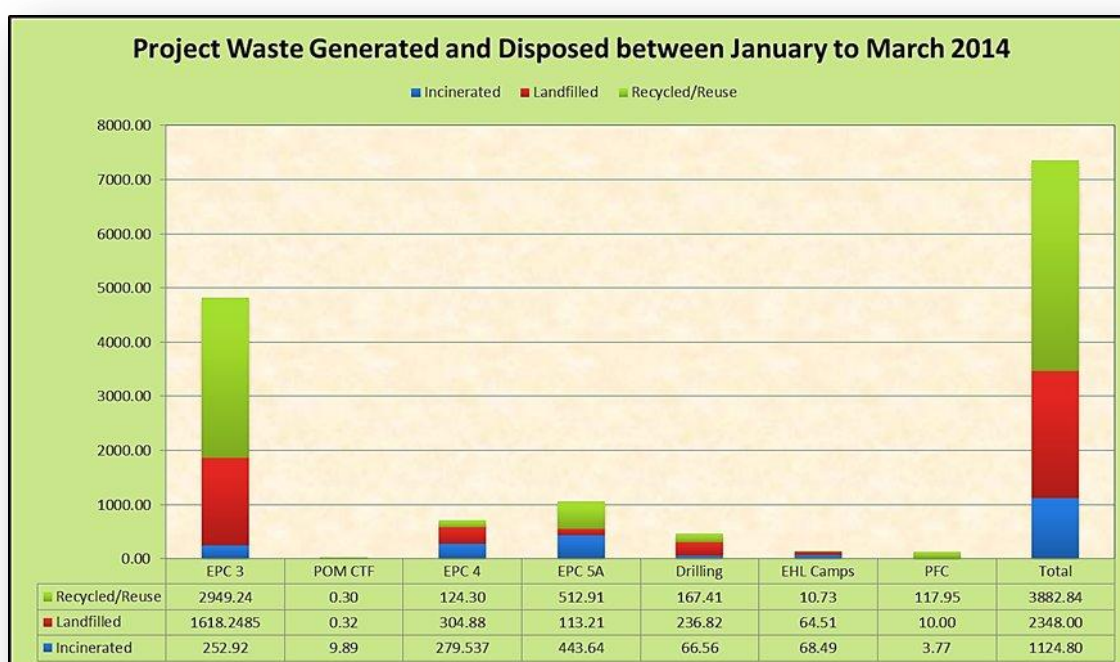


Figure 4.1, most of the waste generated by the Project continues to be recycled or re-used. Waste that is not recycled or re-used is either incinerated or landfilled at the Hides Waste Management Area (HWMA) at Kopeanda or at the LNG plant, which continue to be "best" practice facilities for solid waste management. In retrospect, the early development of waste management facilities has proved to be one of EMPNG's best decisions for environmental management.

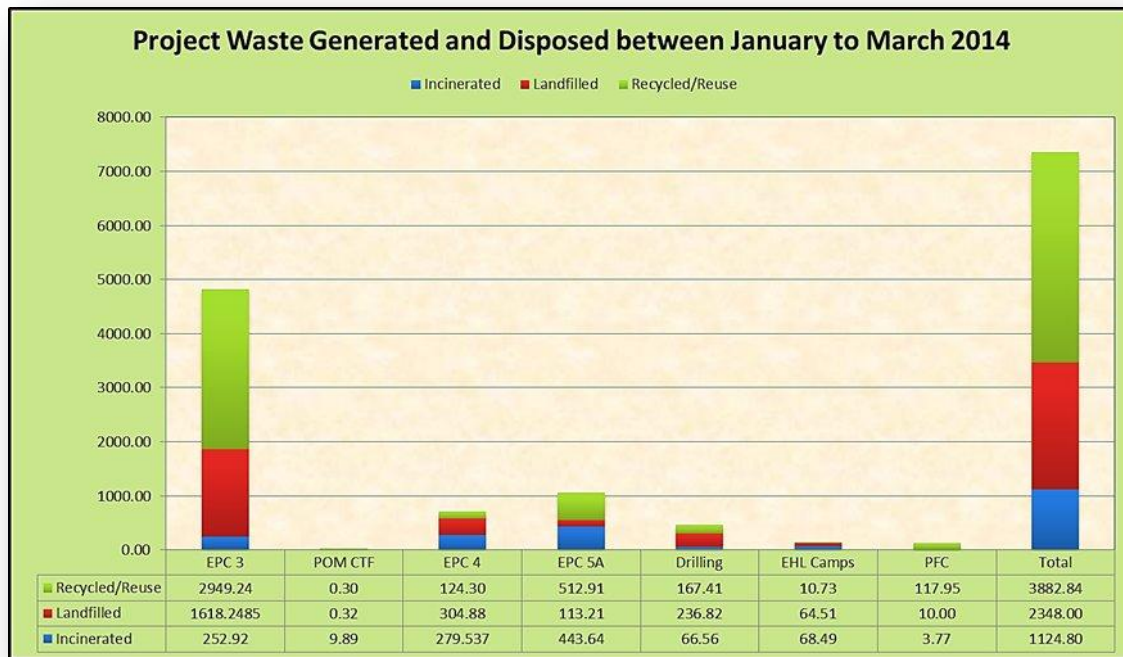


Figure 4.1: Project Waste Profile

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

- Cell 1 at the HWMA at Kopeanda is about 70% filled, with a significant amount of the waste associated with camp demolition, in particular EPC4; Cell 2 is ready for use – tires placed in a honeycomb pattern at the bottom of the cell provide additional protection from punctures to the liner and this application provides another solution for tire disposal;
- The large incinerator at Kopeanda is working properly and it was transferred to Production on June 1. The second, smaller incinerator at the HGCP is about 95% constructed and the start of commissioning was expected to start in June, but as long as the Kopeanda incinerator is operational the second incinerator will remain on standby. The larger incinerator is needed for the amount of waste currently being generated (~6 tpd), but once drilling operations have ceased, it will probably be more efficient to just use the smaller HGCP incinerator;
- Recycling programs continue to function with waste oil sent to Ramu Sugar (300,000 liters in Q1 2014), Niugini Table Birds (200,000 liters), and Total Waste Management Ltd in Australia (78,000 liters). Two new recyclers for scrap metal (Chemsil Metal Scrap – and Kosboj Scrap Metal Recycling Ltd) were identified by CJJV;
- Drilling continues to show exceptionally effective waste management: 3,509 tons of clean cuttings were generated at the Thermal Cuttings Cleaner (TCC) in Q1 2014 and sent to the Kopeanda landfill for use as cover material, allowing for 2,150 barrels of oil to be sent to the Liquid Mud Plant (LMP) for recycling; more than 700,000 liters of treated water were used in Q1 2014 to rehydrate treated cuttings to allow for safe, dust-free transport to the HWMF, as well as for equipment and vehicle wash and as cooling water for pumps within the two vacuum trucks;
- LNG Plant: The two large biodigestors that were used to process food waste to make compost processed 17 tons in Q1 2014, but they were decommissioned in March, reflecting the demobilization of EPC3; of the two incinerators that were used for construction one has been decommissioned and the other (rotary kiln unit) has been transferred to Production; the landfill is operational – Cell A is full with capping in progress) and Cell B is approximately 85% filled.

Wastewater Management

A total of seven WWTP units have been decommissioned or taken offline; 14 are still in operation including those associated to Drilling crews. Many of the remaining WWTPs are either pending decommissioning or they will be transferred to different ownership (e.g. Kobalu Camp; Juni Camp; Moro Camp 5; Moro Camp B). 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.

Production wastewater treatment will be achieved on the basis of three permanent plants. The permanent WWTP at the LNG plant is constructed and commissioned by the vendor at the end of Q1 2014. At the HGCP the new Tri-star WWTP is currently in its startup phase. The Komo Aviation WWTP is under operations stewardship. The performance of these plants will be reviewed as test data are accumulated.

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. A 65 bbl. spill of non-aqueous fluid (glycol-water mix) occurred in association with drilling, but the spill was contained and was cleaned up. Other than this incident, the rate of spills has continued to decrease. This is the only EMPNG reportable spill for more than a year. 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.

EMPNG reports that hazardous materials subject to international bans or phase-outs have not been encountered within Project worksites.

The biggest focus of the Project as it is transitioning to Production is spill response associated with major spill events, including incidents that could take place with vessels in Caution Bay. 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

Project air emissions are now those of fully functional Production facilities, and not simply dust from roads and earthworks, and equipment and incinerator exhausts. Major sources of emissions now include flaring at both the HGCP and LNG plant. 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.

Dust is becoming less of an issue due to revegetation efforts at all construction sites. The Permanent Facilities Compound (PFC), where dust was observed to be a problem at the time of a previous IESC field visit was not visited this trip, but as construction progresses in this area with the paving of roads and planting of grass dust is not expected to be a long-term issue. Greenhouse gas emissions are reported in the EMPNG Environmental and Social Quarterly reports to the Lenders and the results are not repeated here.

Ambient air quality has been measured at designated points within the area of influence of flaring at both the HGCP and the LNG plant, with no reported exceedance of ambient air quality standards. Stack emissions testing was reported to have been completed for the large incinerator at the HWMF at Kopeanda with test results pending. It is expected that once the HGCP and LNG plant have past their startup phases, stack emissions monitoring will be undertaken. This is a subject that will be reviewed by the IESC in greater detail during subsequent field visits.

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

Erosion and sediment control systems as part of Production operations are effectively maintenance to the systems installed during construction. These systems were reviewed in the field at the HGCP, along the pipeline ROW and at the Komo airfield. The only significant problem was observed at the Komo airfield where landslips had occurred within placed fill at the north end of the runway and gullying was occurring at the southeastern part such that the perimeter fencing could potentially be impacted if the problem is not addressed. Production management is well aware of the situation and plans to bring in a geotechnical engineer to review remedial options. Where observed in the field, erosion and sediment control systems constructed with the "Ecoflex system" using used tires appear to be performing well.

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 illustrated in the Biodiversity Strategy and both Production-phase EMP's, along with other associated documents.

Records from the ESIA 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 (*Aprotelesbulmerae*) colonies; bird-of-paradise and bowerbird display grounds and trees; large individual trees (>1m diameter breast height); areas of *Pandanus* swamp forest; swamps in sinkholes less than 50m deep on Hides Ridge; and *Nothofagus* (beech) forest that will require special hygiene measures (due to risk of dieback as caused by pathogens such as *Phytophthoracinnamomi*). These detailed records have been compiled into a number of Register databases, and information on existing and ongoing ecological condition will be collected through continuing monitoring studies.

5.2 ECOLOGY AND BIODIVERSITY STRATEGY

EMPNG's overall objective 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:

- (i) To maintain the ecological intactness of the Upstream Project Area as a whole;
- (ii) To conserve the priority ecosystems;
- (iii) To protect focal habitats; and
- (iv) 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 called '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, which will 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

To support implementation of the two EMP's, a suite of supporting materials is being developed. Those specifically related to ecological issues include:

- For any future disturbance of new ground, e.g. the Juha phase, there is a Pre-disturbance Survey Protocol being developed. IESC has not yet seen the Protocol, but this should be available for our next visit. 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;
- A Roads, Infrastructure and Access Controls Protocol, along with a Register of Roads, Infrastructure and Access Controls;
- A Regeneration Monitoring Protocol;
- An Invasive Species Monitoring Protocol, an Invasive Species, Pests and Plant Pathogens Register and a Quarantine Protocol; and
- A Freshwater Ecological Monitoring Protocol.

The Biodiversity Strategy Revision 3 has just been completed; this revision incorporates updated information on EMPNG's monitoring program, and updates on the offset delivery plan and framework. In the interests of informing stakeholders and ongoing transparency, the IESC presumes Revision 3 will shortly replace the publicly available Revision 2 on the www.pnglng.com website.

The IESC has been provided with a final draft of the BMP for review, updated following discussions during our February visit. In this review we will specifically be looking for additional cohesion in the target/stress/response adaptive management approach, and additional definition for levels of any observed change in condition of sensitive ecological features, so that the BMP ties in with the Upstream Environmental Management Plan performance indicator requirements.

Implementation of the PMA's, as described above, continues.

- PMA-1 Remote Sensing: An internal review has been undertaken of the baseline (2009) and 2011 analyses of Landsat5, SPOT5 and RapidEye satellite imagery detailed in previous reports. EMPNG was able to source assistance from the ExxonMobil corporate satellite expert for the review, and have now recruited a remote sensing expert to work in the EMPNG Biodiversity team. As a result of the review, faults were identified in both the 2009 Baseline and the 2011 Analysis Report. EMPNG is working with their external technical contractors to redo the analysis of the satellite imagery. Final drafts of the corrected reports are now being developed for 2009 and 2011. The PMA-1 Protocol, detailing methodologies for sourcing imagery and analyzing results, is being revised accordingly, and the 2013 imagery analysis and reporting is expected to be completed during Q3 2014. The IESC hopes to report more fully on PMA-1 findings to date in our next report;

- PMA-2 Condition Surveys: The Condition Surveys will be initiated in Q4 2014, following the Initial Post Construction Biodiversity Assessment (IPCBA). Desktop research and planning for the IPCBA (detailed in the last IESC report) has recently commenced; field work will be undertaken during Q3/Q4 2014. A PMA-2 Protocol has now been drafted, and a Focal Habitats and Ecological Sensitivities Register has been compiled and completed;
- PMA-3 Biodiversity Surveys: the PMA-3 Protocol has been drafted, and the first monitoring campaign is anticipated during Q4 2014 and every two years thereafter;
- PMA-4 Offset Efficacy: there is no update to development of this PMA, pending further development of offset programs, detailed below.

5.2.1.2 Biodiversity offsets to address residual impacts

Framework and Delivery Plan

Since the last IESC visit, we have reviewed the updated Revision 1 of EMPNG's Offset Delivery Plan and Framework documents. The Framework provides EMPNG's rationale for offset development, the PNG legal/social framework, the conservation priorities of the Kikori River Basin, along with text on constraints, opportunities and options; the Delivery Plan lays out the proposed components and offset projects that will be undertaken, along with text on intentions for collaboration, financing and monitoring. Discussions between EMPNG and the IESC on offset approach have been ongoing for several years, and especially since our review of Rev.0 of both documents in Dec 2012. In reading Revision 1, it is now clear there are several technical issues related to how the offset should be considered and demonstrated that we believe require further development. These include:

- *Offset accounting:* In seeking to comply with IFC PS6 (2006), EMPNG has committed to No Net Loss (NNL) of biodiversity as the whole Upstream footprint has been deemed to be within critical habitat. Some time ago EMPNG undertook a preliminary 'debt' calculation (including multipliers), and determined the 'loss' to be c.6,000 Ha. Nevertheless, several aspects of offset accounting have not been fully embraced, whether related to refining the loss numbers as project footprint becomes more defined, or regarding how to measure conservation gain through offsets. For conservation activities to be considered as offsets, there is a need to demonstrate that conservation gains match the biodiversity losses incurred through residual impacts from the development project. These gains should match the losses with respect to critical habitat values over the longer term. To be able to measure the losses and gains accordingly, EMPNG should further refine their approach to offset accounting and determine what no net loss means for this project. Failure to embrace offset accounting will jeopardize the credibility of the offset, as they will be unable to demonstrate no net loss of biodiversity;
- *Demonstrating additionality:* for the conservation gains derived from an offset to be considered valid as a gain for the proponent undertaking the offset, they need to be able to demonstrate that those gains would not have occurred without the offset. For support to existing and new protected areas (see Components 4 and 5 below), EMPNG should articulate that the conservation gains expected from their intervention would not have happened otherwise, i.e. that the conservation gains are real. This should involve the prediction of the 'without-offset' situation, for instance what threats might have occurred to the biodiversity values of the area without their direct intervention; this 'counter-factual' is uncertain, but should be predicted. Then the conservation gains claimed by EMPNG's offset program can be sound and demonstrable gains;
- *Timeframe over which NNL will be achieved:* Ideally conservation gains are realized before the impact occurs e.g. the US habitat banking system. Such a habitat banking mechanism does not exist in PNG to facilitate gain before loss, therefore, the gains derived from the offset should be achieved within an appropriate timescale. EMPNG is currently in a 'debt situation due to residual impacts to date. Therefore EMPNG should determine the timeframe within which gains can be expected, the timeframe by which NNL will be achieved, and articulate the anticipated duration over which NNL will be maintained, i.e. the life of the offset. As the majority of the project footprint within ecologically sensitive areas is predicted to be in the higher elevation montane zone (>1200m), we believe it is especially important to understand the temporal characteristics of the conservation gain sought here;

- *Risks and uncertainties:* conservation effort is not always rewarded by conservation gain. By identifying and considering the risks involved in undertaking the chosen offset projects, and the uncertainties inherent in progressing toward and achieving the desired outcomes, a company can prepare for or avoid many pitfalls. EMPNG should identify all possible relevant risks to the offset achieving the desired outcome, for the life of the offset; they should identify the implications of each risk and what prevention or management measures could be put in place to avoid or lessen them. This should include consideration of the ongoing governance of the offset, over the life of the offset.

We have discussed these findings with EMPNG and they have committed to considering how these offset fundamentals can be incorporated into their philosophy, design and implementation.

Ongoing design and implementation

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

- Component 1: Kikori-wide landscape scale. This component seeks to assist DEC in meeting its international Convention on Biological Diversity (CBD) commitments via production of a 'Protected Area Plan' for a Kikori-wide protected area, that in subsequent offset planning phases can be taken forward for implementation:
 - A draft Scope of Work has been developed and agreed with the three NGO in-country partner representatives, Conservation International, Wildlife Conservation Society and The Nature Conservancy. Detailed individual work-plans and budgets, and a tripartite agreement/MOU are being developed, with funding targeted for Q3 2014. EMPNG is aware 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:
 - Early preparation work for the planned Conservation Forum to be held during Q4 2014 has commenced. The associated Quarterly Newsletter is planned to be published about the same time. There have been some EMPNG contractual delays to formally establishing the NGO partnership – these are being resolved through the provision of additional resources, and dialogue on delivery of the scope of work continues;
- 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:
 - EMPNG anticipates potential delays to commencement of the scholarship program; the first scholarship intake has been deferred due to delays in recruiting lecturers, and therefore in course module completion. Although the Program Coordinator staff member is yet to take up position, the Course Coordinator took up the post in February 2014. EMPNG advises that there has been close collaboration with the University Committee to ensure the developing modules are incorporated effectively into the Faculty;
- Component 4: Support to existing protected areas. Support to the Lake Kutubu WMA (Wildlife Management Area) is the primary focus for achieving this component. The Project's Lake Kutubu WMA Enhancement Plan (WMAEP) contains three work streams: conservation design and WMA Management Plan; enhance organizational capacity; and local and provincial government land use planning.
 - Great progress has been made in the construction of the WMA Resource Centre. The IESC visited the construction site and met with members of the WMA Committee who reiterated the importance of the Resource Centre to them achieving their objectives, and the status they've gained through provision of their new uniforms. The IESC is encouraged by confirmation that EMPNG's Enhancement Plan is about to be signed off following input from the WMA Committee representatives, and that the Plan will contain both lacustrine and forest conservation elements. EMPNG's WMAEP Coordinator will shortly be returning to the Lake Kutubu area to continue 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). The creation of a new community-based legally-designated protected area will build on the existing Aird Hills WMA as a nucleus for conservation. To achieve this, EMPNG is engaging with the Barging Route Waterways Committee (BRWC), who were previously supported through the Project's community investment program, and the Aird Hills WMA Committee:
 - EMPNG advises that the majority of recent local dialogue has been with the Aird Hills WMA Committee. Their current awareness campaigns focus on waste management, forest preservation and maintaining spring water sources. EMPNG intends to follow an Enhancement Plan model as developed at Lake Kutubu, and intends to shortly recruit a full-time Enhancement Plan Coordinator dedicated to facilitating local relationships and implementing the Plan on the ground. EMPNG plans to scale up biodiversity offset work with the Barging Route and Waterways Committee during the second half of 2014, once the L&CA program is complete and commitments achieved. Meetings have been held with PNG Forest Stewardship Council representatives and a proposal received from the local NGO partner of choice,
 - The offset selection process for the higher elevations (>1200m montane) project candidate has not yet occurred. EMPNG advises that findings from the initial post-construction biodiversity assessment will help determine the current and predicted actual residual impact within that higher elevation zone, so that using elevation as a surrogate for representativeness, a 'like-for-like or better' biodiversity gain can be assured.

5.2.1.3 Freshwater and Marine Ecology

The 2014 Caution Bay marine ecology survey protocol agreed to with the IESC at the February audit was completed April 8-13, 2014. There was no evidence of coral stress or dead coral. Based on evidence to date, it is reasonable to conclude that the level of impact resulting from construction activities is minor, and as predicted in the EIS. No further monitoring is necessary if operations proceed as expected.

The 2013 freshwater survey results were expected, but not presented. That survey (which started in early October 2013) targeted sites that had not been surveyed 'during construction phase' recognizing the linear progress of the Project. The results and analysis of the data will give a valuable reference point to compare findings during non-extreme weather influences and build on biogeographical references. The 2013 and 2014 monitoring should also start to show trends on invertebrate recovery times with pipeline crossings. The Freshwater Ecological Monitoring Program is intended to provide confidence that construction impacts (and their recovery), will be detectable should they occur. Freshwater work for 2014 is being conducted, but the Project is dealing with some security issues at some sample sites. Results should be ready by time of next IESC filed visit.

The latest biannual Water Quality and Marine Sedimentation monitoring survey commenced in September 2013, and results are expected soon.

5.2.1.4 Omati and Caution Bay Fishing Studies

Final results for all quarters of 2013 and preliminary results of the Caution Bay and Omati River fisheries studies were made available during the site visit. The information shows wide variation in species composition and landings, influenced by weather, season and village activities throughout the years. In Caution Bay, catch and effort during the first half of 2013 was influenced by strong winds, and the second half by trends in village social activities, notably in Porebada where fishing activity declined in 1Q 2014 due to diverted interest caused by betelnut trade. The studies show the type and size of vessel is proportionate to total fish catch and weight (loading capacity), with fiberglass dinghies dominating landings.

It was noted when comparing Q1 2013 with Q1 2014 that the combined catch/unit effort for all four Caution Bay villages was down 92%, although this number is highly preliminary. The Project will assess the cause of this after 2014 data are finalized and there is a likelihood that the betel nut trade will have had an influence. Training of the fisheries survey staff continues to improve survey methods, fisher participation, and data quality.

In the Omati, during 2013 there were 218 Participants who landed a total of 4,038 kg of catch. Almost all was for home consumption. CPUE and average catch landed by each fisher varies all year around. A total of 33 species were identified dominated by Nursery Fish (*Kurtusgulliveri*), Six-feeler Threadfin Salmon (*Polydactylusmacrochir*), Banded Archerfish (*Toxotesjaculatrix*), and mud crab (*Scylla serrate*). The second half of the semi-annual 2014 survey will be conducted by the next IESC field visit.

5.2.2 Recommendations

1. To ensure that the offset program is progressed transparently and effectively, EMPNG should reconsider their approach to offset accounting, additionality, the timeframe over which NNL will be achieved and maintained, and the risks and uncertainties inherent in trying to achieve desired conservation outcomes. By fully embracing these fundamental elements of an offset (as summarized in the text above), their offset program should be more robust and credible, and more smoothly implemented and maintained.
2. IESC would encourage EMPNG to progress their careful consideration and selection of offset candidate sites for an offset at the >1200m higher elevations, especially as the larger proportion of residual ecological impacts is likely to occur within this zone.

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.

5.3.1 Observations

As noted in previous reports, the PNG Government is expected to request the retention and transfer of ownership of the Project's Kikori River Bridge (also known as the Kaia Bridge). There has still not been a formal request from the Government for this transfer. Although EMPNG has a commitment to control access to all new project roads and infrastructure, they remain cognizant that further situations could arise where the government requests retention or transfer of temporary project infrastructure. Indeed, EMPNG advises that a formal request has been made since our last visit by the PNG Government for the temporary retention of the construction bridge across the Benaria River at MLV-1 – see bullet below.

To ensure that roads constructed and utilized during installation of the pipeline do not encourage vehicular access into previously inaccessible areas of Critical Habitat, EMPNG has planned a range of mitigation measures to restrict through-access, but not all are currently in place. EMPNG planned access controls include:

- The road between Kantobo, through Tamadigi, Manu and up to Moro is an OSL-controlled road, so OSL currently restricts vehicular access to legitimate OSL, OSL-project-related 3rd party and landowner vehicles;
- In the Kutubu Central Processing Facility (CPF) area, EMPNG roads by-pass both the CPF and the Ridge camp. Vehicular access in this whole area is restricted by OSL, as above;
- The road between Gobe and Kantobo (the EHL constructed road, part of the 'Southern Logistics Route') is meant to have:
 - o a manned boom-gate on the EMPNG road near the Gobe airfield (near KP 192), where the EHL road leaves the public road, and
 - o a manned boom-gate at Kantobo (KP 164), at the junction of the EMPNG road and the OSL road, therefore controlling access between the OSL road and the EMPNG road;

Currently neither of these access controls is in place.

- The Construction-phase Induced Access Management Plan stated that saddle culverts would be removed at either side of the Kantobo/Heartbreak Hill new road section (culvert no's MK058 and MK201) and near Gobe (culvert nos. GS002 and GS211). These will no longer be removed.

Unrestricted access between the public road at Gobe and the public road at Moro could encourage potentially damaging activities EMPNG advises they are working on issues related to installation and operation of the gates and that access will be controlled shortly. However, the situation as it stands at present means they are currently out of compliance with their commitments (see Issues Table).

EMPNG provided IESC with updates on access controls to above ground installation (AGI) locations along the RoW, where permanent vehicle access is required for ongoing pipeline maintenance and emergency access. These include check valves (CV), main line valves (MLV), cathodic protection (CP) stations, shoo fly roads and tie-ins. Our observations on the current status are:

- At CV-1 (KP 7.2), IESC is informed an unmanned locked boom-gate is in place and operable and an additional unmanned locked boom-gate is to be installed;
- At MLV-1 (KP 27.5), the government has requested retention of the bridge until the government is able to construct its own bridge, which would allow the existing public road from Tari to cross the Benaria River and link up with a road to Benaria Station (currently being constructed). EMPNG has agreed to the request for temporary retention, and states they will maintain the bridge and control access until the government bridge is built – there is no confirmed date yet scheduled. Although a boom gate to control vehicular access across the bridge to the RoW and MLV-1 station has been planned for over a year, this gate is not yet installed. EMPNG advised they are in dialogue with the local community to find an acceptable way to meet access-control objectives. Nevertheless, access is not currently controlled at this location (see Issues Table, Section 2);
- As described in our last report, MLV-2 (KP 53) is located within the ecologically sensitive Homa-Benaria Ridge zone, identified within the Biodiversity Strategy as a Priority Ecosystem. Although MLV-2 was originally intended to be maintained via chopper access only, EMPNG decided to retain a permanent vehicular access road from the public road to the RoW/MLV area, with access controls in place: the Homa Ridge Access Road. During the editing process of our February 2014 report, we were advised that an enhanced prevention and access/impact monitoring regime was being considered; during this June visit, IESC was advised that an additional unmanned locked gate has been installed at the intersection of the access track and pipeline RoW, and that a mobile vehicle wash-down station is to be utilized. We were also advised of a potential boom-gate breach where a padlock was damaged on one of the gates – the padlock was not compromised, and the access breach did not occur. Considering the potential logging opportunity provided by a permanent access road to the Homa-Benaria Ridge forests (see previous report for background), and the speed within which a determined logging operator could impact the area, we recommend additional measures be taken to scale up to a more immediate monitoring regime for the access road and MLV area;
- Unmanned locked boom-gates are now installed at RoW intersections with the public road at: MLV3 (at KP 66.5), MLV4 (at KP 85), CP-2 (at KP 227), at the KP 232 access road;
- Unmanned locked boom-gates are now installed at RoW intersections with OSL-controlled road at: the Agogo future tie-in (at KP 108.8), Kutubu MLV (at KP 107.5), CP-1 (at KP 153), Gobe MLV (at KP 192);
- OSL-controlled access only (no boom-gate) is utilized on at CV-2 (at KP 95) which is accessed directly from the OSL road;
- Only one of the previously proposed four shoo-fly roads will be retained as RoW access south of Kaia; the pipeline construction access track at KP 232 will be maintained operable, but the old logging road (accessing KP 236, 239 and 242) will no longer be pursued at this time;
- The EMPNG new road section, constructed to link up two existing logging roads (and thereby allow easier passage between Kopi shore-base and the Kopi Scraper Station (KP 266)), now includes an additional unmanned lockable boom-gate, supplementing the already present boom-gate installed. However, the IESC was informed that both gates are currently unlocked and open due to pressure from the community to keep the road open. EMPNG advise they are actively involved in discussions with the local community in an effort to reach an agreement regarding access. EMPNG is concerned that such consultations would be more difficult if it insisted that the road be closed for public use at this stage, and indeed could be counter-productive, given the potential for vandalism to permanent measures such as boom gates, and engrained community resentment. Nevertheless, access is not currently controlled at this location.

Several AGI access points rely on ongoing OSL-operated access restrictions. If any of these controls were to be found inadequate or no longer viable, the IESC would expect EMPNG to endeavor to implement additional access controls in accordance with their commitments.

5.3.2 Recommendations

1. In anticipation of the PNG government making a formal request for the retention of the Project's Kikori River Bridge (and any other potential situations where the transfer of temporary infrastructure might be or is being requested) we encourage EMPNG to continue their in-depth risk assessments to best identify how EMPNG could continue to fulfill their commitments, the implications of transfer of responsibility, what mitigation measures would be appropriate, including any ecological protection opportunities that could be generated.
2. EMPNG should consider use/adaptation of the security camera system installed at MLV-2 in such a way as to monitor real-time the road near the MLV for unauthorized vehicular access (in case future attempts at boom-gate padlock break-in are more successful).
3. As per Issue Table, EMPNG should control access at those locations highlighted above, i.e., at MLV-1, at the Kopi Scraper Station/Kopi Shore Base shortcut, at Gobe airfield, and at the Kantobo OSL-road junction, as per EMP commitments. If, following a needs analysis/risk assessment, vehicular access by the community is deemed appropriate, this should be according to commitments made in the Upstream EMP: i.e., landowner vehicles may be sanctioned subject to prior approval from EMPNG and only once authorized by designated EMPNG personnel. To this end, EMPNG may need to consider these locked boom-gates being manned instead of unmanned: e.g., permanently operated as per OSL manned boom-gates.
4. With regard to the proposed access control measures and the potential for requests for access at manned gates, or breaches of access at unmanned gates, we recommend EMPNG develop procedures on how various access scenarios will be approved, managed or prevented, and what monitoring regimes will be appropriate to ensure each scenario is detected and effectively responded to (reiterated from previous report).

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

Reinstatement of the RoW is now considered 100% complete, and EPC5A is demobilizing. Sections of the RoW visible during our helicopter ride from Lake Kutubu to the Hides Ridge indicate generally well executed slope stability and erosion control measures and early stage natural re-vegetation is progressing. RoW sections most recently constructed are yet to show complete vegetation coverage, but those observed from the roadside give no reason to believe that successful re-vegetation should not be expected, given sufficient time. Regeneration on several of the Hides Ridge side-cast areas are beginning to show better re-vegetation levels. Slopes appear generally stable, with only minor roadside gully erosion; bare road-side limestone rock faces are showing black algal crusting, a precursor to surface rehabilitation.

EMPNG reports that sporadic vandalism of sediment and erosion control structures is proving a challenge to successful reinstatement in some areas along the RoW. The field monitoring teams are working with L&CA representatives to help raise awareness in the community of the importance of the structures so as to prevent their removal and/or destruction.

Camp sites, where designated for reinstatement, are generally progressing, although reinstatement at Camp 7 at Awatangi (KP24.5) is not yet complete, pending resolution of community issues. Quarry 1 at Awatangi provided a reinstatement challenge due to the need to control surface run-off and avoid increased sedimentation of nearby creeks used for drinking water downstream. EMPNG advises that as part of reinstatement measures, a creek diversion was installed, along with sediment and erosion control measures; photographs provided indicate that slopes are stable and the area is now re-vegetating naturally.

As reported in February, Komo airfield reinstatement has been completed, however as reported in Section 4.4.2 above, some slope failure and gully erosion challenges exist. Re-vegetation at Komo is progressing, albeit slowly. Reinstatement at the LNG Plant is also now considered 100% complete, and natural regeneration progressing. Tall tropical grasses have increased in abundance at the Plant, which if not managed, can increase the risk from grass fires during the May-Nov dry season; grass-cutting is undertaken

at the Plant as part of a regular maintenance regime. At the Hides Gas Conditioning Plant a reinstatement management plan is now in place and priority areas are being targeted.

BioTropica performed their 5th reinstatement audit just prior to our visit and therefore the audit analysis was not yet available. Their early overall conclusion is that site reinstatement conditions are improving – any significant findings will be presented in our next report.

5.4.2 Recommendations

None arising from this review.

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 in (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 Monitoring 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. Weed management requirements are contained within a Weeds Management Plan. EMPNG seeks to manage the primary threat 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

Building on EMPNG's previous weed management efforts, a new weed identification training and awareness package has been developed. This package includes the development of a deck of playing cards that have proved extremely useful in disseminating identification skills amongst the workforce. EMPNG reports numerous instances where vehicle drivers have reported sightings of, for example, a 'Three of Spades' weed-type observed on their journey. The package also includes the recently revised Weed Identification Manual, which EMPNG advises has been placed in 30 vehicles used in the Upstream area. In the field, on querying our driver, he was aware of the manual but acknowledged that this vehicles' manual must have been removed during a maintenance overhaul in the workshop and not replaced. The IESC commends the efforts made by EMPNG to retain and increase the awareness of weeds amongst the workforce, as constant vigilance is required for the company to meet their objectives.

There is currently a lack of clarity amongst staff and security guards as to implementation of a certificate system at the Hides Ridge vehicle wash-down station. This is a requirement of the Upstream EMP and a continuance of the Construction phase management plan to help prevent the spread of weeds and *Phytophthora*. There have been no specific *Phytophthora* surveys since those conducted in 2012, when research conducted by EMPNG's external specialist helped to determine the level of threat from the spread of Type A2. *Phytophthora* surveys will form part of the IPCBA reported above and will be included within the PMA-2 surveys commencing Q4 2014.

In May 2014, BioTropica completed a further project-wide weed audit. Early conclusions indicate that: weed abundance and distribution are generally static or in decline; active weed control between Kopi and Moro have succeeded in controlling the targeted P1 weed *Ludwigia leptocarpa* (anglestem willow primrose); wash-down units (where employed) have been effective in minimizing the spread of weeds; *Ludwigia leptocarpa* and *Piper aduncum* (spiked pepper) currently represent the highest Upstream risk, and tall, tropical grasses the highest LNG Plant risk, to EMPNG weed control objectives.

Contractor quarantine management performance is presented on Figures 5.1 and 5.2. The first shows information on the proportion of consignments requiring a NAQIA inspection on arrival into PNG, and the second the proportion of those inspections that result in the consignment needing fumigation, i.e. the

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

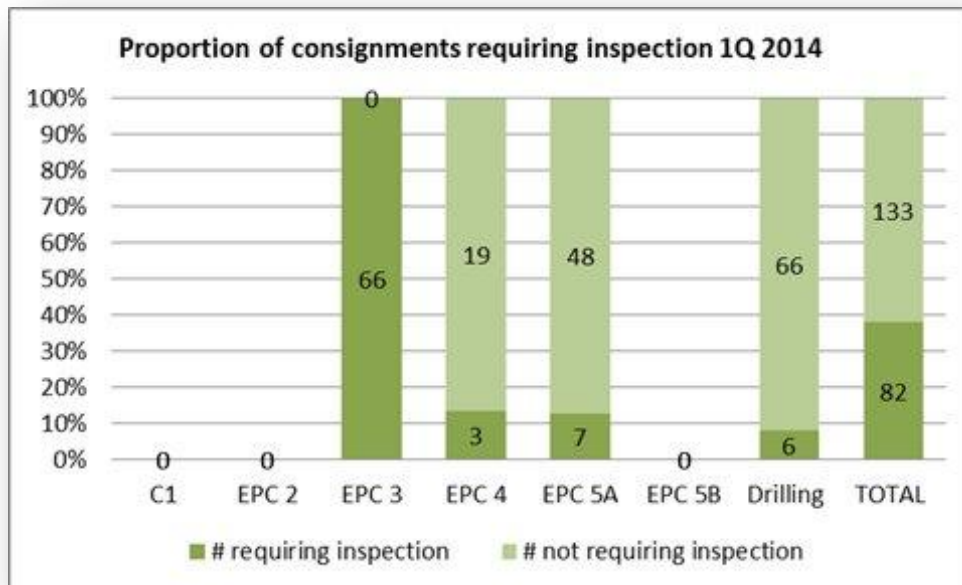


Figure 5.1: Proportion of consignments requiring inspection

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

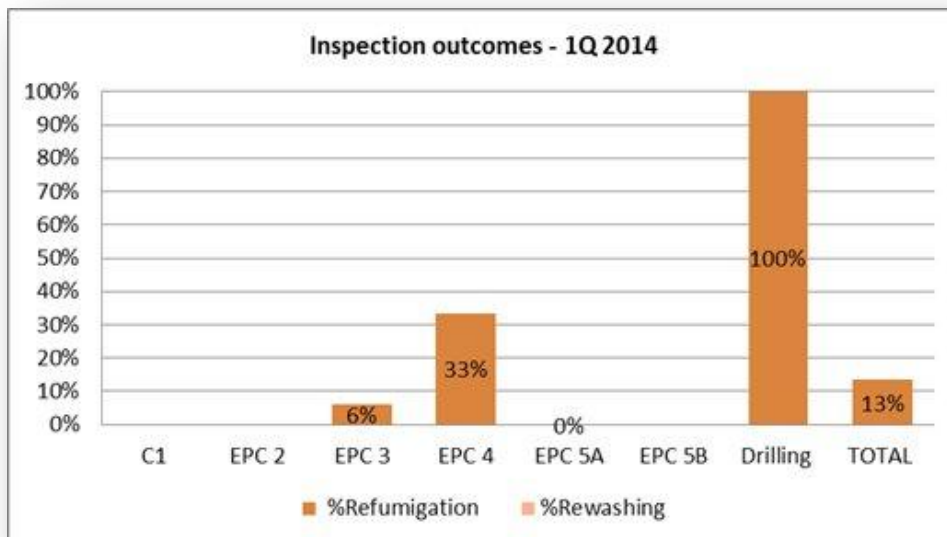


Figure 5.2: Inspection outcomes - need for fumigation following inspection

Key points on Contractor performance in relation to consignment inspection and fumigation include:

- C1 and EPC2 have now demobilized;

- Although still incurring a high number of inspections of consignments (likely due to the country being deemed high-risk by NAQIA), EPC3 is continuing to improve their inspection-outcome performance, following pro-active measures taken last year to minimize the need for NAQIA fumigations (such as requiring a mandatory fumigation on arrival, prior to NAQIA inspection). EPC 3 is now effectively demobilized such that future imports will cease;
- EPC4 consignment inspections continue to result in a high level of fumigations, although there has been significant improvement during Q1 over 2013 performance. EMPNG reports this is likely due to the Contractor reiterating to their freight forwarder the importance of ISPM15 compliance (regarding pre-treatment of wooden pallets), the provision of more adequate documentation in readiness for the inspection process, and the presence of a Contractor representative during NAQIA inspection. EPC 4 is also now effectively demobilized such that future imports will cease;
- EPC5A are also now effectively demobilized, but their last imports showed a marked improvement in the need for fumigations following inspection: during 2013, 48% of inspections resulted in fumigation, whereas during 1Q 2014 no fumigations were required from 55 consignments and 7 NAQIA inspections.

Drilling consignments also continue to need a high proportion of fumigations following NAQIA inspection. To address this trend, Drilling personnel have instructed their vendors to change their freight fumigation company and evaluate the standard of wooden pallets being used, through reinforcement of use of ISPM15-compliant pallets only. In addition, the vendor's Logistics Manager has been brought to Lae (Drilling's primary importation location) to better understand the issues being experienced.

5.5.2 Recommendations

1. The Production EMP (Sections 15.2 and 15.5) requires the continuance of the Construction Management Plan requirement for a certificate system at the Hides Ridge vehicle wash-down station, to help prevent the spread of weeds and *Phytophthora*. This EMP requirement should be reinforced with staff and security guards as to Production-phase expectations on recording of washed vehicle passage and issuance of certificates to washed vehicles.
2. *Sphagneticola trilobata* (Singapore daisy) was noted at the Komo airfield in the BioTropica audit during April/May; during the IESC visit in June, several occurrences of what appeared to be Singapore daisy were observed between the inner and outer boundary vehicle gates. It is not known if these are the same occurrences, but action should be taken to remove the P1 weeds as soon as possible.

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 June 2014 visit. The social review considered the usual range of the Project's social programs, while the field visit focused on verification of the standard of living and livelihood restoration internal evaluation results.

Activities included the following:

- Presentations by relevant project departments;
- Discussions and working sessions with resettlement team members; and
- Verification interviews with physically and economically displaced households.

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

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).

6.3 LAND ACCESS, RESETTLEMENT, AND LIVELIHOOD RESTORATION FACTORS

6.3.1 Organizational Structure and Resources

6.3.1.1 Observations

Land access, resettlement, and livelihood restoration continue to fall under L&CA. As shown on Figure 6.1, three teams within L&CA, Compliance, Community Affairs and Land, manage most of these activities, and monitoring and evaluation of standard of living and livelihood restoration falls under Compliance. The two staff who have been supervising outcome evaluation will continue in this role until the outcome evaluation is completed. Field Teams are managed by Community Affairs as they serve a variety of purposes. This has been shown to work effectively during construction, but field officers may not have had sufficient time to conduct the standard of living and livelihood restoration evaluation surveys. L&CA should ensure that field officers have sufficient time to do more in-depth surveying for the second livelihood restoration survey. See Section 6.3.2.1 for more information. In the event additional land needs to be acquired during Production and causes displacement, the adequacy of field staff should be assessed.

Contracts with external specialists are in place for activities such as completion of livelihood restoration activities. In addition, a new Village Liaison Officer strategy has been developed to ensure productive relationships are maintained during the Production phase.

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

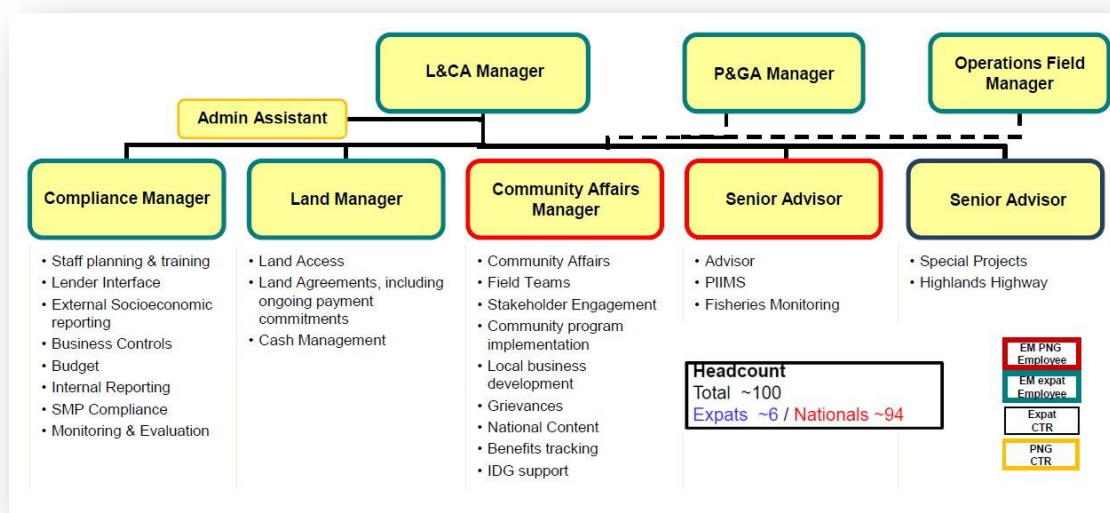


Figure 6.1: L&CA Organizational Structure

6.3.1.2 Recommendations

1. Ensure that field officers have sufficient time to do more in-depth surveying for the second livelihood restoration survey.
2. In the event additional land needs to be acquired and causes displacement, the adequacy of field staff should be assessed.

6.3.2 Status of Standard of Living and Livelihood Restoration

The table below shows the Project's direct land acquisition impacts.

Category	Sub-Category	No. Households
Physically displaced		626
	Physically displaced only	408
	Physically and economically displaced	218
Economically displaced		417
	Economically displaced only	199
	Physically and economically displaced	[218]

6.3.2.1 Observations on Standard of Living Outcomes

Internal (EMPNG) outcome evaluation of standard of living was done for 100% of the physically displaced households. IESC verifications of standard of living have been completed for 40 households to date. Of the 54 households the Project evaluation categorized as declined from pre-displacement conditions, the IESC has verified 18 households. The IESC will verify the remaining households in the declined category, depending on the security situation for some households at their locations and for others on the ability of the project to locate households (~6) that have left the area permanently.

The box gives a summary of the IESC verification results compared to the results of the internal evaluation.

Summary of IESC versus Internal Outcome Standard of Living Evaluation Results

Internal Outcome Evaluation	No. Households	IESC Verification	No. Households
Declined	18	Declined	6
Maintained	14	Maintained	23
Improved	8	Improved	11
Total	40		40

See Appendix 2 for more detailed information on the verification process, contextual analytical factors, and results.

The IESC, at this stage, observes that the majority of physically displaced households have at least maintained their standard of living. This preliminary conclusion is based on the data, as well as on important contextual factors such as the choice of nearly all households to self-resettle and the far greater difficulty than was anticipated of maintaining security of tenure and access to roads and services in the highlands.

The IESC notes some inconsistencies in the Project's outcome evaluation data and in the relationship between the data and the standard of living category assigned. The IESC has requested a quality assessment of the data.

The IESC also notes some weaknesses in data collection and analysis methods. The field surveyors need more time to conduct interviews and more training, including role playing, to produce the information needed to support an accurate and nuanced analysis. Based on IESC data review, some of the data collected by the evaluation survey are insufficient to support the assigned categories of declined, maintained, or improved standard of living. In other words, surveyors seem not to have asked any follow up questions. The database, for example, categorizes 379 households as improved, but the results of indicator measurement suggest that some of these households would better fit into the maintained category. In contrast, some households were assigned to the declined category, but the results of the indicators on balance suggest they should be in the maintained category. Analysis also needs to consider the contextual factors (discussed in Appendix2).As a result of IESC observations, two of the field surveyors participated in one of the days of verification interviews to observe the kinds of questions they should ask and a working session was conducted with the analysis staff.

Water Issues Related to Standard of Living

Decline in access to water was not found to be a major issue. None the less, the Project, through a third party, will distribute (by August 2014) small water catchment tank kits to any physically displaced household without a source of water.

Verifications revealed that some households noted a decline in access to water because they are afraid to drink creek water they believe the Project has polluted.

6.3.2.2 Observations on Livelihood Restoration Outcomes

Implementation Status

Distribution of chickens and ducks for 298 households has been delayed because of difficulty sourcing a sufficient number of animals and of delivering animals into insecure areas. Sourcing of the animals has been resolved and animals are being distributed in secure areas. For insecure areas, a plan has been developed to distribute animals at "field days" in safe venues at or near insecure areas. Distribution was expected to be completed by early July 2014.

The verification visits indicate that training is not being provided along with animal delivery. It is unclear to the IESC, however, whether training was included in the livelihood restoration package. According to L&CA Compliance current management, the livelihood entitlements were not very clear and ANUE (program implementer) has not submitted monitoring reports since sometime in 2012. L&CA should determine how this gap can be filled because quite a few of the households in the verification sample indicated they have had a problem keeping the animals alive. If other households are having the same

experience, it would be a detriment to enhancing the livelihoods of affected people for the longer term and could become a risk for the Project. Even if training was not part of the animal husbandry program, these are standard programs and the successful ones always have a pre-and post-delivery training module. The IESC recommends a “rapid assessment” of households who received animals earlier to identify the need for training and the type of training needed. For households receiving animals recently or in the near future, training should be organized as soon as possible. Training for households in insecure areas could take place at the distribution venues when animals are delivered.

Livelihood Restoration Outcomes

A total of 417 households were economically displaced, including 218 1B households (both physically and economically displaced) and 199 Type 2 households (economically displaced only). Internal outcome evaluation of livelihood restoration was done for 100% of the 218 1B households and about 50% of the 199 Type 2 households. This is a larger sample than was anticipated and, as such, provides more robust data from which to extrapolate to the larger population of economically displaced households.

This first internal evaluation found only 11 households in declined from pre-displacement conditions and the IESC verified 10 of the 11 declined households (11th household was unavailable). The very small number of declined households is largely due to the majority of displaced households having gardens elsewhere. The livelihood restoration program also has had a positive impact, based on anecdotal evidence from field officers and the IESC visits. This will be confirmed by the second livelihood evaluation and IESC verifications, as well as livelihood program monitoring data.

The box below summarizes the IESC verification results compared to the results of the internal evaluation. Table 2 of Appendix2 shows individual households, explanations for IESC category changes, and indicates any further actions needed.

Summary of IESC versus Internal Outcome Livelihood Restoration Evaluation Results

Internal Outcome Evaluation	No. Households	IESC Verification	No. Households
Declined	11	Declined	4
Maintained		Maintained	5
Improved		Improved	1

The weaknesses in the data collection and analysis noted for standard of living (Section 6.3.2.1) affected the first livelihood evaluation process, as well. These weaknesses need to be addressed with additional training prior to conducting the second livelihood restoration analysis. The second internal livelihood evaluation can begin in July for the households that have received all planned program inputs. Livelihood evaluation can begin for the remaining households about 4-6 weeks after all have received animals and training. The IESC will verify results during its October 2014 visit.

The final analysis of livelihood restoration will also consider the food security status of economically displaced households. L&CA appears not to have received any progress reports from ANUE since the end of 2012.⁴ L&CA is assembling these data which should include the following information in spreadsheet format:

- Input delivery status measured against the implementation plan;
- Achievement of food security targets for *economically displaced households* (such as amount of sweet potatoes for each participating household); and
- Identification of any targets not achieved, reason for non-achievement, and corrective actions taken.

L&CA has proposed some additional KPIs (listed below) to measure livelihood program effectiveness. The IESC would like to discuss these KPIs to ensure they are not duplicating efforts, are measurable, and will produce useful data.

⁴ *Lack of reporting by a contractor is a lesson learned, particularly for Community Support Program contract management. All its contractors (one of which will be ANUE) should have clear monitoring and reporting responsibilities and contract administrator follow up.*

- % and no. of FN Type 1 and Type 2, versus the total no. of FN's, contacted (or contactable) to attend the centralized training sessions;
- % and no. of Type 1 and Type 2 within the defined centralized training session area in attendance (attendance rate);
- % and no. of FN's attending training sessions provided with sample seed pack; and
- Result of short survey (5 questions) conducted at the end of the field day to assess customer reaction to field day and training (was the training worthwhile and useful?).

6.3.2.3 Recommendations

Standard of living

1. Complete follow up assessment of the six households found to be living in conditions that have declined from pre-displacement conditions. The results of the assessment and proposed corrective actions should be submitted to the IESC prior to its October 2014 visit.
2. Conduct a quality analysis and share results with the IESC of the internal standard of living evaluation data, particularly in regard to discrepancies between the indicator data and the categories assigned.
3. Provide additional time and training for field surveyors (mainly applicable for the next livelihood restoration evaluation – see Section 6.3.3.2).
4. Prepare household forms for the IESC verification of the remaining households in the standard of living declined category.
5. Improve messaging about water monitoring results to communities who access water from creeks and follow up to determine effectiveness of information and communication provided.

Livelihood Restoration

1. Investigate animal husbandry training provision and consider a “rapid assessment” of households who received animals earlier to identify the need for training and the type of training needed. Organize training for households receiving animals recently or in the near future. This training should be provided by mid-October 2014. Consider training for households in insecure areas delivered at the venues when animals are delivered.
2. Provide additional time and training (including role playing) for field surveyors to conduct interviews properly to produce the information needed to support an accurate and nuanced analysis. This should be done prior to conducting the second livelihood evaluation.
3. Begin second internal livelihood evaluation in July for households that have received all planned program inputs and about 4-6 weeks after remaining households have received animals and training.
4. Prepare household forms for the IESC verification of the second livelihood evaluation results during its October visit.
5. Assemble and share with the IESC during its October visit the following input/output data from the agricultural livelihood program:
 - Input delivery status measured against the implementation plan,
 - Achievement of food security targets for *economically displaced households* (such as amount of sweet potatoes for each participating household) for each activity; and
 - Identification of any targets not achieved, reason for non-achievement, and any corrective actions taken.
6. Consult with the IESC on the proposed additional KPIs for measurement of the agricultural program effectiveness.

6.3.3 Resettlement Completion Audit

6.3.3.1 Observations

The Resettlement Completion Audit is the remaining 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.

The IESC has provided L&CA with a draft Terms of Reference (TOR) for the audit. The Project should review the draft and discuss changes and additions with the IESC. The IESC will make recommendations for auditor candidates (three have been identified to date). The IESC suggests that there be an audit team composed of a team manager who should be a senior resettlement expert with experience in resettlement evaluation and auditing and one or two field staff. In the IESC’s experience, it is best to ask the senior expert to review the methodology proposed in the TOR and propose any changes or additions the expert prefers. The Project and the IESC would review these change/additions, and agreement with the expert on methods should be reached prior to commencement of the audit.

The audit will likely occur during the second quarter 2015 to allow time for completion of the second livelihood evaluation analysis and IESC verifications, preparation of outcome evaluation reports for standard of living and livelihood restoration, implementation of any remedial actions indicated by the evaluations/verifications, assembling of the data required for the audit, and auditor contracting.

The L&CA, with support from the IESC, should prepare the outcome evaluations report that presents the following:

- Internal outcome evaluation and verification processes for standard of living and livelihood restoration;
- Findings of the outcome evaluations and the verifications of standard of living and livelihood restoration status;
- Implementation status of any remedial measures;
- Reasons for inability to evaluate and/or verify the conditions of any affected households that cannot be contacted; and
- Supporting evidence (database, data evaluation results, and bases of decisions on status of households), photographs, etc.

6.3.3.2 Recommendations

1. Review the draft TOR for the resettlement completion audit and discuss any changes or additions with the IESC. The review should be provided to the IESC prior to the October IESC visit and finalized during the IESC visit.
2. Develop, with the IESC, a plan for preparing the outcome evaluation report.

6.3.4 Compensation

6.3.4.1 Observations

Top Up Payments

An acceptable calculation model for compensation top up payments for crops and trees has been achieved. The model has been simplified into an estimated cost to produce crops minus compensation already paid for three garden types: mixed, sweet potato, and peanut/pineapple. The average calculation for the three categories is used to determine the final cost for each crop species. Compensation will be in kind (probably tools) and will be distributed to all affected garden owners. L&CA is currently determining the most feasible distribution method. Quite a long time has elapsed since the original compensation payments were made, thus the IESC would like to see the in-kind top ups delivered prior to its October visit.

Compensation Payment Process

Several heads of the households visited for verification purposes indicated their livelihood conditions had declined because the Project paid their compensation to persons other than themselves without authorization. It is probably more likely that their compensation was taken from them, but the Project

should review payment records to determine whether compensation was paid only to the entitled person or to a person authorized by the entitled person to collect the compensation.

6.3.4.2 Recommendation

1. Provide in-kind top up payments prior to the IESC's October visit.
2. Review compensation payment records to determine whether compensation was paid only to the entitled person or to a person authorized by the entitled person to collect the compensation. Notify the IESC of review results.

6.3.5 **Resettlement Documentation**

6.3.5.1 Observations

A new draft of the CRP for the Permanent Facilities Compound was reviewed by the IESC in May, and a few additions requested. L&CA subsequently provided the IESC with a draft responding to the comments. The IESC is satisfied with this CRP and it may be released to the public.

6.3.5.2 Recommendation

1. Release the PFC CRP to the Project website.

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

From the project perspective, security in the highlands has improved, partly because of demobilization and greatly reduced project activities. The Royal Papua New Guinea Constabulary (RPNGC) has the responsibility for maintaining security outside project facilities, though L&CA field officers continue to engage with communities to monitor the security situation. Project staff is required to check with L&CA field officers prior to any travel outside project facilities. Field officers indicate that recent conditions are as follows:

- Komo area is now quiet;
- HomaPaua area experienced a community clash that is resolved and the area is relatively quiet;
- Angore area is quieter than previously; and

- HGCP area is reasonably quiet since the Project erected a fence with intrusion detection cables and cameras around well pads and conducted a great deal of messaging on the dangers of trying to enter the areas.

The security group conducted a full risk assessment and risk transfer process as the basis for production security management planning. According to security management, achieving security for both project and local communities will rest on productive interaction between the project and communities, especially along the pipeline which cannot be easily accessed by project staff since pipeline areas have been reinstated and the road closed. Prevention and management measures, thus, must be based on a community relationship strategy wherein the community liaison officers and other community support measures will be necessary to prevent conflict between local people and the project.

6.4.2.2 Demobilization and Local Communities

The Project has avoided and minimized adverse demobilization impacts on both local workers and communities. The Project's field teams continue to monitor impacts, and note that the situation is much the same as was reported in IESC's February report. No complaints or other issues from either local workers or communities have resulted from demobilization, largely because of good planning and monitoring that included transitioning some local workers to production; re-employing local workers for camp demobilization/reinstatement; employment of local workers by other employers; careful monitoring of notification, messaging, and repatriation; consultation with local communities, and holding demobilization ceremonies and other forms of recognition and reward.

The rapid departure of workers from other parts of PNG also helped avoid conflict related issues in local communities, though it has also decreased local people's cash income. Most local people, however, are returning to gardening.

6.4.3 **Recommendation**

1. Continue to monitor community reactions and responses to demobilization and for a reasonable length of time.

6.5 **PROJECT INDUCED IN-MIGRATION**

6.5.1 **Project Strategy**

L&CA is responsible for the in-migration effort. Project commitments for in-migration are contained in the PIIM Monitoring Procedure that defines the methods for data collection and analysis and the Community Development Support Management Plan (CDSMP) that guides development of any mitigation measures indicated by the data. CDSM is responsible for periodic updating of aspects of the social baseline to identify changing trends in communities that could lead to changes in the

identity, culture, and natural resource-based livelihoods of communities and for monitoring population changes for the extended Project Induced In-Migration program.

6.5.2 **Observations**

6.5.2.1 In-Migration Management

Most opportunistic in-migration induced by a project's development tends to occur just before and during the early stages of project construction. During the construction phase, the Labour and Working Conditions Management Plan contained many in-migration minimization measures, most of which related to certain recruiting and hiring practices designed to inhibit people from moving into the project area in search of employment or other income opportunities. These measures were implemented, and appear to have had a positive effect on minimizing in-migration. Additionally, the rapid departure from the area of workers from outside the area has contributed to minimizing in-migration impact.

Only minor in-migration directly related to the project can be expected during production. The Project, however, can be a catalyst for other kinds of development (infrastructure, downstream businesses, etc.) that can attract people to the area. The extent of in-migration during production is difficult to predict, given the prevailing tribal practices in regard to movement of peoples and land ownership/use, as well as the lengthy production period. The IESC commends the project for developing an in-migration monitoring system designed to identify community and government support programs that responds appropriately to population and other changes over time.

6.5.2.2 Structure and Approach

The data gathering approach has been simplified and will be finalized by the L&CA team. Key elements include the following:

- PIIM monitoring procedure being reviewed with Field L&CA;
- Data collection for PIIMs conducted by L&CA Field Officers, MOH and P&GA. Data will be collected for demographic changes, economic/social indicators, structural changes, health indicators, and wealth and poverty changes. Note that MOH/IMR is currently contracted until 2017;
- Village Liaison Officers(VLOs) to contribute by observing communities in-migration;
- Standardized reporting format;
- Training and awareness with L&CA staff on report content; and
- Assessment coordinated and results evaluated by L&CA Senior Advisor.

6.5.2.3 In-Migration Monitoring Results

Data sources include the following:

- IMR 6 monthly iHDSS data;
- CDS Annual School Profiles (2011-2013);
- Monthly Grievance reports;
- Quarterly GIS aerial photography (Plant Site accessible);
- Site visits and observations of “hot spots”; and
- Site by site (Upstream South/North, RoW and LNG Plant Site) data collection by L&CA representatives.

The following findings are based on data collected from May – November 2013 and reported in the March 2014 iHDSS report:

- Net out-migration within Hides area;
- Net in-migration to LNG plant villages; and
- The data do not indicate that in-migration at the LNG Plant site villages is related to the project.

6.5.3 **Recommendation**

1. The IESC will appreciate a more detailed explanation of the process by which the relationship of the project to in-migration is determined.

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 Business Services Manager, who reports directly to the Managing Director, is responsible for implementation of this Plan and owns this Plan from an OIMS functional perspective. Site managers are responsible for contractor management in relation to this Plan on a day-to-day basis.

6.6.2 **Recommendations**

Presentations for future IESC visits should address the following:

- 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);
- Number and type of capacity building trainings and business development support measures provided to Landowner Companies;
- Performance against the social standard requirements included in contracts (particularly the requirements of IFC Performance Standard 2 – Labour and Working Conditions); and
- Provide IESC with examples of this contract language prior to the October visit.

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 Construction Phase Program Status

Projects initiated during the construction phase that are still in progress include 12 projects in the upstream area, eight projects in the pipeline RoW, and three projects in the plant site area.

6.7.2.2 Production Phase Community Development Support (CDS) Program Planning

The IESC reviewed the latest draft of Community Development Support Implementation Plan and sent comments on 22 May. The main substantive comments and responses are discussed below. Other comments were largely suggestions for revisions to clarify meaning or intent.

Strategy versus plan: L&CA agrees to change the name of the document from implementation *plan* to implementation *strategy*. Implementation *plans* will be prepared for individual projects. The distinction is important because all “plans” should contain implementation entities, schedules, and budgets.

Geographic differences in evaluation: L&CA agrees that measuring the outcomes of achievement of program goals should be analyzed separately for each geographic area. This is important to consider differences in geographic, social, economic and cultural factors in order to understand the reasons some projects or delivery mechanisms may be more or less successful in different areas.

Outcome evaluation: Effective evaluation is key to program success because it indicates *during implementation, when changes to projects or delivery methods can still be made*, whether program components are achieving the overarching goals of CDS, as well as the goals of its component projects. The IESC finds the discussion of evaluation (Section 9) lacking the detail necessary to guide an effective process. The IESC strongly recommends preparation of a CDS Evaluation Procedure that describes each step in the process (baseline survey method, measurement indicators and sub-indicators for each level, indicator measurement data and collection methods, data analysis process, responsible entities for each task, evaluation schedules, and detailed reporting procedures). The Procedure would also provide a more detailed report content.

In terms of indicators, the Strategy indicates that Level 1 indicators are those that will demonstrate achievement of the overarching goal for community development support activities “to promote the development of conditions conducive to enhancing economic self-reliance of individuals, while also mitigating potentially harmful effects.”

The indicators are listed as:

1. Level of economic activity not dependent on the Project;
2. Trend seen in work stoppages attributed to community disgruntlement with EMPNG;
3. Trends seen in community grievances and the nature of those grievances; and
4. Level of external financial support for community development support activities.

All indicators need to be objectively verifiable, thus indicators 2-4 are quite weak. Level of financial support could be used as an indicator, but it will depend on a great deal of other variables, such as funding cycles, existing programs of other entities, international and national political motivations, and so on. Trends in work stoppages and trends in community grievances can provide some useful information, but they are weak indicators of achievement of economic self-reliance because too many other project and non-project related variables can motivate work stoppages and grievances.

Improved indicators would be those that are more robust and better reflect the core themes of the CDS – livelihood support, health, education, and law and order/justice - as is the case with the existing indicator that measures economic activity not dependent on the Project. In other words, the indicator “economic activity not dependent on the Project” would be the Level 1 indicator for measuring livelihood support results at the program level. Each of the other three themes (health, education, law and order/justice) would have a similarly robust indicator to measure the cumulative outcome of the projects in that thematic category. The indicator for health, for example, would be improvements to health measured by reduction in cases of diarrheal diseases in the upstream area and cases of tuberculosis in the LNG Plant area.

6.7.2.3 Implementation Plans

No full implementation plans are yet available. 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.

The IESC reviewed the Scope of Work for the ANU edge (ANUE) Community Livelihood Program. The Scope is well informed by the results of and lessons learned from a similar construction phase program. The IESC notes that the indicators for progressively measuring individual activity results are well conceived and complete. The IESC suggests that the Scope’s Development Process (p. 11 of the SoW) for the intermediate, leading practice, and exit stages provides good indicators at the Program level.

6.7.2.4 Community Profiles

CDS is developing baseline profiles of conditions relevant to CDS themes for each geographic area. These profiles are expected to assist in identifying the appropriate projects and methodologies, as well as changes over time, for each area. As of the June IESC visit, eight profiles have been developed, including three for upstream north (Angore, Hides, Komo), three in upstream south (Benaria-Awatangi pipeline areas, Kutubu-Moran, Gobe-Omati), one for the LNG plant area, and one for the national level.

The IESC suggests that each profile be analyzed to produce a summary that sets out the main considerations in selecting projects, delivery methods, partners and cost sharing, and so on.

6.7.3 **Recommendations**

1. The IESC strongly recommends preparation of a CDS evaluation Procedure that describes each step in the process (baseline survey method, measurement indicators and sub-indicators for each level, indicator measurement data and 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.
2. The IESC strongly suggests that Level 1 indicators be changed or supplemented by indicators that are more robust and better reflect the core themes of the CDS – livelihood support, health, education, and law and order/justice.

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.
4. The IESC suggests that the ANUE Scope of Work's Development Process for Community Livelihood (p. 11 of the SoW) for the intermediate, leading practice, and exit stages provides good indicators at the Program level.
5. The IESC suggests that each community profile be analyzed to produce a summary that sets out the main considerations in selecting projects, delivery methods, partners and cost sharing, and so on.

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

Project engagement with local communities continues with 377 engagement events conducted in the upstream areas and 111 events with LNG plant area communities. Upstream engagements focused on issues related to land agreements and payments, payments for other kinds of compensation reinstatement, traffic, and requests for employment. LNG Plant area engagements focused on loading of first cargo and tanker trials, future community development support, and environmental issues (noise, flaring, etc.).

The Village Liaison Officer (VLO) Strategy is a key element of continuing engagement and maintaining relationships with local communities during Production. The primary purposes of the VLOs, all of whom reside in local communities, include the following:

- Provide reliable information on emerging community issues that could affect project operations or project-community dynamics (such as landowner relationships, rivalries and disputes);
- Disseminate project information to local communities;
- Facilitate access of project personnel to project sites;
- Assist in grievance management; and
- Facilitate project engagements with local landowners and communities.

VLOs will function in areas that are characterized by proximity to key project infrastructure and the need for project staff to visit the areas; volatility and poor security conditions; historically high levels of grievances; and areas where project activities, such as community develop programs, are being implemented.

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 number of grievances has significantly declined and at the end of May 2014, there were zero grievances outstanding (over 30 days unresolved). The closure rate dropped below the 75% target during April, May, and June due to staff changes and focus on first cargo engagements, but subsequently rose above 75%. About two-thirds of the grievances during this period regarded pipeline RoW issues, including compensation and land access, animals killed by project vehicles, reinstatement, water disturbances, and community development and employment concerns.

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 continues its effort to influence and support the government. Milestones in the process are shown below:

- Phase 1 Clan vetting field work complete;
- Project supported DPE Phase II Field Execution planning and budgeting for Phase II;
- Royalty Trust Account established (16-May) by Finance with BPNG to keep royalty income separate from other funds;
- Ministerial (Interim) Determinations published 19 May (~1600 clan names listed); and
- General support for press releases and stakeholder engagement materials.

Some court challenges to Ministerial Determinations have occurred.

The next steps in the process are listed below:

- Provide project support to DPE in planning and implementing CVP Phase 2 to negotiate sharing among identified beneficiary clans;
- Provide project support to MRDC in scoping actions required to establish benefits distribution mechanism;
- Project to continue to lobby Government for more CVP Phase II project management resources (due to capacity issues at DPE);
- Facilitate DPE planning field awareness regarding Interim Ministerial Determinations; and
- Commence Phase II field work/meetings.

In the opinion of the IESC, the project's efforts are having a constructive influence toward achieving safe, accurate and effective delivery of cash benefits. Many challenges remain, however, including Government capacity to conduct land owner negotiations and distractions (other gas developments, Petroleum Authority establishment), low Government funding, court disputes, and land owner high expectations regarding 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.

7.2 OBSERVATIONS

7.2.1 IESC Focus

As the Production phase has only recently begun and workforce related issues closed, the IESC focused on demobilization during the June 2014 visit. For future IESC visits, the Project will present full reports on implementation of the production Labour and Working Conditions Management Plan (“the Plan”) in order for the IESC to verify compliance with IFC PS 2, PNG legislation, and other applicable requirements. Reporting will follow the list of topics given in Section 6.1 of the Plan for both EMPNG and its contractors. In addition to internal reports, the IESC should receive any assessment (see Section 5 of the Plan) or audit findings.

7.2.2 Construction Workforce Demobilization

Demobilization is nearly completed. EPC 3 has 326 PNG nationals and 618 OCNs engaged primarily with subcontractors in camp demobilization and security. EPC 4 has 190 workers, most of whom will be demobilized in Q3 2014. Figure 7.1 below shows demobilization actual and forecast for June 2014.

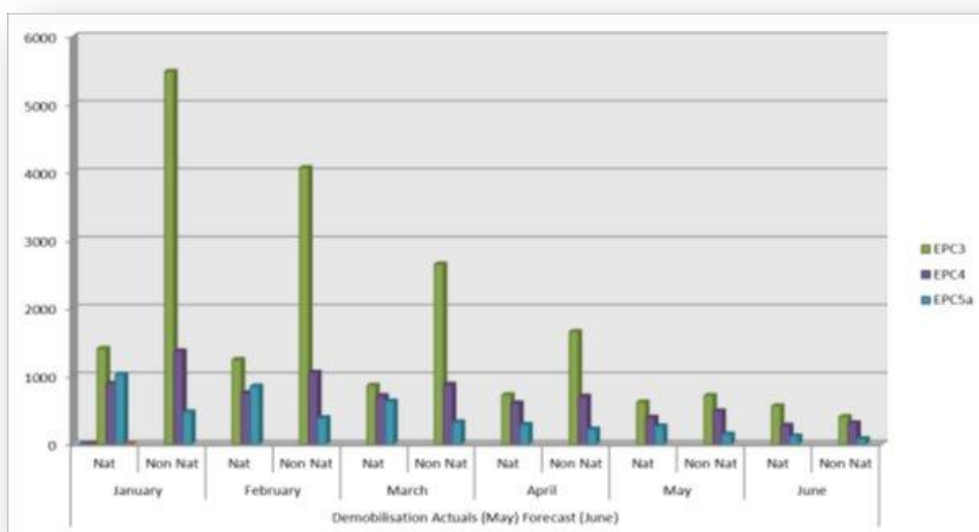


Figure 7.1: Demobilization – Actual and Projected

Project field and grievance/complaints assessments, as well as IESC observations in the field, indicate that the demobilization program has gone well. Field officers observe that they have encountered no difficulties resulting from workforce demobilization and that local workers generally respond positively to the demobilization process. Project contractors also have observed that the process went smoothly.

Process elements that strongly contributed to smooth demobilization and that can be considered lessons learned include:

- Appropriate resources given to planning and strategy development;
- Timely and effective communication, establishing expectations;
- Consistency of messaging – EMPNG, Contractors, LABA/HGDC/Lanco's and L&CA field officer engagement with community leaders;
- Effective monitoring of planning, messaging, and execution and continually improving processes from lessons learned;
- Making efforts to enhance future employability (many demobilized local and national workers found employment elsewhere as a result and some have been retained for reinstatement work);
- Livelihood monitoring in affected communities;
- Assessing impacts through discussions - Investigating issues and grievances; and
- Community development projects – schools, aid posts, churches, community centers and targeted community investment programs – education, health, agriculture, and finances.

7.3 RECOMMENDATIONS/REQUESTS

1. The IESC looks forward to reports on implementation of the Production Labor and Working Conditions Management Plan and will appreciate presentations that follow the list of topics given in Section 6.1 of the Plan for both EMPNG and its contractors. In addition to internal reports, the IESC would like to receive the results of any assessments or audits.
2. IESC would like to see the Workforce Grievance Mechanism for Production.
3. IESC would like to see the language in contracts regarding adherence to the Labour and Workforce Management Plan for Production.
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).

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

Looking at the PNG LNG Project in retrospect, the overall statistics associated with occupational safety aspects of the construction phase have been excellent. The cumulative Lost Time Incident Rate (LTIR) for the construction phase is 0.01, which is remarkable. The Project has completed more than 44 million man hours LTI-free since July 2013. Specifically at the LNG Plant, CJJV has completed more than 73 million man hours LTI-free since March 2012.

The one aspect of the construction phase that was unacceptable was the number of fatalities. A total of seven worker accidents resulting in death have taken place over the course of the construction project. The last accident on July 9, 2013 involved a blunt force trauma to a pipe fitter when he was caught between a trench box and the pipeline when a pipe clamp released. He died from cardiac arrest after he had been transported to a hospital, so there may have been a pre-existing condition that caused the actual death. Of the other six deaths, one was a worker buried in a mudslide and one was an extraordinary event associated with tree felling that would not have been predictable. The other four deaths involved situations where the deaths should have been preventable. The fatalities have been the focus of fatal risks lessons learned analysis conducted by the Project with the note that emphasis needs to be made on identifying potentially fatal activities and focusing training on those aspects.

The transition to Production has been accompanied by a change in the focus of training. The end of the construction Project emphasized a “Finish Strong” safety campaign to remind workers to keep themselves safe during the final stages of construction. With the advent of Production the focus of safety education has shifted from construction-related hazards to working with energized facilities and hydrocarbons.

8.1.2.2 Worker Health

Occupational health continues to be a “best” practice program implemented in a very difficult and challenging environment, with a complex, heavy burden of community-acquired disease. The success of this program can be demonstrated by key performance leading indicators (i.e., in areas of clinical operations, disease prevention/control, food and potable water safety, camp hygiene and sanitation and

industrial hygiene) and management of illness cases (lagging indicators). KPIs for these indicators have been consistently better than objectives since Q2 2012.

Since the last IESC visit the small construction camp clinics have demobilized, with medical equipment and records transferred to larger operating clinics associated with Drilling and Production. The challenges during demobilization have been clinic equipment inventory verification; the disposition of excess medical equipment; and maintaining high camp health standards during the demobilization process. The transition to Production has required several activities: the development and implementation of an OIMS health system and the development of new KPI's for tuberculosis, malaria, food quality water quality, industrial hygiene and camp sanitation; Production MOH team training (Physicians, Industrial Hygiene Technicians, and Administration); continuing to monitor health program readiness review with Production; review of contractor Food Safety Plans; and continued training of PNG Environmental Health Technicians. In retrospect, one of the main reasons why the Occupational Health program has been successful is because of the effectiveness of the Community Health Program (CHP). The Project has been aware of the community diseases that could be imported into the Project and has developed programs to prevent their influence on the Project workforce. The Occupational Health and the community health programs have been synergistic and mutually beneficial. The occupational health program successes are also related to Company and Contractor management engagement with appropriate resource allocation for occupational health program identification (HRA), implementation (PDS and project health team), with adequate KPI verification and stewardship.

8.1.3 Recommendations

None arising from the present review.

8.2 COMMUNITY HEALTH

8.2.1 Observations

The April 2014 review by the Independent Scientific Advisory Board (ISAB) congratulated PNG IMR and PSI teams for their efforts to implement effectively PiHP and Enhanced Community Health Program (EHP) and concluded the following:

- Reporting by the Partnership in Health Program (PiHP) has substantially improved;
- Major improvements against milestones have been made since the last ISAB meeting;
- Working relationships between EMPNG, MOH, PNG IMR and PSI have improved the effectiveness of the PiHP and quality reporting and communication;
- Key recommendations by ISAB in 2012 and 2013 have largely been implemented;
- The one-day NDoH workshop was fruitful particularly because of its focus on sustainable and translational activities for the PNG Health system and its strong engagement with partners; and
- The iHDSS program is well recognized by NDoH and all development partners.

Table 8.1 below shows the key Community Health actions going forward.

Table 8.1: Key Community Health Actions Going Forward

MOH	IMR	PSI
Assist Partners (IMR and PSI) to achieve monthly milestones.	Achieve accreditation of Partnership in Health Laboratory in Port Moresby.	Continue to deliver health education to Hiriand Hides communities using Healthy Man/Healthy Meri as focal training advocates during 1H 2014.
Assist IMR to improve efficiency of iHDSS for sustainability and to maintain strength of controls and reporting structure for PiHP.	Obtain certification to conduct TB culture and implement protocols to enable full suite of PCR tests to be conducted.	Conduct “success stories” interviews with communities and evaluate program implementation during 1H 2014 Submit final program report to ExxonMobil PNG in 2Q 2014.
Coordinate ongoing dialogue with NDoH to explore opportunities for iHDSS sustainability and funding as well information transfer of health program assessment and implementation processes.	Continue completion of health studies according to schedule.	Close out ISAB recommendations from April 2014 report.
Continue to participate in field activities with PSI during “success stories” interviews and health education.	Close out ISAB recommendations from April 2014 report.	
	Review of iHDSS and identify efficiency opportunities for long term sustainability of program.	

8.2.2 Recommendations

None arising from this review.

9 CULTURAL HERITAGE

9.1 PROJECT STRATEGY

EMPNG's objectives are to avoid impacts to cultural heritage sites, including archaeological and oral tradition sites and to manage cultural heritage sites in consultation with landowners.

9.2 OBSERVATIONS

Cultural heritage management associated with construction is now complete. In terms of achieving the basic goals of a cultural heritage program, EMPNG has been successful. Archaeological and human heritage sites were identified during pre-construction surveys and avoided where practical. Those that could not be avoided were appropriately mitigated. A chance find protocol was implemented to manage cultural heritage finds made during construction. Cultural remains from the field work were analyzed and appropriately curated. Cultural remains were analyzed and interpreted and the results published such that future researchers have the results available to them. The location of cultural heritage sites is now fully documented with the Production GIS system. The National Museum and EMPNG are working towards a public display of Project findings.

9.3 RECOMMENDATION

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

APPENDIX A

IESC 12TH MONITORING VISIT – TRIP SUMMARY

TRIP SUMMARY

June 15:

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

June 16:

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

June 17:

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

June 18:

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

IESC Social – travels to Komo and starts Monitoring and Evaluation (M&E) verifications (livelihood restoration/standard of living).

June 19:

Environmental Team travels to Moro and visits Lake Kutubu Resource Center and visits areas with reinstatement.

IESC Social – travels to Hides area and continues M&E verifications (livelihood restoration/standard of living).

June 20:

IESC Environmental Team –undertake flyover of HGCP area and pipeline including the spinline and then undertakes tour of HGCP and spinline on the ground.

ESC Social – travels to Angore area and continues M&E verifications (livelihood restoration/standard of living).

June 21:

IESC Environmental Team – travels to Port Moresby and conducts afternoon visit to LNG Plant.

IESC Social – travels to Port Moresby and attends meetings in afternoon with EMPNG staff related to the LNG Plant.

June 22:

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

June 23:

- Closeout meeting in morning;
- IESC team departure.

APPENDIX B

IESC STANDARD OF LIVING AND LIVELIHOOD RESTORATION VERIFICATION RESULTS

IESC VERIFICATION OF STANDARD OF LIVING AND LIVELIHOOD RESTORATION

1.0 Introduction

The Project has completed outcome evaluation for standard of living and the first livelihood restoration outcome evaluation. A second livelihood restoration evaluation will be conducted and the IESC will verify these results. During this June visit, the IESC conducted the third round of independent verification of the Project's results for standard of living and the first livelihood restoration evaluation results. This report presents the IESC verification findings.

2.0 Internal Outcome Evaluation

The Project's internal outcome evaluation assessed the standard of living of 100% of physically displaced households (Type 1A) and the livelihood status of about 50% of economically displaced households (Types 1B and 2). Note that some of the households are both physically and economically displaced. The evaluation assigned a category to each household for either standard of living and/or livelihood restoration, as applicable, based on measurement of indicators established for each category. Only limited contextual information was considered in the evaluation. These categories compare pre- to post-displacement conditions of affected households to determine which of the following categories best describes their post-displacement conditions: improved, maintained, or declined. Sections 6.3.2 and 6.3.3 of the main report provide information on needed process improvements.

3.0 Verification Process

The IESC verification process consists of the following steps:

- Document review of the internal outcome evaluation results and supporting data (raw data on indicator measurements, household profiles, photographs of pre-displacement conditions), project reports on resettlement and livelihood restoration progress;
- Discussions with L&CA field staff regarding conditions and circumstances of the sample households and the areas in which they are located;
- Project knowledge and experience of the IESC;
- Interviews with affected household members and observation of their living conditions;
- Collaborative analysis by the IESC Social Expert and outcome evaluation supervisors; and
- Final analysis by the IESC Social Expert (including remedial actions needed in the event a declined condition for either standard of living or livelihood restoration can be shown to result from inadequacy of the Project's resettlement plan or its execution).

4.0 Verification Analytical Considerations

In addition to specific data on the households, the verification analysis considered certain contextual factors in assigning outcome categories to household status. Most category changes can be ascribed to the more complete information acquired during the verification visits and consideration of these contextual factors.

The main factors are described below.

Standard of Living and Livelihood Restoration

Compensation use: Many of the declined households used compensation payments for purposes other than replacing lost assets. Compensation was often used, for example, on acquiring new wives, paying off wantok obligations, or for celebrations. This consideration is important for determining whether a household's declined status is due to the project or household decisions.

Standard of Living Factors

Self-Relocation: All physically displaced households selected the cash compensation and self-relocation strategy, except for 28 households belonging to an extended family that chose the option of project supplied housing, but self-selected the location. In the context of highland land ownership and use, all land is owned and managed by various clans, thus the Project could not have developed centralized resettlement sites because displaced households belong to a variety of clans/sub-clans, need to live on appropriately owned land, and are widely scattered. Self-selection of location, however, undermines the Project's ability to promote security of tenure and easy access to roads, water, and services.

Security of Tenure: Some of the households were placed in the declined category as a result of less security of tenure compared to their pre-displacement tenure status. While security of tenure is generally an important aspect of standard of living, it was too heavily weighted as an indicator given the PNG highland context. Patrilineal land (father's) is the most secure, thus if a person who had lived on patrilineal land had to relocate to land belonging to someone outside the father's line, as is the case for many of the declined households, tenure would be less secure. Maintaining secure tenure is generally problematical in the highlands where clans commonly fight over land resulting in forced relocations. During the verification, household members pointed out that having to relocate or rebuild is a common challenge, the main reason being that households are frequently attacked, their structures and gardens burned, and relocation is often necessary. Additionally, finding a secure option has become increasingly difficult as a result of internal family disputes and the frequency of the need for people to relocate. During the verification visits, several of the households indicated they had been burned out or had to relocate since relocating after displacement by the Project.

Access to water: Easy access to water is a common problem in the highlands, and reduced access was a contributing factor for quite a few of the households initially placed in the declined category. The Project, however, is providing water catchment tank kits to all physically displaced households who need an additional water source.

Access to roads and services: At the time of displacement, there were few services or roads in the affected area. The significance of this indicator is probably more important for households able to relocate near a road thus offering more opportunities to improve both standard of living and livelihoods. In addition, the measurement of access by time periods (> or < 30 minutes) used by the internal evaluation was not adequate for accurate comparison between pre- and post-displacement access. For example, verification interviews revealed that in some cases, there was only a few minutes difference between a household indicating less than 30 minutes pre-displacement and more than 30 minutes post-displacement. Moreover, the households categorized as declined for access reasons that were displaced by the planned, but not implemented heavy haul road (Hides-Komo), could relocate back to their original site, as other relocated households have done.

Livelihood Restoration

Indicators: Livelihood restoration is less observable than standard of living because accurate income information is difficult to acquire and most income in the highlands is in the form of subsistence or bartering. Information on income in terms of cash, subsistence, and bartering was meant to be collected, but mostly only the proxy indicators were used for the internal evaluation. The proxy indicators are largely "if-then" substitutes for actual income data. For example, if a household can afford to reinvest in income generation or purchase clothing from shops, then the household's livelihood status is likely to be at least maintained. The internal evaluation did not investigate the reasons some households responded negative to the indicators. This information was obtained during the verification visits resulting in changes for some households from declined to maintained or improved status.

Severity of Losses: Very few of the economically displaced households were found by the internal evaluation to have declined livelihoods. This is largely because most of the households have multiple gardens elsewhere, as is common throughout the highlands. Evidence from the verifications indicates that livelihood restoration inputs are increasing agricultural production allowing more households to earn cash from produce sales. The second livelihood outcome evaluation will identify any livelihoods that continue to be or become declined.

5.0 Verification Findings Summary

Tables 1 and 2 show the results of the IESC verifications for standard of living and livelihood restoration, respectively. The tables also provide information actions to be taken and on the rationale for changes made to the results of the internal outcome evaluations.

Qualification: The IESC has requested a quality analysis of the internal evaluation data based on observation of some discrepancies between the data in the spreadsheets and the household data provided to the IESC, as well as questions regarding the reasons for some household categorizations.

5.1 Standard of Living

A total of 626 households were physically displaced, including 408 households that were physically displaced only and 218 households that were both physically and economically displaced (lost both dwellings and gardens). Internal outcome evaluation of standard of living was done for 100% of the physically displaced households.

Standard of living verification has been done for 40 households to date. Of the 54 households the internal evaluation categorized as declined, the IESC has verified 18 households. The IESC will verify the remaining households in the declined category. Verification will depend upon improved security conditions in some areas and ability of the project to locate households (@6) that have left the area permanently. The box below gives a summary of the IESC verification results compared to the results of the internal evaluation.

Standard of Living Summary - IESC versus Internal Outcome Evaluation Results

Internal Outcome Evaluation	No. Households	IESC Verification	No. Households
Declined	18	Declined	6
Maintained	14	Maintained	23
Improved	8	Improved	11
Total	40		40

Table 1 (below) shows individual households, explanations for IESC category changes, and indicates any further actions needed.

5.2 Livelihood Restoration

A total of 417 households were economically displaced, including 218 1B households (both physically and economically displaced) and 199 Type 2 households (economically displaced only). Internal outcome evaluation of livelihood restoration was done for 100% of the 218 1B households and about 50% of the 199 Type 2 households.

Only 11 households were assigned to the declined category by the first internal evaluation, largely because the majority had gardens elsewhere. The IESC verified 10 households. The 11th household was unavailable for the verification. IESC will conduct a second verification process following completion of the second internal outcome evaluation. The box below gives a summary of the IESC verification results compared to the results of the internal evaluation.

Livelihood Restoration Summary - IESC versus Internal Outcome Evaluation Results

Internal Outcome Evaluation	No. Households	IESC Verification	No. Households
Declined	11	Declined	4
Maintained		Maintained	5
Improved		Improved	1

Table 2 (below) shows individual households, explanations for IESC category changes, and indicates any further actions needed.

Information gathered by the verifications indicates that the cause of declined livelihoods for three of the four households is not a failure of the resettlement plan or its execution. The fourth person is a very vulnerable elderly person who was both physically and economically displaced. Her case should be assessed as soon as possible to determine if there is a feasible way for the Project to assist her.

Of the 218 households that were both physically and economically displaced, only seven households qualified for the declined livelihood category. Of these seven households, the verification concluded that five households have maintained livelihood status. The other two include the vulnerable woman mentioned above and the one household not available for verification. These households will be covered by the second livelihood evaluation.

Table 1: IESC Standard of Living Outcome Verification Results

Area Acronym Key

KP	kilometer point (pipeline RoW)
HHR	Heavy Haul Road (not implemented, but some households relocated)
HGCP	Hides Gas Conditioning Plant
HWMA	Hides Waste Management Area
KAAP	Komo Airport Access Road

FN No.	Area	Internal Evaluation Status (as shown in database)	Verification Status and any Follow-Up Required	Comments
Declined				
267	HQ Quarry Road	Declined	Declined – further investigation TBD	Insecure tenure and only access to water is a rainwater catchment tank given to father who is a vulnerable person. Must rely on other persons to get water for washing, etc.
112	HGCP	Declined	Declined - Need visit to determine if household qualifies as vulnerable for additional assistance.	Displaced from plant site and new land very far from services, water, etc. Family or part of family appears to be living on church land nearer services.
515	HWMA	Declined	Declined – Further investigation TBD	Has 11 wives and many internal family problems, thus unable to find secure land on which to settle. Is elderly and blind and receiving additional assistance.
529	HWMA	Declined	Declined – Further investigation TBD	Very insecure tenure leading to poor access to water and other resources. Distance to services considerably increased.
28	Komo airport	Maintained	Declined – Further investigation TBD	Very insecure tenure leading to poor access to water and other resources.
534	HHR 1D	Declined based on less secure tenure	Declined provisionally – recheck to determine whether household is female and living on her father's land which would be secure.	Household head currently seems to be a female who is living on her father's land.

FN No.	Area	Internal Evaluation Status (as shown in database)	Verification Status and any Follow-Up Required	Comments
Maintained				
65	Pipeline RoW KP 0-5	Declined – insecure tenure	Maintained	Has 2 residences – FN 99 main dwelling and FN 65 is for project work purposes.
99 (same)		Maintained	Maintained	
77	Pipeline RoW KP 0 - 5	Maintained	Maintained	
78	Pipeline RoW KP 0 - 5	Declined for lack of security of tenure	Maintained	Was able to return to original location land and received a second resettlement package.
98	Pipeline RoW KP 0-5	Maintained	Maintained	
10	Komo airport	Declined as result of insecure tenure.	Maintained	Intends to relocate near Komo and is purchasing land from in-laws. Once purchased will have security of tenure. First house burned down as result of family fight. Was initially composed of multiple families, all of which received supplementary packages and moved away. Household is now composed of one family.
902	Tumbi Quarry	Declined	Maintained	Decline was based on slightly increased distance to road, but household selected location in order to resettle on patrilineally owned land. Also able to construct 4 structures as a result of compensation, compared to the 2 structure had pre-displacement.
1927	Angore (Well Pad B)	Maintained	Maintained	Note that proximity of road enhancing ability to sell garden produce.
630	KAAR	Declined because was on road and is now rather far from road	Maintained	The land from which displaced was not used by the project. Chose new location because needed to claim this land his clan had taken from another clan.
128	HGCP	Declined	Maintained	All indicators same as pre-displacement.
142	HGCP	Maintained	Maintained	
146	HGCP	Declined – access to water and services more difficult	Maintained	On balance, living conditions are maintained. Traded near road location for land security and compensation sufficient to improve housing both in terms of quantity and quality.

FN No.	Area	Internal Evaluation Status (as shown in database)	Verification Status and any Follow-Up Required	Comments
147	HGCP	Declined	Maintained	On secure land with several bush structures, one of which is semi- permanent, was on road pre-displacement, but now a long way from a road because only other secure land available.
501	HWMA	Maintained	Maintained	
506	HWMA	Improved	Maintained	On balance, living conditions are maintained.
518	HWMA	Maintained	Maintained	
532	HWMA	Maintained	Maintained – Female Vulnerable Person who may need assistance to improve extremely steep approach to garden. Follow up required.	Consider her a VP - female head of household takes care of elderly parents and her children.
602	HHR 1D	No value given	Maintained	Note that two of the structures were burned in a recent tribal fight.
630	KAAR	Declined based on less availability to water and road	Maintained provisionally – further investigation needed	Information provided to IESC indicates distance to road and water less than pre-displacement. Water tank kit will be provided to all physically displaced.
632	HHR 1D	Declined	Maintained, as long as can return to original land. Follow up required.	Plans to relocate back to original land where tenure is patrilineal.
656	HHR 1D	Maintained	Maintained	Tenure not as secure, but housing same, water available from nearby well, and the location very near road Komo Station is an important access improvement.
663	HHR 1D	Declined because of insecure tenure and less access to health care	Maintained	Purchased land and indicates is secure because would receive compensation from owner if made to move. Increased distance to health care is because of the closure of Komo clinic which affects everyone in the area.
678	HHR 1D	Declined because tenure deemed less secure	Maintained	Husband deceased. Household is now located on the head of female household head's father's land. Household now has three structures compared to the one pre-displacement structure.

FN No.	Area	Internal Evaluation Status (as shown in database)	Verification Status and any Follow-Up Required	Comments
691	HHR 1D	Declined	Maintained	Son has provided elderly father (Francis) with land/dwelling adjacent to son's guest house. Son is a LANCO CEO.
Improved				
73	Pipeline RoW KP 0-5	Improved	Improved	Able to relocate very near to pre-displacement location, housing from bush material to permanent, large garden area, secure tenure.
91	Pipeline RoW KP 0-5	Maintained	Improved	Relocated on to a main road, improved structure, has coffee gardens, and is closer to water source
79	Pipeline RoW KP 0-5	Improved	Improved	Is in good financial and physical condition and compensation allowed construction of an additional semi-permanent dwelling.
154	HGCP	Declined	Improved	Lives on more secure land with children, permanent structure and water tank, on road.
660	HHR 1D	Declined (based on incorrect weighting of indicators)	Improved	Time to road is only a 3 minute walk. Tenure is more secure as is living on father's land, compared to pre-displacement location on a more distant relative's land.
1235	Angore (Well Pad B)	Maintained	Improved	Had fled from original land because of tribal fight. Lost dwelling was speculative and received full compensation. Current location is a more secure area as result of new road and project presence, easier access to water.
1687	Angore (Well Pad B)	Maintained	Improved	Lost dwelling was speculative and received full compensation. Current location is a more secure area as result of new road and project presence, easier access to water.
1904	Angore (Well Pad B)	Maintained	Improved	Same as 1904 (above), also improved security of tenure (patrilineal), very near new road and female head of household indicates this has significantly improved transport to services and ability to earn

FN No.	Area	Internal Evaluation Status (as shown in database)	Verification Status and any Follow-Up Required	Comments
				some cash from roadside sales.
150	HGCP	Improved	Improved	Improvement in quality and standard of housing, able to move very near to pre-displacement secure land and road.
604	HHR 1D	Improved	Improved	Security of tenure and housing/shop both significantly improved as has been able to relocate to secure land very near Komo Station.
105	HGCP	Improved	Improved	Significant increase in number of structures and has community water source.

Table 2: IESC Livelihood Restoration Verification Results

FN No.	Area	Internal Evaluation Status	Verification Status	Comments
Declined				
512	New Landfill (Kopeanda)	Declined	Declined, but not <i>direct</i> result of displacement. Status as a vulnerable person to be checked in next livelihood survey.	Female who lives with her children and receives no other support. Husband lives with his other wife. She participated in the livelihood restoration program, but lost land and structures in a tribal fight.
526	New Landfill (Kopeanda)	Declined based on less than 2 responses to indicators.	Declined condition, but not <i>direct</i> result of displacement. Status as a vulnerable person to be checked in next livelihood survey.	Head of household is deceased. Wife indicates she has earned income from pigs and chickens and continues to earn income from services as a “prayer worrier” for her church members. She currently lives in a place provided by the church, after her son sold the land and her daughters forced her from their land. Also physically displaced, but not included in standard of living verification list.
18	Komo Airport	Declined based on no cash income and no positive responses to proxy indicators.	Declined – an elderly vulnerable person who should be assessed as soon as possible to determine if there is a feasible way to assist her.	Also physically displaced and lives on land far from road given by her church. Lives with children because she is too old to build own dwelling. Children are abusive and have taken all the compensation to spend on themselves. Participated in livelihood program and received seeds and chickens/ducks, but animals killed by dogs and pigs destroyed the crops. Forages and tries to sell materials in market.

FN No.	Area	Internal Evaluation Status	Verification Status	Comments
635	HHR Section 2	Declined because brother took his compensation	Declined, but not as a <i>direct</i> result of displacement	FN 635 indicates that his brother was given all the compensation for lost sweet potato gardens. FN 635 worked for the project and indicated he was too busy to get the compensation and “didn’t realize it for a year.” The brother was the head of larger household, thus entitled to receive and distribute the compensation. FN 635 also opened a trade store, but it failed soon afterward. FN 635 claims he cannot use most of the garden land because of problems with his family, though he has a bit of his own garden land.
Maintained				
903	Tumbi Quarry	Declined based on lack of cash income	Maintained	Also physically relocated and chose a site on own land with rocks could sell to MCJV. Received seeds earlier and chickens/ducks recently from livelihood restoration program. Has gardens and sells produce at market.
675	HHR Section 2	Declined based on reported lack of cash income and positive response to only one proxy indicator.	Maintained	The owner of the land (a cousin), who lives in POM, received the compensation. FN 675 and his family live in an inoperative trade store on the owner’s land. FN 675 is employed by MCJV and has some gardens. He indicates he has saved some money and plans to move onto his mother’s nearby land.
1249	Pipeline ROW – KP5.6-7.8	Declined based on no record of funds spent.	Maintained	Compensation for lost gardens not spent on restoring livelihoods (for example, purchased an automobile no longer in working condition). Has gardens in current area and dwellings and gardens elsewhere. Head of household has some funds, but source not given. Also paid for school fees for another family and paid other wantok obligations.

FN No.	Area	Internal Evaluation Status	Verification Status	Comments
1874	Angore Well Pad A Access Road	Declined based on money not reinvested in income generation	Maintained at time of this verification	Living at same location as FN 1249. Household consists of 7 adults and lots of children. All adults work together and a few work outside to contribute to household maintenance. Even though their compensation was stolen, they indicate their situation is improving from pre-displacement conditions due to their proximity to the project built road giving access to markets and employment.
523	New Landfill (Kopeanda)	Declined based on only positive responses to 2 of the proxy indicators and stated had “no income”	Maintained	People who live on land identified and evaluated. FN523 in POM to receive final compensation. She is a teacher whose father was a missionary and received land from parishioners. Compensation for lost gardens and land split between FN 523 and people who live on the land.
Improved				
631	HHR (Komo airport access road)	Declined based on all negative responses. Appears surveyor spoke to a member of the household who has some problems, rather than to the main livelihood providers.		Is earning reasonable cash income from sales of garden and animal products at the Komo market. Received seed and animals (chickens and ducks) from the livelihood restoration program. Responds positively to 3 of the 4 proxy indicators. Has not yet had to reinvest in income generation (4 th proxy indicator) because of the project contribution of seeds/animals.