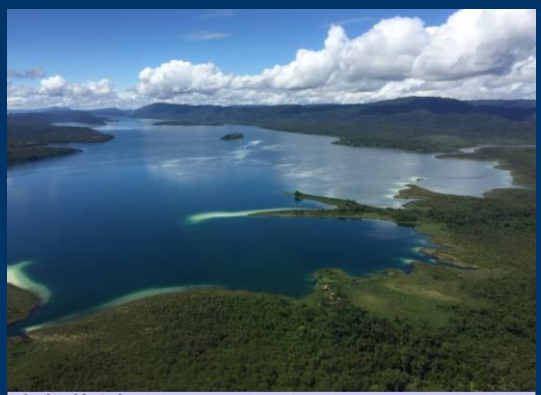
Hides Gas Conditioning Plant at Sunset



Lake Kutubu

Angore A1 Drilling Operations

REPORT OF THE:

INDEPENDENT ENVIRONMENTAL & SOCIAL CONSULTANT

ENVIRONMENTAL & SOCIAL COMPLIANCE MONITORING

PAPUA NEW GUINEA LNG PROJECT

Site Visit: May 2015

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

Monitoring Team Members:
Giovanni De Franchi – Team Lead – (not present)
William J. Johnson – Field Team Lead, Earth Scientist/Management System Specialist
Kerry Connor – Social Development Specialist
Louise Johnson – Biodiversity and Natural Resource Management Specialist
Mark Pedersen – Marine and Freshwater Ecological Management Specialist (not present)

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ACRONYMS

AGI	Above-Ground Installation
ANUE	ANUedge – social development NGO
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
CDS	Community Development Support
CEPA	Conservation and Environment Protection Authority
CHMP	Cultural Heritage Management Plan
CHP	Community Health Program
CI	Conservation International
COD	Chemical Oxygen Demand
CP	Cathodic Protection
CPF	Central Processing Facility (Kutubu – OSL)
CRP	Communal Resource Plan
CSS	Community Support Strategy
CSSAP	Community Support Strategy Action Plan
CTA	Common Terms Agreement
CV	check valves
DEC	Department of Environment and Conservation (now CEPA)
DLIR	Department of Labor and Industrial Relations
DLPP	Department of Land and Physical Planning
DPE	Department of Petroleum and Energy
EMPNG	ExxonMobil PNG (formerly EHL – Esso Highlands Limited)
EIS	Environmental Impact Statement
ELC	Environmental Law Centre
EMDC	ExxonMobil Development Company
EMP	Environmental Management Plan
EMPC	ExxonMobil Production Company
EPC	Engineering – Procurement - Construction
ERG	Emergency Response Group
ESIA	Environmental and Social Impact Assessment
ESMP	Environment and Social Management Plan
ESMS	Environmental and Social Management System
FRV	Full Replacement Value
GFE	Gobe Field Engineering
GoPNG	Government of PNG
HGCP	Hides Gas Conditioning Plant
HGSF	Hides Gas Security Force
HH	Highlands Highway
HRM	Human Resource Management
HSS	Hides Security System Ltd.
HWMA	Hides Waste Management Area
IBBM	Institute of Banking and Business Management
IBR	Institute of Biological Research
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
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
ISPM-15	International Standard for Phytosanitary Measures No. 15
IR	Industrial Relations
KP	Kilometer Point
KPI	Key Performance Indicator
LBBSA	License-Based Benefit Sharing Agreement
LBSA	License Area Benefits Sharing Agreement
LCM	Lead Country Manager
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
MESL	Monitoring Social Environmental Law, Ltd
MIP	Marine Incident Protocol
MLV	Main Line Valves
MOC	Management of Change
MOH	Medicine and Occupational Health
MoU	Memorandum of Understanding
MSDS	Material Safety Data Sheet
MTPA	Million Tons per Annum
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
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
P&GA	Public and Government Affairs
PIIM	Project Induced In-Migration
PMA	Program Monitoring Activity
PNG LNG	Papua New Guinea Liquefied Natural Gas Project
PoO	Point of Origin
PS	Performance Standard
Q	Quarter
QRF	Quick Response Force
RAP	Resettlement Action Plan
RoW	Right-of-Way
RPF	Resettlement Policy Framework
RPNGC	Royal Papua New Guinea Constabulary
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
TNC	The Nature Conservancy
TRP	Tactical Response Plan
TSS	Total Suspended Solids
UBSA	Umbrella Benefits Sharing Agreement
UNEP-WCMC	United Nations Environmental Program – World Conservation Monitoring Centre
U-PNG	University of PNG
VLO	Village Liaison Officers
VMP	Vehicle Monitoring Plan
WAP	Workplace Assistance Program
WASH	Water, Sanitation and Hygiene
WCS	Wildlife Conservation Society
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 fourteenth post-financial close field visit to Papua New Guinea (PNG) made by D'Appolonia S.p.A. of Genoa, Italy serving in the role of the Independent Environmental and Social Consultant (IESC) for the Papua New Guinea Liquefied Natural Gas (PNG LNG) Project with ExxonMobil PNG (EMPNG, formerly EHL – Esso Highlands Limited) as the Operator on behalf of Export Credit Agencies (ECAs) and commercial banks providing Project financing (Lenders). The purpose of this visit has been to monitor conformance with Project environmental and social commitments made during the Production phase of this development. This visit was conducted from May 18 – 26, 2015 in PNG.

Since the last IESC visit in October 2014, D'Appolonia signed the Completion Certificate for the construction of PNG LNG project on February 5, 2015, so this is effectively the first IESC Production monitoring visit. As a development that has fully entered Production, gas is obtained from the Hides Field, processed at the Hides Gas Conditioning Plant (HGCP) and sent to the LNG Plant about twenty kilometers northwest of Port Moresby on the coast of the Gulf of Papua. There, the gas is liquefied and the resulting LNG product (approximately 6.9 million tons per annum) is loaded onto ocean going tankers and shipped to gas markets overseas. As of the end of April 2015, over 6 million tons of LNG have been produced and more than 90 tankers of LNG shipped from the jetty at the LNG Plant.

Environmental and Social Management System (ESMS)

Production continues to be responsible for all aspects of operations. The only major activities that fall under the umbrella of Construction are the ongoing well drilling and the Permanent Facilities Compound (PFC) construction, which is nearly complete.

Our overall impression is that Production startup has been generally smooth, but the rollout of the ESMS as defined in the Environmental and Social Management Plan (ESMP) has been slow. We have not identified any adverse consequences to this slow start, but the system is especially late in going to contractors. EMPNG retains responsibility for many of the social plans and the biodiversity programs, but contractors are required to implement many of the requirements of the ESMP. All contractors have basic ESMP awareness, but there are many contractors serving Production and it is a challenge for all of them to have full knowledge of their ESMP responsibilities. EMPNG has undertaken a risk-based analysis to identify the most critical contractors and has also started a three-phase program to train and work with contractors such that KPIs are defined and their individual responsibilities for implementing and reporting on their ESMP commitments are understood. Contractors are now fully characterized, but training programs are still in progress and monitoring and evaluation procedures have yet to start.

An important aspect of the ESMS that is a requirement of PS1 for a Production company is emergency response. The overall emergency response system is fully in place, with the completion of all of the Tactical Response Plans (TRPs). Overall, EMPNG is estimated to be at about 90-95% full capacity. Where more work is needed is in training of support that might be required in a severe emergency.

Pollution Prevention

Waste management continues to be well managed. The first landfill cell at the Hides Waste Management Area (HWMA) has reached 85 percent capacity, primarily with the last of the construction demobilization waste. Nearly 10,000 tons of this waste were disposed between July and September 2014, whereas the total waste generated by EMPNG in the upstream area from October 2014 to the end of March 2015 was nearly an order of magnitude less. Demobilization of C1 camp (500+ rooms) could generate more than 700 cubic meters of waste that could need to be disposed primarily in the landfill, but the PNG Government has asked that the C1 units be sent to a location in Tari. Most of the waste currently being generated by the Project is from Drilling. Drilling waste peaked at 2,000 tons in January 2015, but the amounts have decreased with the demobilization of Nabors Rig 703. The hazardous waste incinerator at the HWMA continues to operate at 150 – 170 bin loads per day or 4000 liters waste oil combustion per day (64,200 liters burned in Q1 completing construction's disposal waste oil three months ahead of schedule).

With respect to wastewater treatment, most of the plants are ex-construction WWTPs units such as those at Moro B, HQ3, and the HGCP main camps, as well as those used by Drilling. The permanent Tri-Star WWTP the HGCP main camp is expected to be made operational in in Q3 2015 and a new WWTP was installed at Komo in March 2015. The Q1 2015 discharge water quality tests showed full compliance where effluent enters the environment, but the performance of the WWTPs continues to be sporadic,

especially with the old construction-stage units. At this stage, this performance is a low-level non-compliance with Project commitments.

Air emissions are now a routine aspect of environmental management for Production. Flaring has effectively reached a steady state. Overall, the flaring is a small fraction of the flaring during startup that peaked in April 2014. Two rounds of stack testing have been completed within first year of operations: a commissioning round of tests at HGCP was completed in February 2015; a second round of testing at LNGP, HGCP, and HWMF was completed in April. The February testing identified a small exceedance of NOx in one of the generators at the HGCP, but the second round of testing in April showed all emissions to be within IFC limits, which are reflected in the ESMP. The current plan for stack testing in the second year of operations is to do rounds of tests at the LNG Plant and the HGCP in September 2015 and March 2016.

Erosion and Sediment Control

Erosion and sediment control continue to present challenges to manage. Fast and effective responses have been made along the pipeline and there is some good progress being made at Komo. Nevertheless, EMPNG is slow to manage problems at Komo, but also at HGCP and Wellpad G. The blocked drains and erosion taking place at the HGCP are the same as observed last October and there has been some worsening of gullies is areas where remediation has been scheduled but not yet completed at Komo. The slope failure at Wellpad G does not appear to have worsened, but neither has it been remediated. These are not critical situations, but the Production team will need to be careful not to let problems grow to the point where they are not easy to resolve.

Ecological Management and Biodiversity

EMPNG has made good progress in implementing the various ecological monitoring campaigns so far during 2015: the desktop Initial Post-Construction Biodiversity Assessment study has been completed; the remote sensing data for 2009, 2011 and 2013 have been reprocessed and reanalyzed and the 2015 scope of work is in progress; condition surveys will commence later this year following the desktop prioritization and choice of sites; the rapid biodiversity assessment surveys are due to commence imminently; draft indicators for assessing the efficacy of offsets are being considered; the first of the Regeneration monitoring campaigns has just been completed. Tying the various results from monitoring programs into the overall EMP and adaptive management remains key, and the Biodiversity Monitoring Plan discussions are concluding, with the document nearing finalization.

Internal priorities have been focused on the monitoring campaigns, so progress on the offset program components has been less forthcoming. Status updates on each component received during this visit highlight that delays are ongoing, many having been also noted in our previous reports. Delays are related to both internal and external constraints, and have contributed to actions falling short of commitments and stakeholder expectations; EMPNG is aware of the risk of losing momentum with community groups in some areas. Several concerns regarding the company's offset framework approach and technical rationale as raised in our June and Oct 2014 reports remain unresolved, although productive detailed dialogue was held with senior managers during this visit. IESC opinion remains that the success of conservation outcomes hoped for in the offset program is being put at risk if EMPNG is not able to adequately demonstrate a more robust approach in key areas highlighted.

The IESC received an update on EMPNG's freshwater ecological monitoring program to date. Results compiled from the pre-, during-, and post-construction periods across the full Upstream infrastructure area indicate that only the areas downstream of the HGCP and Komo airfield experienced construction-related impact. These were high total suspended solids and turbidity levels, consistent with visual observations. Freshwater ecological monitoring will continue in these two areas.

Recommendations focus on: updating the Biodiversity Strategy to ensure continued relevance to the Operations phase; re-engagement with international NGO partners to ensure broader technical advice received on offset approach; addressing delays experienced in offset program implementation; and engaging specialist scientific expertise in determining the conservation implications of tilapia presence in the lake (we recognize EMPNG is not responsible for tilapia in the lake, but there are consequences which could impact offset program commitments).

Induced Access

As has been anticipated since 2013, the PNG National Government has now formally requested the transfer of key Project infrastructure to the State, namely the Kikori River Bridge near Kaiam, the road linking Kopi

shore base to the EMPNG scraper station, and bridges in the Hides-Komo area. The Government has also officially requested that dialogue commence on the transfer of ownership of EMPNG roads/bridges between Gobe and Kutubu. EMPNG is currently in negotiations with the Government on how they can continue to fulfill their previous commitments; otherwise the situation poses a potentially significant risk in relation to avoiding induced access, the spread of weeds, pests and pathogens, and maintaining ecological integrity.

The review of current access controls and monitoring was a priority for this IESC visit. A variety of locked or manned boom-gates were visited, and the majority of controls and monitors were in place, with one exception where an Access Monitor was not present as expected at Kikori Bridge near Kaiam. In reviewing the implementation of the Vehicle Monitoring Plan, we have observed some areas where vehicle access is not yet controlled as per the requirements of the Upstream EMP. Data being gathered by Access Monitors is building a valuable baseline of post-construction vehicle use of EMPNG roads and infrastructure.

Recommendations focus on: ensuring alignment of the Vehicle Management Plan (VMP) with the Upstream EMP or VMP; the continued collection of vehicle access data; also with regard to the future transfer of roads/bridges to the State, consider what additional information should be collected now so as to allow the project to demonstrate no measurable adverse impacts on the ability of the critical habitat to maintain is high biodiversity value.

Reinstatement

Reinstatement appears to be progressing well along the RoW; the first regeneration monitoring campaign has been conducted, which will compare re-generation success of selected areas against benchmarks. Reinstatement challenges continue at Komo and HGCP, primarily due to specific soil erosion and slope stability issues. EMPNG's external reinstatement auditor is advising on challenges at Komo, and alternatives are being tried, e.g. planting of vetiver grass along drainage channels and application of couch grass seed with fertilizer to counter the high manganese found following soil testing. The annual reinstatement audit is currently underway.

Invasive Species and Quarantine Management

EMPNG's semi-annual invasive species and pests audit is currently being completed. One priority issue resulting from their November 2014 audit is the spread and establishment of the P1 weed Anglestem willow primrose (Ludwigia leptocarpa) at a number of points around the catchment of Lake Kutubu; promptly targeted action could rectify this situation, but Glyphosate should not be sprayed into watercourses. The widespread distribution of spiked pepper (*Piper aduncum*) along the RoW is also proving problematic. The camp-site regenerating at Tamadigi is proving to be a challenge where P1 weeds are becoming increasingly common, plus a cane-toad (*Rhinella marina*) road-kill was spotted near the drain at the site. One highlight to note is the value provided by the vehicle wash-down station at the 'clean-line' at the base of the Hides Ridge, which has reduced ingress of weeds onto the ridge.

From a quarantine perspective, shipment volumes are now much reduced relative to the peak of construction. Only Drilling, Wood Group PSN (external contractor group), Production and PFC are importing shipments, and relatively few inspections by NAQIA are resulting in the need for re-fumigation. The exception is one contractors working on the PFC construction project in Port Moresby, where non-compliant (non-ISPM-15) timber packaging was found to be used contrary to EMPNG procedures. EMPNG is investigating.

Recommendations focus on: that information presented to IESC be more aligned on weed management zone actions and priorities; that further prompt action be targeted where needed, but specifically at Lake Kutubu to address the growing Ludwigia situation; and to re-emphasize the importance of imported shipments complying with the Quarantine Procedure requirements.

Resettlement Organizational Structure

The functions of the construction phase Land and Community Affairs (L&CA) group are now under the Public and Government Affairs group. The Compliance Manager responsible for completion of resettlement tasks is now the Transition Manager and retains responsibility for closing out resettlement. Support from the same resettlement field and evaluation team continues. The IESC considers the new organizational structure and staffing satisfactory.

Resettlement Completion Status

The Project has made excellent progress toward closing out resettlement. Internal outcome evaluations of standard of living and livelihood restoration, IESC outcome evaluation verifications, detailed re-assessment of outcome evaluation data, and ANUE garden adequacy surveys have been completed. The resettlement completion audit was in progress during the IESC visit, and the Resettlement Closeout Report is in its final draft form awaiting audit results for completion.

Based on resettlement date assessment and rectification, the number of affected households entitled to assistance measures beyond compensation has been revised downward from 1,740 to 421. The assessment removed households that experienced only minimal economic impacts (e.g., lost very small portion of a garden or unused land) for which they were compensated, households with duplicate displacement agreements, and households that lost only speculative structures for which they were amply compensated.

Combined results of internal evaluation and IESC verifications for standard of living show that out of the 366 physically relocated households, one household still has declined conditions. 253 households have at least maintained pre-displacement living conditions, 100 households enjoy improved conditions, and 12 households could not be located. Combined results for livelihood restoration of the 211 economically displaced households show 51 with improved livelihood conditions, 157 with at least maintained conditions, and three households in declined condition. Results of the food adequacy survey show that of the 203 households participating in the agricultural program, none declined, 124 maintained pre-displacement food adequacy, 73 had improved food adequacy, and six could not be located. The Project is currently providing additional assistance to 10 marginal households identified by the survey as needing additional assistance to improve food production.

Final assessment identified 80 vulnerable households, some of which were not vulnerable at the time of displacement. Of these, 75 have received additional assistance, two households will receive water assistance, one will receive supplementary agricultural assistance, and two households have initiated legal action, thus, the Project awaits conclusion of the action prior to providing assistance, as appropriate.

Access to Water

Special assessment of physically displaced households' access to water found that 12 households had not yet received assistance. The Project is revisiting these households to identify the type of assistance needed and remedial actions will be provided by the end of July 2015. Assessment of non-displaced households claiming that construction of facilities at Komo and HGCP obstructed access to water concluded that the Project had met its water obligations by providing community water structures. Some of the locations of the structures, however, failed because land owners fenced off the structures in order to charge for water. Remediation measures will be implemented by the end of 2015.

Resettlement Completion Audit

The Resettlement Completion Audit by an independent resettlement expert was in in progress during the IESC visit. The audit is part of Project commitments and is referenced in the Resettlement Policy Framework (RPF) and the LESR. About half way through his field work, the Auditor has noted some concerns during discussion with the IESC. Most of the concerns are similar to those previously raised by the IESC and remedial measures are under or scheduled for implementation.

Resettlement Closeout Report

A near-final draft of the Resettlement Close Out report has been prepared by the Project and reviewed by the IESC. This report is a Project document recommended by the IESC to demonstrate the positive Project responses to issues that arose during implementation, identify for future displacement the issues that constrained achieving some of the original resettlement goals, and ensure that results of the internal outcome evaluation and IESC verifications of standard of living and livelihood restoration are maintained in one place. The final report also will include the resettlement completion audit results, any remedial actions indicated, and their implementation status and/or schedule.

Community Impacts Management

As indicated in the October 2014 IESC report, safety and security risks to communities during Operations are fewer in number than during Construction, but potentially have a wider impact (spills, explosions and other technical failures). There has been a dramatic reduction in the number of security incidents impacting the Project, though these may escalate once benefits distribution begins. Project security, therefore,

continues to work closely with the Village Liaison Officers. Government Security "forces" provide security for certain facilities, particularly the pipeline route. The Project provides them with training on the Voluntary Principles for Human Rights. In terms of safety, the Project engages frequently with communities on safety.

Procurement and Supply

National content requirements are contained in agreements with contractors and a National Content Exhibit is currently in four of the main contracts and rollout to all contractors will be staged in accordance with a prioritized list of the remaining contractors. The Project has awarded 29 contracts to PNG contractors and sub-contractors, of which eight are Land Owner Companies. The Project provides a list of PNG businesses and the IBBM Enterprise Centre assesses local businesses and maintains a database of successfully assessed businesses. Most local business capacity building is done through the Enterprise Centre.

Reporting on contractor national content has improved since the October visit, but data provided by contractors is still incomplete and somewhat difficult to interpret. The National Content Manager is working with contractors to improve reporting. The IESC looks forward to receiving at its October visit the full data for each contractor as outlined in the National Content Exhibit. The available statistics show that the number of staff contractors working on the Project was 377 in Q1 2015. Incomplete data on origins within PNG show that 147 are from areas not directly impacted and 31 are from the LNG plant area. Third party contractor employees are all PNG citizens and employ a total of 860 persons, of which 760 are male and 91 are female.

As noted above in the discussion of the ESMS, the roll out of ESMP requirements to contractors started rather slowly, and is now expected to be substantially completed by the end of 2015 with a few of these occurring after 2015 when their contracts are renewed. Delay in concluding the rollout hinders both the Project's and the IESC's ability to assess national content and other labor requirements. The IESC looks forward to more detailed information on contractor national content performance (see Section 6.6.3 for details on data expected).

Community Support

Community Development Support (CDS) has made excellent progress toward addressing IESC February recommendations. CDS, in collaboration with project and non-project "partners," has developed a program design for the next five years. The IESC notes that the program design flowchart can be considered the initial five year strategy. CDS also has developed fairly detailed execution plans for planning and implementation of the five year program and detailed execution plans and Scopes of Work for the two initial projects (agriculture and education). Contract management responsibilities are defined, assigned, and contained in the contracts for these initial projects.

The CDS evaluation procedure is well advanced, with the exception of identifying the indicators that will be measured to determine if the program as a whole is achieving its goals. The IESC supports the CDS proposals that project level evaluation be done annually by the implementing contractor and that component level evaluation be done by an independent entity. The IESC recommends that program evaluation be done every three years to note if any corrective actions are needed. CDS also needs to determine if the three year process audit mentioned in the Management Plan is required by ExxonMobil.

Stakeholder Engagement and Consultation

The Project continues to engage widely with communities, conducting about 2,500 engagements to date in 2015. The main topics of information sharing and discussion continue to be land, compensation payment, livelihoods, pipeline safety, and schools for upstream communities. Plant area community issues focus largely on agricultural improvements, development of small businesses, and schools, as well as a growing interest in water hazards. Village Liaison Officers (VLOs) continue to play a critical role in community engagement and conflict management.

Grievance Management

Most of the 27 "grievances" filed through April 2015 are requests for various kinds of community development or project employment, displaced households wanting more livelihood assistance, and access to water. The annualized grievance closure rate for the last 12 months is 81% (above the target of 75%), though rates fell for May and September 2014 and March 2015 as a result of more complicated issues requiring a longer assessment and resolution period. Issues registered in 2015 to date total 1,284, most of

which concern requests for community development or employment, queries on land deprivation payments and compensation, pipeline safety, and the clan vetting process for royalty distribution. The project also received a large number of positive comments regarding the good quality of community engagement and the Project's impact on improving community health, safety, and security.

Benefit Sharing

The Project recognizes that delay of the payment process caused by lack of Government funding and other distractions is a risk to the Project and, in the opinion of the IESC, is actively pursuing avenues to expedite the process. The Project continues to pay into the Royalty Trust Account established by DPE and Finance to ensure that royalty income is kept separate from other funds. A number of new cases have been filed in courts claiming that the clan vetting exercise is invalid. These claims have been rolled into one, and the judge ruling on the case has called for a mediation process. The Project, though not a party in the case, is working in various ways to get the process back on track by assisting the DPE field team. The Project assisted DPE to prepare for a May workshop and is supporting the State to limit the mediation process to specific disputes applying in the areas where the claimants reside, rather than re-opening the whole vetting process.

National Content – Direct Hires

A main objective of the Project's National Content strategy is to recruit and train local and national employees to meet workforce requirements. The Project currently employs 323 PNG citizens of which 239 are male and 83 are female. Available statistics on origins of direct hires list 133 as national (outside project affected area) and 22 are local (within project affected areas). Given the skills needed, most PNG staff were hired from Port Moresby, though family origins vary and some are originally from the Highlands. The IESC looks forward to more detailed statistics on national content.

In terms of workforce development, the Project is providing skill area training, with 360 trainings to date for 266 of the PNG employees. Training aimed at replacing expatriates in management/supervisor positions began in 2010 and is expected to be completed by 2020, though very senior replacements may take longer. The first intake involved 59 trainees, the second intake began in 2011 for 75 trainees, and the third intake began in 2015 and will go to 2020. PNG trainees from intake 1 are expected to begin displacing expatriates toward the end of this year. In addition to skills training, experienced mentors and supervisors have been maintained to ensure appropriate mentoring and coaching for the later intakes.

Labor and Working Conditions

The IESC requests that future labor and working conditions information for direct and contracted project labor and other main contractor labor use Table 4.1 of the Labour and Working Conditions Management Plan as a guide to the information needed to determine compliance with IFC PS2, PNG law, and Project/ExxonMobil requirements. Table 7.1 of this report defines the minimum information needed.

Grievances are managed through a Procedure and Open Door communication policy that focuses on providing the workforce with easy access to supervisors or line management as the first recourse. The IESC would like information on whether grievance assessments provided to senior management note frequent, persistent and unresolved grievances.

The IESC found worker accommodation conditions and services at the HGCP and PNG LNG plants to be good quality and well monitored with continuous improvements made and recreational facilities plentiful. A growing sense of community was noticed, demonstrated by the many voluntary committees and a high level of involvement by residents. Improved security for females at both camps is appreciated and separate female accommodation is available at the PNG LNG camp, and security services are provided by both male and female officers at both camps. Camp offices open early and close late at HGCP and are open 24 hours/day at the LNG camp. HGCP has formed and the LNG Plant is forming a camp committee that greatly strengthens communications. As a result of good conditions and management responses to issues, only a few complaints have been made, and these received rapid response. Conversely, many verbal and written comments have been received complementing management on the positive aspects of the camps, particularly camp personnel, housekeeping and laundry, recreational facilities, and food service.

In terms of gender in the workplace and accommodation, the Project has made considerable effort to recruit and train PNG females and to provide safe, secure, and enjoyable accommodation for female workers. The Project is providing a Workplace Assistance Program with at least one female counselor. The Service provides counseling and referral services for emotional and interpersonal issues, including marital conflict

and gender violence. Gender violence is also covered in tool box meetings. The IESC looks forward to conferring with the counselors during the October visit.

Community Health

The Production Community Health Program (CHP) plans to continue the relationship established with the PNG Institute of Medical Research (IMR) and work collaboratively to better understand the disease burden of PNG and also how it can impact inside-the-fence health. During 1Q 2015, PNG IMR submitted for review the March 2015 edition of the Bi-annual Scientific Report. The results of the information presented in this report and iHDSS data are that one of the goals of the MOH group needs to be providing support to disseminate this information to a wider audience. Some of the main findings, including that TB is at epidemic levels in some areas and that the TB is evolving to be drug-resistant, is information that requires action.

Occupational Health and Safety

EMPNG Production safety performance through Q1 2015 continues to be excellent. Production has not had a Lost Time Incident (LTI) since taking over from the construction team with a total of 8,950,445 man-hours worked as of the end of Q1 2015. Both the leading and lagging indicators demonstrate that the EMPNG worker safety program is functional and effective. From the standpoint of occupational health, the Project also has a well-developed program as indicated by key performance indicators (leading indicators) and management of illness cases (lagging indicators). KPIs for these indicators show that there is always room for improvement, but the program is a good one. The worker health program continues to be closely linked to the community health program.

1 INTRODUCTION

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

The overall role of D'Appolonia as the IESC within the PNG LNG Project is to evaluate compliance with commitments made by EMPNG within their Environmental and Social Management System (ESMS) including health and safety. The benchmark for the ESMS is now the Production Environmental and Social Management Plan (ESMP) and associated commitments made within the ExxonMobil Operations Integrity Management System (OIMS) and the documents associated with biodiversity management. As Drilling is still part of the Construction phase until the end of the drilling program, it is still governed by the PNG LNG Project Environmental Management Plan (which is bridged to as a reference document by the current 'PNG Drilling Environmental Management Plan') and also is based on the Environment Permit from the PNG Department of Environment and Conservation (DEC), currently reorganized as the Conservation and Environment Protection Authority (CEPA), that the Construction EMP's are based on. The Construction of the Permanent Facilities Compound (PFC) also still follows the requirements of the Construction EMP.

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

IESC's review has included the environmental and social (E&S) and health and safety (H&S) management activities of EMPNG. Emphasis has been placed on evaluating conformance based on written information provided by EMPNG and observations made in the field including discussions with EMPNG personnel. Most of the findings identified in this report have been based on field observations and interactions with the individuals actually responsible for the field implementation of the ESMP, as well as meetings with stakeholders.

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

A major requirement of the CTA was for D'Appolonia to provide a Certificate reflecting the satisfactory completion of the construction phase of the PNG LNG Project in terms of its environmental and social commitments. This Certificate was issued on February 5, 2015.

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

1.1 PRODUCTION OPERATIONS OVERVIEW

Production has achieved stable operations reflected by steady-state fuel and flare volumes and the HGCP process gas from eight online wells (B1, B2, C1, C2, D1, D2, G1 and G2). A steady supply of gas from Associated Gas Fields has been achieved with the opportunity to ramp up (OSL has 65-80 MSCFD that is ongoing and options for increasing flow are underway). In terms of Project Completion as part of the Loan Agreement, the 120-day Completion Test was completed in January 2015 and April 29 marked the one-year anniversary of PNG LNG production. Level 1 inspections of GE compressors are now complete and inline inspection (pigging) activities are ongoing.

At the time of the IESC field visit, more than 90 LNG cargos had been shipped from the LNG Plant jetty representing the export of more than 6 million tons of LNG. Two ExxonMobil LNG tankers constructed in China specifically for use on this Project are part of the Production process. The first vessel (Papua) arrived at the PNG LNG marine facilities on February 22 to begin cool down and loading of its first LNG cargo. The second vessel is expected to be to be delivered in 2016.

A new activity associated with Production took place on April 1 when EMPNG signed an agreement with the PNG Government to supply up to 25 megawatts of electricity for local use (surplus generating capacity from two Solar Titan 130 units at the LNG Plant) with a commitment for long-term gas supply to a new state-owned gas-fired power generation unit to be built near the LNG plant. It is expected the work to connect supply from the LNG plant to PNG Power will be completed in time for the Pacific Games (July 2015), subject to all parties fulfilling their commitments.

Drilling has completed well drilling and development on Hides Ridge, including at Well Pad F (the Deep Well not considered part of the PNG LNG Project) and the PWD (Produced Water Disposal) well and Rig 703 is being demobilized. Rig 702 was used to drill Angore B1 until that operation was suspended and the rig moved to Angore A1. All activities associated with Drilling are expected to be complete during Q4 2015.

The retention of Moro Camp B is currently being reviewed by Production. Komo Airfield Camp is still a Production asset, but is currently occupied and operated by PNG Defense Force caretaking personnel whilst arrangements for transfer of this asset to the PNG Government are finalized. The old C1 Camp at Hides is being demobilized, with infrastructure being relocated, by the Hela Provincial Government. The surplus EPC3 camps at the LNG Plant are being relocated by the PNG Government.

Construction at the 28 Ha Permanent Facilities Compound (PFC) near the Port Moresby Airport is essentially complete. Projected occupation for this facility is planned to start in June 2015 and the move from the existing offices to be completed by September.

The Project workforce is currently about 2,100. Papua New Guineans make up about 70 percent of the Project workforce. A major transition has also taken place within EMPNG with the replacement of the Managing Director.

1.2 SOURCES OF INFORMATION

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

1.3 REPORT ORGANIZATION

Subsequent sections of this report are organized as follows:

- Section 2.0 – Issues Table;
- Section 3.0 – Environmental and Social Management;
- Section 4.0 – Environment;
- Section 5.0 – Biodiversity and Ecological Management;
- Section 6.0 – Social;
- Section 7.0 – Labor and Human Resources; and
- Section 8.0 – Health and Safety.

The Cultural Heritage discussion presented in previous reports has not been included, as Production Operations have not had any chance finds, nor has there been any news to report. The basic findings of the review are presented in the form of observations, comments and recommendations that are generally described according to topics within each section. Significant findings are summarized in the Issues Table provided in Section 2.0.

2 ISSUES TABLE

This Chapter tabulates a summary of the non-conformances raised in this report, consistent with our TOR as discussed in Section 1.0. The Table has been structured to provide a color-coding for strict non-conformances raised during each site visit, as well as IESC observations for situations that if left unattended could result in a non-conformance. Non-conformance is referenced with respect to Project commitments as included in applicable Project documents and with respect to on-going compliance with Applicable Lender Environmental and Social Standards. As noted in Section 1.0 of this report, "Applicable Lender Environmental and Social Standards" means the environmental and social standards applied by the Loan Facility Lenders to the Project in the form attached to Schedule H-1 (Environmental and Social – Applicable Lender Environmental and Social Standards) of the CTA. The nomenclature of the color-coded categorizations are assigned based on non-conformance levels similar to the non-conformance levels defined in the ESMP, somewhat revised to reflect the point of view of the IESC and to address that certain non-conformances need to be framed in the context of the Applicable Lender Environmental and Social Standards. The following descriptions are provided:

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

N°	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
Environmental Management – Environmental and Social Management System (ESMS)							
[2]M14.1	May '15		Our overall impression is that Production startup has been generally smooth, but the rollout of the ESMP has been slow. We have not identified any adverse consequences to this slow start, but the system is especially late in going to contractors.	IESC Observation	ESMP	Open	EMPNG is responsible for ensuring that contractors and subcontractors meet the requirements of the Production ESMP. Although the Production ESMP was a final document in 2013, many of the associated plans and procedures where the on-the-ground details are provided are still being finalized although they are effectively working documents. EMPNG retains responsibility for many of the social plans and the biodiversity programs, but contractors are required to implement many of the requirements of the ESMP. All contractors have basic ESMP awareness, but there are many contractors serving Production and it is a challenge for all of them to have full knowledge of their ESMP responsibilities. EMPNG has undertaken a risk-based analysis to identify the most critical contractors and has also started a three-phase program to train and work with contractors such that KPIs are defined and their individual responsibilities for implementing and reporting on their ESMP commitments are understood. Contractors are now fully characterized, but training programs are still in progress and monitoring and evaluation procedures have yet to start.
Environmental Management – Erosion and Sediment Control							
M13.1	Oct' 14		Erosion and sediment control along the pipeline ROW and Well Pads appears to have been well undertaken. Erosion and sediment control at the Komo Airfield and to a lesser degree at the HGCP have not been as well managed.	IESC Observation	EMP Section 13.0	Open	This Observation essentially remains the same as previously made since June 2014. At Komo problems that were small at the time of the June IESC turned into significant earthmoving projects. Significant progress has been made at Komo, but there is still much to do. Remediation of erosion problems at the HGCP still remains to be started.
Environmental Management – Wastewater Treatment							
M14.2	May '15		Wastewater treatment continues to be an ongoing challenge. Although the lack of performance is not associated with major environmental impact, performance is not consistent with the requirements of the EMP.	I	EMP Section 9.0	Open	The treatment of wastewater has been problematic since the start of the PNG LNG Project. Although it is recognized that significant effort is being place to improve the performance of the different WWTPs, the results continue to show problems with no obvious improvement. Hopefully, once all of the old construction-phase units can be discontinued and replaced by the permanent facilities, these problems will be eliminated, but more effort is required.

[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. M14.1 refers to issue 1 found in visit 14).*

N°	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
Environmental Issues – Biodiversity and Ecological Management							
M12.1	June '14		EMPNG's commitment is to control access to project roads and infrastructure, so as to prevent potentially damaging 3rd party activities through enhanced access. EMPNG access controls for Above Ground Installations and project roads/infrastructure are discussed as part of each IESC visit. The EMP states that access will generally be allowed only to EMPNG vehicles; other vehicles will be sanctioned subject to prior approval by EMPNG. A Vehicle Monitoring Plan (VMP) has been developed for situations where EMPNG have manned boom-gates. We observed instances of insufficient access control, where current practice in not in compliance with that stated within the Upstream EMP.	I	Upstream EMP Section 17, Vehicle Monitoring Plan and IFC Performance Standard 6	Open	Building on the related Observation in our last report, the following reasons warrant this issue being a Non-Conformance due to breach of commitments and company procedures: • We observed no boom-gate in operation or Access Monitor in place at Kikori River Bridge during our visit. • The EMP states that commercial, third-party or community vehicular access may be sanctioned by prior approval only if authorized by designated EHL personnel. The VMP provides further detail on the authorization procedures and criteria. However, we observed no issuance or display of permits, the Access Monitors did not check for permits, they had no Approved List of vehicles already assessed through the pre-authorization process, and were not aware of the process to tell drivers without permits how to obtain a permit. The process observed allows access to any vehicle that wishes to use the road, regardless of whether pre-approved or with/without permit. • The record-keeping is only conducted during dayshift hours e.g. 8am-4pm, and only if an Access Monitor is at their station; otherwise the boom-gates are left open to all vehicles and no monitoring takes place. • At MLV-1, the boom-gate is still not yet in place and we are told the Access Monitor remains at Benaria village, not at the bridge. Community continues to use the EMPNG temporary construction bridge and RoW to access the track to Benaria Station. Therefore it is our opinion that access to project infrastructure is not yet fully controlled or compliant according to the requirements as set out in the EMP. (Report reference Section 5.3.1)
M14.3	May '15		The PNG LNG project is sited within Critical Habitats as defined according to IFC PS6 (2006). EMPNG has committed to 'No Net Loss' of biodiversity to address their residual impacts and have developed an offset program. Offset Framework and Delivery Plan	I	IFC Performance Standard 6 and Biodiversity Strategy	Open	Although EMPNG has made a public commitment to no net loss, the IESC has repeatedly flagged several areas of concern in EMPNG's Offset Framework during visits and review of various offset documents – see our June 2014 report Section 5.2.1.2 for details. There has been little change in approach since these concerns were flagged. Therefore it is IESC's opinion that without corrective action,

N°	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
			documents have been developed, with first drafts seen by IESC in 2012, and updated revision early 2014. The IESC has continually highlighted key areas where EMPNG's approach does not meet generally acknowledged and accepted conditions for offset programs.				EMPNG's continued approach is inconsistent with their achieving their stated commitment; the success and sustainability of their offset projects could be jeopardized, and therefore the required conservation outcomes not achieved. As already specified in detail directly to EMPNG through our review of various documents, it is IESC's opinion that EMPNG needs to review, revise then implement their Framework document, especially the Technical Rationale (e.g., with regard to demonstrating conservation gain, additionality, understanding of risks and uncertainties, and the timeframe for attaining / sustaining the necessary level of conservation gain). To better enable this, we believe EMPNG should seek specialist external advice to provide wide-ranging experience from other large-scale biodiversity offset projects. Refer to Section 5.2.1.2. Note: EMPNG disagrees with the IESC opinion in giving this Non-Compliance Level 1 as they believe their current approach is sufficient to achieve their offset performance-related obligations. A workshop is foreseen before the next IESC visit in October where the IESC and EMPNG will continue their dialogue and discuss options to achieve the necessary offset outcomes.
M14.5	May '15		As above, EMPNG is undertaking an offset program so as to ensure 'No Net Loss' of biodiversity. The company is progressing five main components as part of the program. Each component has a work-plan so as to achieve individual objectives within the desired timeframe. Each of the components of the offset program is showing ongoing delays in development and/or implementation.	I	IFC Performance Standard 6 and Biodiversity Strategy	Open	The IESC acknowledges that community conservation takes time, but several of the delays observed are due to internal rather than external constraints. For example, EMPNG committed to the use and placement of Project Coordinators at both the Lake Kutubu and Lower Kikori programs during previous IESC visits – these have not been deployed, or not to the extent previously committed. For programs where EMPNG is seeking to support conservation over the long term, then sufficient resources have to be deployed for the programs to be begin effectively. For example, progress on activities in the Lake Kutubu Enhancement Plan Work-stream A (to actually design the required conservation activities and start to develop the WMA Management Plan) has suffered primarily due to internal contractual holdups. There is the danger of losing momentum and even community buy-in for on-the-ground conservation efforts.

N°	Site Visit	Closing Date	Description	Non-Conformance	Reference	Status	Comments / Report Reference
							External expectations and relationships built to date will need careful management to ensure the offset program continues to build. Contractual and/or payment constraints and the deployment of additional resources may help alleviate some delays. (Report reference Section 5.2.1.2)

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, which, along with the Biodiversity Strategy and associated documents, define EMPNG's environmental and social commitments.

Documents applied during the Construction phase of the Project discussed in previous IESC reports including the Construction ESMP, the Lender Environmental and Social Requirements (LESR) document and the Environmental and Social Milestones (Milestones Schedule) have limited reference. The Milestones Schedule was prepared as Appendix H3 to the Common Terms Agreement (CTA) is considered fulfilled given that D'Appolonia has signed the Completion Certificate. The remaining requirement associated with the LESR is the Resettlement Completion Audit, which is also a requirement of Performance Standard (PS) 5, was being completed at the time of this field visit (see Section 6.3.1.5). As Drilling is still part of the Construction phase until the end of the drilling program, it is still governed by the PNG LNG Project Environmental Management Plan (which is bridged to as a reference document by the current 'PNG Drilling Environmental Management Plan') and also is based on the Environment Permit from the PNG Department of Environment and Conservation (DEC), currently reorganized as the Conservation and Environment Protection Authority (CEPA), that the Construction EMP's are based on. The Construction of the Permanent Facilities Compound (PFC) also still follows the requirements of the Construction EMP, but this facility is now effectively complete.

The two EMPs that form part of the Production ESMP are supported by a set of implementation documents (Protocols, Registers and Templates). These supporting documents provide the detail 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, but the overall finalization of these documents has been slow. Excluding the biodiversity plans, of which some are still being prepared, and the EMPs themselves, there are 36 protocols, registers and templates of which only about a third have been approved and issued as final.

While EMPNG retains responsibility for all ESMP obligations, several are executed via third-party contractors. The roll out of ESMP requirements to contractors has been slow and is now expected to be completed by the end of 2015. Meetings with EMPNG contract owners and administrators have occurred and a risk-based analysis for each contract company has been done in order to tailor ESMP implementation and reporting requirements to each contractor's scope of work. Environmental management and labor requirements will be incorporated into contracts. Contractor training sessions are planned for the second and third quarter of 2015. Comments to the labor and national content aspects of the rollout of the ESMP are provided in Section 6.5.2.2.

Some significant organizational changes have taken place in both the EHS and Social components of the Project since the last IESC field visit. Effective January 1, 2015, Land and Community Affairs (L&CA) transitioned to a more traditional ExxonMobil structure, whereby there is now a Public and Government Affairs (P&GA) group that is responsible for Community Affairs, Community Development Support, and relevant ESMP commitments. The "Land" component of the L&CA organization is now covered by "Business Services," which also is responsible for information management. Although this is a significant structural change, there have been no significant role changes for key personnel and headcount has not reduced as a result of this change. The EMPNG Environmental and Regulatory Organization is structurally the same as previous visit, except for a change in the position of the Group Supervisor. Management of the camp services and auxiliary facilities such as wastewater treatment plants, landfills, etc. is managed by the Logistics group. During the next IESC field visit we will review in greater detail the interaction between the Environmental and Regulatory Organization who prepare the plans and protocols for environmental management, and Logistics, who is one of the key organizations responsible for implementing a number of the plans or components thereof.

3.2 MANAGEMENT OF CHANGE

No new MOCs requiring Lender notification have been enacted since the last IESC field visit in October. The issue of the Kaiam Bridge over the Kikori River first identified in 2013 is now an active issue, along with other infrastructure now formally requested to be turned over to the PNG Government (see Section 5.3).

In addition to the Kaiam Bridge, which was expected, the PNG Government has formally requested to commence discussions for the turnover of the entire Southern Route from Gobe to Kutubu that would connect the coastal lowlands to the Highlands. Change of ownership for the Southern Route from Gobe to Kutubu should require a Class I MOC (requiring Lender approval) against EIS/ESMP commitments and amendment of the Environment Permit. The reason IESC considers that the MOC should be a Class I, is because of the potential irreversible impact to critical habitat due to potential induced access and spread of weeds. IESC expects to see certain processes associated with the MOC:

- Identification of risks and specific areas of risk; and
- Identification of possible mitigations, most of which will involve working with Government, possibly in the context of regional development planning; identification of changes to existing mitigations that may be required (e.g., weed management and induced access); possible changes/additions to current biodiversity offset plans depending on risks.

It is understood that much of this effort has already been undertaken and the IESC expects to be informed on this situation during the next field visit, if not before. This is also an issue where direct dialogue with interested Lenders could be beneficial, as induced access was one of the biggest concerns associated with Project financing.

3.3 INCIDENTS

Since the last IESC field visit there have been no significant security incidents directly associated with the Project. Most of the activities associated with the Security Group have focused mainly on Host Government Security Forces and Journey Management, as it is necessary to do threat assessment for each remote maintenance problem. The January 14, 2014 murder of a guard in a local market adjacent to MLV-1 still has not been resolved, as the perpetrator has not been apprehended.

In terms of environmental incidents, there have been no significant spills and the only Corporate reportable incidents were of water quality, related to WWTP and Retention Pond excursions of effluent in Q4 2014 and Q1 2015 that did not result in impact to the receiving environmental as confirmed by downstream monitoring. Incidents are now recorded with a new program called IMPACT – whereby the environmental specialists now have a better process to document and report incidents.

3.4 EMERGENCY RESPONSE

The emergency response system within EMPNG is oriented to respond to a number of critical situations identified on the basis of a risk assessment:

- Process events – major hydrocarbon leak and fire/explosion;
- Building fire in occupied buildings;
- Spills on either land or sea – pipeline releases and marine vessel events;
- Remote incidents – vehicle collisions, security, medical emergencies;
- Aviation accidents – airplane/helicopter crash with mass casualties;
- Wildfire control associated with grass or brush burning; and
- Work execution events – associated with confined space entry, working at height, hot work, man overboard, etc.

The overall emergency response system is fully in place, with the completion of all of the Tactical Response Plans (TRPs). The Emergency Preparedness and Response Group is also preparing a Pipeline Response Atlas, expected to be completed this year, and will supplement the TRPs that already provide the site-specific response requirements for the pipeline route. Emergency Response contractors fully in place include Falck who have firefighting responsibility at the LNG plant, HGCP and Komo, and Oil Spill Response Limited (OSRL) who have been responsible for spill control training, including the personnel from Falck, and who are also available for major spill response.

Drills are routinely conducted with EMPNG personnel on all of the emergency scenarios defined by the risk assessment. No drills involving Government (other than port authorities) have been undertaken yet, as there is no regulatory requirement to do so. Nevertheless, EMPNG does plan to involve authorities at some point. Overall, EMPNG estimates themselves to be at about 90-95% full capacity. Where more work is needed is in training of support that might be required in a severe emergency.

4 POLLUTION PREVENTION

4.1 WASTE AND WASTEWATER MANAGEMENT

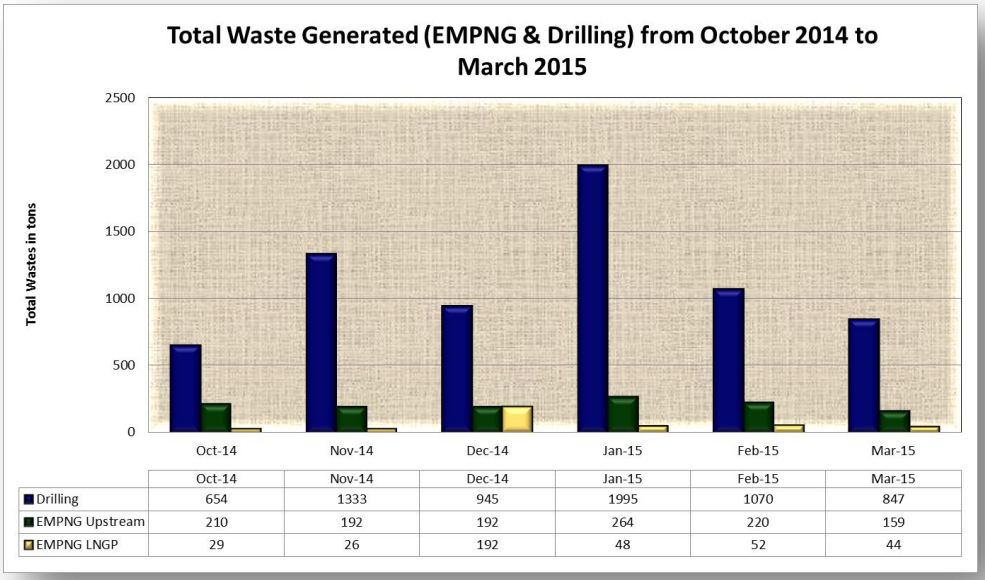
4.1.1 Project Strategy

EMPNG's objectives are to apply the waste management hierarchy (wastes will be preferentially avoided, reduced, reused, recycled or recovered) and to dispose all wastes 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

4.1.2.1 Waste Management

Construction and demobilization wastes from the construction phase were properly disposed either on site or at approved offsite waste management facilities. From October 2014 to March 2015, the drilling generated more than 7,680 tons of construction wastes, while EMPNG generated more than 1,700 tons of operations and maintenance wastes. Within this reporting period, EMPNG wastes have been consistent throughout compared to significant changes with drilling waste quantities shown in Figure 4.1. The decrease in drilling waste is associated with the start of



	Oct-14	Nov-14	Dec-14	Jan-15	Feb-15	Mar-15
Drilling	654	1333	945	1995	1070	847
EMPNG Upstream	210	192	192	264	220	159
EMPNG LNGP	29	26	192	48	52	44

Figure 4.1: Project Waste Profile

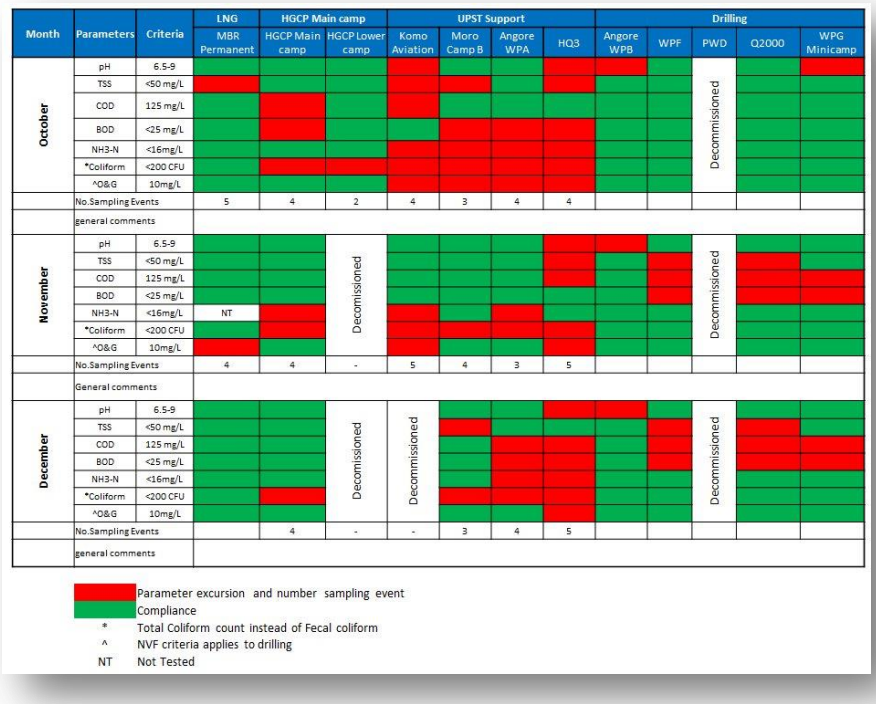
Highlights of EMPNG's waste management program from the IESC field visit in May 2015 include the following:

- Cell 1 at the HWMA at Kopeanda is about 85% filled; Cell 2 is ready for use;
- Routine Vetiver grass trimming ongoing (regrowth promoting greater absorption of leachate and sludge de-watering discharges);
- The hazardous waste incinerator at the HWMA continues to operate at 150 – 170 bin loads per day and 4000 liters waste oil combustion per day (64,200 liters burned in Q1 completing construction's disposal waste oil three months ahead of schedule);
- As part of the demobilization process, new and used chemicals continue to be returned to suppliers in Lae;
- Recycling programs continue to function with waste oil sent to third-parties (>50,000 liters in Q1);

- ~2500m^3 of limestone has been recovered from construction-phase laydowns, and stockpiled for future use as daily cover material at the landfill. This material has eliminated the need for obtaining this material off-site with potential community impacts and adding to the Project footprint.
- Drilling continues to show exceptionally effective waste management: 5,610 tons of clean cuttings have been generated at the Thermal Cuttings Cleaner (TCC) in Q1 2015 and sent to the Kopeanda landfill for use as cover material.
- 30 tons of lead acid batteries have been recycled at an approved in-country facility
- LNG Plant: construction incinerator (Rotary Kiln) – currently operational, but will be demobilized in May 2015; PFC incinerator (now two years old) dual chamber (500 – 1200 Degree Celsius) and containerized incinerator will be the replacement (installed at LNG plant during this field visit); Operation (Sludge) Incinerator at Process Area operational as of April 17, 2015 after issues related to the software upgrade and few minor alarms on sensors were fixed by vendor;
- LNG landfills: construction cells (38,000 m^3) – Cells A and B capping completed with Cell C empty; production cells (4195 m^3) – Cell A operational with Cell B empty.

4.1.2.2 Wastewater Management

With respect to wastewater treatment, the only remaining Construction-phase WWTPs are those at Moro B, HQ3 (used for drilling – but managed by Logistics), Angore WPA (used for drilling – but managed by Logistics) and the HGCP main camp, as well as those used and operated by the Drilling contractor. The permanent Tri-Star WWTP at Rotator Camp at HGCP has been commissioned, but remains on standby, as it does not have the capacity for the current number of people (about 700) who would contribute to this plant. Once the workforce is reduced to below about 500, it is expected that the plant can go online – forecasted currently for Q3 2015. The original Komo STP was decommissioned in November 2014 and a replacement RedFox unit was installed in March 2015 and is currently undergoing 90 day stabilization assessments. A standby WWTP at Angore Camp was brought online replacing an existing unit in March 2015.



Month	Parameters	Criteria	LNG	HGCP Main camp		UPST Support				Drilling				
			MBR Permanent	HGCP Main camp	HGCP Lower camp	Komo Aviation	Moro Camp B	Angore WPA	HQ3	Angore WPB	WPF	PWD	Q2000	WPG Minicamp
October	pH	6.5-9												
	TSS	<50 mg/L										Decommissioned		
	COD	125 mg/L												
	BOD	<25 mg/L												
	NH3-N	<16mg/L												
	*Coliform	<200 CFU												
	^O&G	10mg/L												
	No.Sampling Events		5	4	2	4	3	4	4					
	general comments													
November	pH	6.5-9												
	TSS	<50 mg/L												
	COD	125 mg/L												
	BOD	<25 mg/L												
	NH3-N	<16mg/L	NT											
	*Coliform	<200 CFU												
	^O&G	10mg/L												
	No.Sampling Events		4	4	-	5	4	3	5					
	General comments													
December	pH	6.5-9												
	TSS	<50 mg/L												
	COD	125 mg/L												
	BOD	<25 mg/L												
	NH3-N	<16mg/L												
	*Coliform	<200 CFU												
	^O&G	10mg/L												
	No.Sampling Events			4	-	-	3	4	5					
	general comments													

Decommissioned

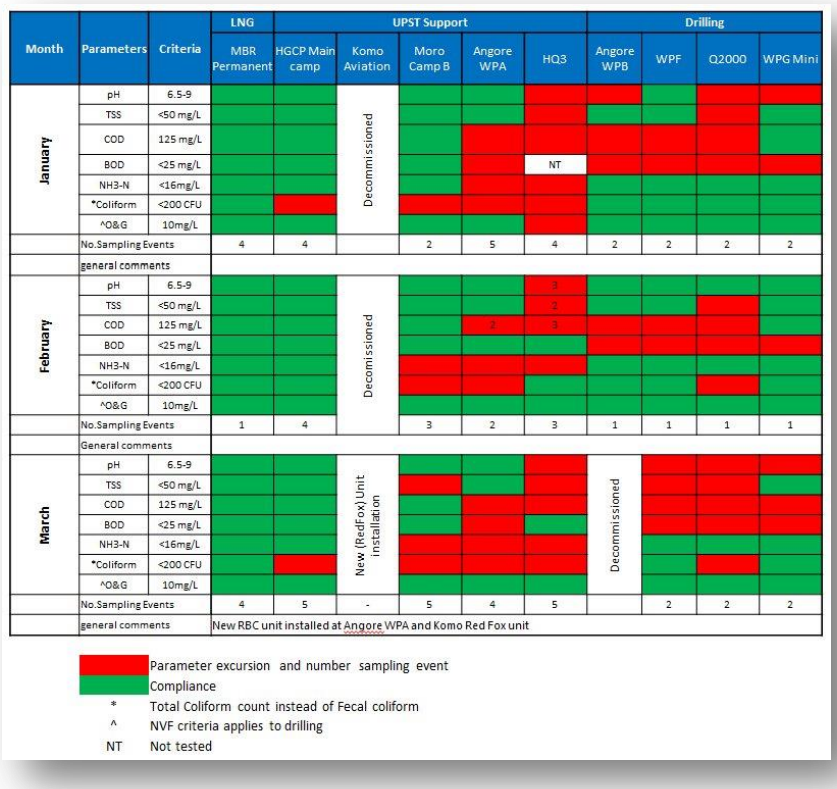
Parameter excursion and number sampling event
Compliance
* Total Coliform count instead of Fecal coliform
^ NVF criteria applies to drilling
NT Not Tested

Figure 4.2: WWTP Effluent Test Results Q4 2014

Since the last IESC field visit, there have been several effluent or process water (retention pond) discharge incidents:

- LNG plant: there were three water quality incidents in Q4 2014: two associated with oil and grease and one with elevated COD; algae and elevated pH have affected pond discharge operations;
- HGCP: one water quality incident in Q4 2014 with an exceedance of concentration of phenol;
- HWMF at Kopeanda: one water quality incident in Q4 2014 with an exceedance of potassium levels, with one excursion to the receiving environment (small ephemeral stream).

It is emphasized that follow up testing in the relative receiving environments (Caution Bay at the LNG plant; Akara Creek at the HGCP; and the small ephemeral stream at the Kopeanda facility) showed no impact and Q1 2015 discharge water quality tests all showed full compliance where effluent enters the environment. Nevertheless, the performance of the WWTPs continues to be sporadic, especially with the old construction-stage units.



Month	Parameters	Criteria	LNG	UPST Support					Drilling			
			MBR Permanent	HGCP Main camp	Komo Aviation	Moro Camp B	Angore WPA	HQ3	Angore WPB	WPF	Q2000	WPG Mini
January	pH	6.5-9			Decommissioned							
	TSS	<50 mg/L										
	COD	125 mg/L										
	BOD	<25 mg/L						NT				
	NH3-N	<16mg/L										
	*Coliform	<200 CFU										
	^O&G	10mg/L										
	No.Sampling Events		4	4		2	5	4	2	2	2	2
	general comments											
February	pH	6.5-9			Decommissioned							
	TSS	<50 mg/L										
	COD	125 mg/L										
	BOD	<25 mg/L										
	NH3-N	<16mg/L										
	*Coliform	<200 CFU										
	^O&G	10mg/L										
	No.Sampling Events		1	4		3	2	3	1	1	1	1
	General comments											
March	pH	6.5-9			New (Red Fox) Unit installation				Decommissioned			
	TSS	<50 mg/L										
	COD	125 mg/L										
	BOD	<25 mg/L										
	NH3-N	<16mg/L										
	*Coliform	<200 CFU										
	^O&G	10mg/L										
	No.Sampling Events		4	5	-	5	4	5		2	2	2
	general comments		New RBC unit installed at Angore WPA and Komo Red Fox unit									

Figure 4.3: WWTP Effluent Test Results Q1 2015

The problems with the WWTPs are similar to what has been reported over numerous past IESC field visits. The main problems continue to be associated with the old Construction-phase WWTPs, but since the last visit there have also been problems with the permanent WWTP at the LNG plant, which is an unusual situation (see Figure 4.2 and Figure 4.3). Another problem at the LNG plant is storm water intrusion of sewer lines, which caused two of the discharge incidents. It is emphasized that at the LNG Plant wastewater is not discharged directly to the environment, but rather to the retention pond.

A common problem at the old construction units continues to be fecal coliforms, but many other parameters are also off-spec. The worst performing unit is at HQ3, but the Angore WPA unit and other units associated with drilling have not performed well, especially in Q1 2015. At this stage, this performance is a low-level non-compliance with Project commitments. It is considered a low-level NC, because environmental discharges appear to show compliance.

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 prevention continues to be effective. Since the last IESC visit, there were no reportable spills (>1 barrel). Spill records continue to be properly maintained and spill response training continues to takes place across the Project. Overall, from what was observed in the field, hazardous materials continue to be well managed throughout the Project. Spill kits and fire extinguishers were found to be available and properly located throughout the sites and hazardous material drums and containers were observed to be appropriately labeled. An unexpected finding on the basis of an internal occupational health audit was that Material Safety Data Sheets (MSDS) are not all available at both the LNG plant and at the HGCP with 18 of 20 available at the LNG plant and 22 of 32 available at the HGCP. This is not assigned a non-compliance as part of this IESC field visit, only because it is the finding of an internal audit.

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

4.3 AIR QUALITY

4.3.1 Project Strategy

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

4.3.2 Observations

Air emissions are now a routine aspect of environmental management for Production. As shown on Figure 4.4, flaring has effectively reached a steady state. Overall, the flaring is a small fraction of the flaring during startup that peaked in April 2014. Unless there is some anomaly to report, future IESC reports will not address flaring.

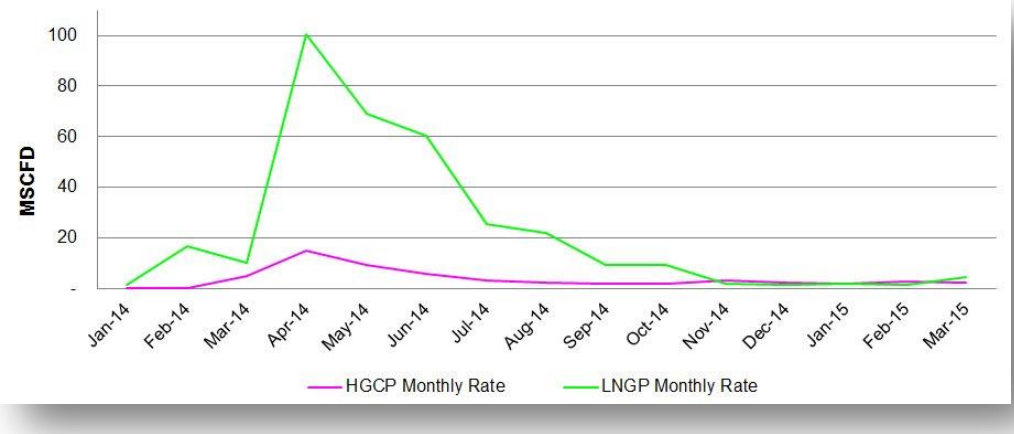


Figure 4.4: Flare Emissions since Startup

At the HGCP, major emissions sources include: compressor gas turbine exhausts; main power generator exhausts; the MEG (monoethylene glycol) Vent Gas incinerator; diesel generators; as well as the two waste incinerators, one at the HWMF and the other at the HGCP. At the LNG plant the main sources of air emissions include: compressor gas turbine exhausts; main power generator exhausts; regeneration gas

furnace exhausts; and hot oil system furnace exhausts; as well as the waste incinerator. Two rounds of stack testing have been completed within first year of operations: a commissioning round of tests at HGCP was completed in February 2015; a second round of testing at LNGP, HGCP, and HWMF was completed in April. The February testing identified a small exceedance of NOx in one of the generators at the HGCP, but the second round of testing in April showed all emissions to be within ESMP limits. The current plan for stack testing in the second year of operations is to do rounds of tests at the LNG Plant and the HGCP in September 2015 and March 2016.

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

4.4 EROSION AND SEDIMENT CONTROL

4.4.1 Project Strategy

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

4.4.2 Observations

Erosion and sediment control continue to present challenges to manage, in particular in the Highlands where weak, volcanic soils are present. Fast and effective responses have been made along the pipeline and there is finally some good progress being made at Komo. The effort at Komo has included extensive excavation and terracing with revegetation to stabilize slope failures at the end of the runway, as well as control drainage where erosion threatened the stability of the fence enclosing the airfield. Nevertheless, this remediation has taken a long time such that the situations significantly deteriorated from the time of discovery until stabilization and remediation efforts could be started. There are also other gullies near the airfield that are also rapidly growing in size. The issue from the point of view of the IESC is not that the erosion threatens the airfield, but that excessive amounts of sediment continue to erode into the environment. EMPNG has been slow to manage problems at Komo, but also at the drainage surrounding HGCP, and Wellpad G. The blocked drains and erosion taking place at the HGCP are the same as observed last October. The slope failure at Wellpad G does not appear to have worsened, but neither has it been remediated. These are not critical situations, but the Production team will need to be careful not to let problems grow to the point where they are not easy to resolve.

4.4.3 Recommendation

1. Attack issues of erosion more aggressively. Project infrastructure might not be threatened, but excessive amounts of eroded sediment from Project facilities should not enter the natural environment.

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 regeneration 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 quarantine management of imports); and the avoidance of project-related induced access resulting from the construction/retention of roads and RoW corridor.

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

Records from the EIA baseline studies and the Pre-Construction Surveys (see previous IESC reports for background) serve to establish the ecological conditions prior to ground clearance or infrastructure development. These records include information on the presence of weeds, and the locations of focal habitats and ecological sensitivities such as (but not restricted to): pinnacles that contain bat colonies; potential Bulmer's fruit bat (*Aproteles bulmerae*) colonies; bird-of-paradise and bowerbird display grounds and trees; large individual trees (>1m diameter breast height); areas of Pandanus swamp forest; swamps in sinkholes less than 50m deep on Hides Ridge; and *Nothofagus* (beech) forest that will require special hygiene measures (due to risk of dieback as caused by pathogens such as *Phytophthora cinnamomi*). These detailed records have been compiled into a Register of Focal Habitats and Ecological Sensitivities. This Register is being supplemented by information related to post-construction and current ecological conditions through monitoring studies and surveys.

5.2 ECOLOGY AND BIODIVERSITY STRATEGY

EMPNG's overall objective is to avoid impacts to specific features of ecological importance. The Biodiversity Strategy was developed to guide the long-term management of terrestrial 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 the overall goal, the following objectives have been defined:

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

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

(i) The large scale, which is the entire Upstream Project Area;
(ii) The medium scale, which is represented by particularly valuable areas referred to as 'priority ecosystems'; and
(iii) The small local-scale, which are sensitive habitats referred to as 'focal habitats'.

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

- PMA-1 Remote Sensing of Indirect Impacts, designed to monitor forest loss and degradation in the entire Upstream Project Area as caused by project-related indirect impacts;

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

- PMA-2 Condition Surveys, designed to monitor focal habitats, reinstatement and erosion control works, control of access and community encroachment, and the potential spread of invasive species and disease along the ROW and at facility/infrastructure sites (through aerial and ground-access);
- PMA-3 specialized Biodiversity Surveys, designed to collect and analyze flora, fauna and ecosystem data so as to support findings of PMA-1 and PMA-2, both in/around areas affected by the project and in protected areas enhanced and/or established through the offset program; and
- PMA-4 Efficacy of Offset Projects, to be tailored to monitor the outcomes of each biodiversity offset project.

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

5.2.1 Observations

5.2.1.1 Implementation and Monitoring of the Biodiversity Strategy

Revision 3 of the Strategy document, which was initiated in 2011 to reflect requirements from both senior management and IESC is yet to be completed. The scope of the Strategy is applicable to design, construction and operational phases, therefore the Strategy is now also in need of updating to ensure relevance for the operational phase of the project.

Rev.1 of the Biodiversity Monitoring Plan nears finalization and final changes will be made following discussions during this trip and IESC review of PMA-2 protocol to ensure completeness in the condition monitoring approach. Discussions remain primarily on the application of monitoring data and adaptive management which is expected to be resolved imminently.

Implementation of the Programmed Monitoring Activities (PMA) to operationalize the BMP continues and the IESC commends the significant progress made recently to prepare for and conduct these survey campaigns:

- PMA-1 Remote sensing: The 2009 baseline, 2011 and 2013 analysis reports have now been completed following re-processing, re-classification and re-analysis of the data. Land cover change data for both terrestrial and wetland forests have been generated for periods 2009-2011-2013. High level maps of the whole Upstream area provided to the IESC indicate a small number of isolated areas of forest lost to disturbed vegetation or logging. EMPNG is currently assessing any observed losses along their linear infrastructure (the pipeline RoW) that might be attributable to the project, and a compilation report is being developed to assess the ecological significance of all findings to date. Where challenges have been identified in data gathered on certain parameters, EMPNG is responding by refining methodologies and/or adapting other PMA survey campaigns to fill any data shortfalls. The PMA-1 Protocol is being updated to reflect these learnings and will shortly be finalized.
- PMA-2 Condition surveys: A full list of focal habitats and ecological sensitivities is now held within a Register. See below for details on the Initial Post-construction Biodiversity Assessment (IPCBA) one output of which is a subset of focal habitats and ecological sensitivities that will continue to be monitored as part of ongoing PMA-2 data collection. The first specific PMA-2 monitoring campaign will commence later this year. The PMA-2 protocol is undergoing further modification, but a draft version has now been provided to the IESC, which we will review post trip with a view to ensuring complete alignment with the BMP (as detailed in our last report).
- PMA-3 Biodiversity surveys: A reconnaissance trip was performed by the survey team leader in February 2015 and three permanent survey sites selected in the Hides and Kantobo areas. The first RAP survey campaigns will be undertaken early June. The Protocol has been finalized.
- PMA-4 Offset efficacy: a first draft of the Protocol has been developed and the draft indicators currently focus primarily on process rather than conservation outcome. However, EMPNG is also developing ideas on how to assess the effectiveness of protected area management, an approach that will be key when it comes to the effectiveness of protection efforts on the ground, and therefore contributing towards achieving conservation gain for the offset program.

The report detailing the findings from the IPCBA (see PMA-2 above) desktop study is now in final draft mode. The study has generated a great deal of useful data. EMPNG is now in a position to determine the extent to which ecological sensitivities (including focal habitats) identified during the EIA and pre-construction surveys (PCS) were avoided during the construction of the pipeline RoW and infrastructure. Of the 1,448 ecological features recorded during PCSs, 56% were avoided by the Project; a representative sample of those avoided will be validated as part of PMA-2 surveys later this year. The desktop study has determined the overall as-built physical footprint of the project as 2,373ha (380ha lower than anticipated in the EIS), and data have now been derived showing the specific land-take within each individual forest type (listed by FIMS – Forest Inventory Mapping System).

See Section 5.4 below for an update on the recently completed first Regeneration monitoring campaign.

5.2.1.2 Biodiversity Offsets to Address Residual Impacts

Framework and Delivery Plan

EMPNG's White Paper (mentioned in our last report), which was meant to provide responses to IESC concerns highlighted during previous visits (as detailed in June 2014 report), was finally provided in January 2015. Although the paper made a little headway in accepting that offset loss and gains need to be demonstrated to be able to show no net loss, the language still reflected the position that EMPNG did not accept the value of offset accounting. The paper included a risk analysis as previously recommended by IESC, but we felt some risks should be re-analyzed, recognizing the fact that EMPNG will not be able to control all risks as many offset outcomes are based on external factors outside of Company control. IESC provided detailed comments on the paper to EMPNG early March, but then no further dialogue ensued. Instead, detailed discussions were held with in-country personnel during this visit. EMPNG has committed to look again at the offset technical rationale within the offset Framework document, and to continue conversations within the Company, especially with regard to how to adequately demonstrate 'like-for-like' (for example, using Broad Vegetation Groups within each elevation zone when looking at loss and gain). Nevertheless, the Company is still not able to confirm how all concerns previously raised by IESC will be addressed. Therefore, IESC opinion remains that the success of conservation outcomes hoped for in the EMPNG offset program is being put at risk if EMPNG is not able to adequately demonstrate a more robust approach in these areas, and we therefore raise a Level 1 non-conformance (refer to the Issues Table, Section 2). As already specified in detail directly to EMPNG via IESC review of various documents, it is IESC opinion that EMPNG needs to review, revise and implement their Framework document, especially the Technical Rationale section. Areas for action should include:

- Acknowledgement that loss and gain calculations (offset accounting) is a fundamental requirement of demonstrating that offsets will achieve no net loss.
- Demonstrating how biodiversity losses and predicted conservation gains will be determined, and in an acceptable 'like-for-like' manner.
- Articulating specifics on how each offset project chosen will provide conservation gains that are in addition to those that would occur anyway.
- A more realistic appreciation of the potential risks and uncertainties that need to be managed to ensure each offset project achieves its desired conservation outcome
- Determine how and when conservation gains will be realized through time, and how they will be maintained for (at least) the duration of the residual impacts.
- Review the appropriateness of the current set of Criteria, which should guide the company to best determine which offset projects to develop

To better enable this, we believe that EMPNG needs to seek specialist external advisors who can provide specific experience and knowledge of large-scale biodiversity offset projects. We believe that corrective action is required in these offset framework areas to ensure that individual offset projects within the program have an increased likelihood of contributing towards the PS6 requirements of no net loss.

Ongoing design and implementation

EMPNG biodiversity personnel have been prioritizing implementation of the PMA's as detailed above; therefore EMPNG advises that less progress has been made on the individual offset program components:

- Component 1: Kikori-wide landscape scale. This component seeks to assist CEPA in meeting its international Convention on Biological Diversity (CBD) commitments via production of a 'Protected Area Plan' for a Kikori-wide river basin, that in subsequent offset planning phases can be taken forward for implementation:
  - Wildlife Conservation Society (WCS) is now Lead Partner; Conservation International (CI) remains as a partner with the Nature Conservancy (TNC). IESC met with the WCS representative during this trip; following WCS's proposal to EMPNG, negotiations are currently focused on contracts and payments.
- Component 2: Support to CEPA 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 NGOs:
  - the delays noted in our last report continue. The scope of work and contracts are yet to be finalized, and funding cannot be made until these are completed.
- 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:
  - Alignment of EMPNG-supported modules into the syllabus continues with the U-PNG review group and Mama Graun. Knock-on delays noted in earlier reports (of module delivery and award of scholarships) continues. U-PNG will seek to finalize course modules shortly and package them for delivery, although delays in recruiting lecturers may delay delivery in the 2015 academic year.
- Component 4: Support to existing protected areas. Support to the Lake Kutubu WMA (Wildlife Management Area) is the primary focus for achieving this component. The Project's Lake Kutubu WMA Enhancement Plan (WMA-EP) contains three work streams: conservation design and WMA Management Plan; enhancing organizational capacity; and local and provincial government land use planning.
  - Since our last trip, little progress has been made in implementation of the EMPNG Enhancement Plan, especially in the conservation design and WMA management plan work-stream. Capacity building support continues for the WMA Committee, but there has been a hiatus in Committee meetings. EMPNG has deferred delivery of a VHF communications system until 2016. Contrary to information provided in our last report, the project's WMA-EP Coordinator has not been on site regularly to oversee program implementation; we are informed this is likely due to contractual delays. Meanwhile, the Committee has assisted specialists contracted by OSL to undertake a study of fish composition and health in the lake; a focus of the study was the presence and effects of tilapia, and the presence of any fish parasites. The presence of tilapia may have significant consequences on EMPNG's ability to achieve the necessary conservation outcomes within the lake (see Recommendation).
- Component 5: Establishing new protected areas.
  1. At the Lower Elevation Zone, EMPNG's intention is to engage with communities to establish a Lower Kikori Resource Use Management Plan (LKRUMP), as an offset representative of residual impacts in the lower elevation zone. The creation of 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 plans to work with the former Barging Route Waterways Committee members and the Aird Hills WMA Committee.

  - Delays noted in our last report continue, although there has been dialogue with Community Development Initiative (an NGO based in Kikori). However there have been no face-to-face meetings with the communities since December 2013. EMPNG advises that a safe way to conduct work (an appropriate boat, knowledgable resources, emergency procedures and equipment) was required to visit and engage the communities. That issue has now been resolved, and the company is planning for this before the end of the year. EMPNG recognizes the risk of losing community commitment in the area.

2. Representative offset locations in the Upper Elevation Zone (montane >1200m) are still being explored. EMPNG's current focus is to engage with Hela Government representatives to identify and discuss potential offsets in the province.

- EMPNG advises they have not yet been able to meet with Hela Provincial Government representatives. However, they are in dialogue with WCS and discussions are ongoing on possible opportunities for offset programs and stakeholder engagement in the wider area.

As is clear from the status updates above, delays noted in our last report continue, several related to resource constraints and contractual negotiations, whether with external partner NGO's or with contractors. We acknowledge that some delays are to be expected over time, due to the scale and nature of the offset program. However, the range of ongoing delays observed during this trip and discussed with EMPNG during the visit now give us concern regarding program implementation and stakeholder expectation. Several elements of Work-stream A (Conservation Design and WMA Management Plan) of the Lake Kutubu Enhancement Program have not yet been developed, primarily as a result of the Program Coordinator not being engaged to the extent described to the IESC when resourcing issues were raised previously. Although attempts have been made to meet with Hela Government to discuss conservation intentions at the higher elevational zone, there has been very little action on developing an offset project in a higher montane area (where EMPNG has their largest footprint). We therefore raise a Level 1 non-conformance (refer to the Issues Table, Section 2).

5.2.1.3 Freshwater Ecology

The Upstream Freshwater Ecological Monitoring Program is intended to confirm the predictions of the EIS, compare pre-construction and post-construction conditions, and form the basis of a corrective action program should this be required. The results of the 2013/2014 surveys, were presented during this trip.

Full or partial ecological sampling has been undertaken each year between 2010 and 2014 (both 2013 and 2014 were only partial due to some sites not being accessible due to security issues). Six monitoring sites were initially identified (as per ESMP) on the basis of representative river types, accessibility and dense population areas along the RoW. Additional monitoring sites were later added to assess impacts from other project infrastructure (HGCP and Komo Airfield), as the original sites focused on pipeline river crossings. Sample locations were based on a paired approach (upstream and downstream, with upstream being the "control" site). In some cases a "reference" site had to be used to characterize preconstruction conditions (a site from a river with similar physical and biological attributes) where flooding/scouring prevented continued use of a site. The pre-construction baseline is therefore based on a combination of "control" and "reference" sites. Water quality parameters and environmental variables were also collected at each site to aid in site characterization. Invertebrates were identified to the lowest practical level. Voucher specimens were retained for future reference. Data analysis consisted of standard multivariate non-metric multi-dimensional scaling analysis, principal component analysis, analysis of similarity routines, and macro-invertebrate indices.

Results and interpretation:

- Multi-variate analysis for the four pipeline crossings (Benaria River, Adju River, Mandali River and Ai'io River) did not identify any parameters that were significantly outside the ranges detected during pre-construction, or at the upstream control sites, greater than the natural temporal and spatial variability in community composition.
- Monitoring downstream of HGCP in Akara Creek and Komo Airfield in Ariago Creek has shown evidence of construction related impact, as findings here indicated high TSS concentrations and turbidity levels (consistent with visual observations), although multivariate analysis showed some improvement in their condition. No other parameters were significantly different to baseline conditions.
- Monitoring did not detect toxic conditions in the water column. Macro-invertebrate community monitoring is aligned with these findings as the likely cause of impacts (where detected), which have been attributed to increased sediment (rather than chemical toxicity).
- Upstream controls sites for Wakuba Creek and Benaria River reflected the increased anthropogenic influences observed at these sites. The remaining reference/control sites all scored highly across all macro-invertebrate indices, even during the 2012 floods, suggesting no external impacts to these control sites.

Therefore, EMPNG advises that future monitoring will focus only on upstream/downstream sites in the HGCP and Komo areas, which in light of these most recent survey findings, seems reasonable.

5.2.1.4 Omati and Caution Bay Ecology and Fishing Studies

As noted in our last report, the IESC consider these studies are no longer necessary to fulfill Lender requirements, and the section will not be included in future reports.

5.2.2 Recommendations

1. Ensure updates to Revision 3 of the Biodiversity Strategy are sufficient to not only reflect previous editorial requirements, but also now incorporate information relevant to the post-construction and operational phases of the project, e.g., replace future tense with present/future tense, updates on impacts avoided, lessons learned for forthcoming construction phases.
2. As noted in the previous IESC report, we continue to recommend that EMPNG re-engage with their international conservation NGO partners so as to ensure the best advice is available when considering their offset framework (especially their technical rationale/IESC concerns).
3. EMPNG should explore opportunities to minimize resource-related delays through the placement of resources within offset conservation projects or with partner organizations.

a. For offset conservation projects, we recommend EMPNG follow through on commitments made previously to place offset program coordinators at relevant locations in Lake Kutubu and Lower Kikori for program implementation, and these positions be supported by resources at local bases as appropriate.

b. For partner organizations, we recommend that EMPNG consider the possibility to place additional resources within key partner organizations to assist with the implementation of EMPNG work scopes. This will help ensure there is no 'leakage' of conservation resource from within the partner organizations, and therefore no dilution of their overall effectiveness.

4. We encourage EMPNG to supply the VHF communications and other promised deliverables at Lake Kutubu as soon as is practicable. Expected outcomes from provision of these tools should be discussed with the WMA Committee, agreed and tracked over time.
5. We recommend that EMPNG engage specialist expertise in tilapia and their effects on endemic lake populations in order to scientifically analyze the current situation at Lake Kutubu. EMPNG is not responsible for the tilapia in the lake, but the implications on the conservation value of the lake need to be fully understood with regard to the potential threats and opportunities for conservation and EMPNG's planned offset program.

5.3 INDUCED ACCESS

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

EMPNG has retained a number of RoW construction access tracks/roads for permanent use during the Production-phase, so as to allow emergency access, maintenance and delivery of fuel to above ground installations (AGIs), such as main line valves (MLV), check valves (CV) and cathodic protection stations (CP). Background on the justification for access and methods of access control is provided in the EMP (an updated Table 17-1 will be included in a future EMP revision) and in previous IESC reports, along with IESC's opinion on the status and effectiveness of each vehicle access control.

EMPNG's strategy is that access will generally be allowed only to EMPNG vehicles. Access by third party vehicles serving operational needs may be sanctioned subject to prior approval from EMPNG. Access by landowner vehicles may be sanctioned subject to approval from EMPNG. In both cases, access will be authorized only by designated EMPNG personnel. Vehicles will be inspected as deemed appropriate. A Vehicle Monitoring Plan (VMP) describes the process to be followed for vehicles seeking authorization to use EMPNG roads, and data is being gathered on type of vehicles passing through points where Access Monitors are located.

5.3.1 Observations

As anticipated, the PNG government has now formally requested the transfer of ownership of EMPNG's Kikori River Bridge near Kaiam (Row 17 in table below). However, additional infrastructure has also been included, with the government now also requesting:

- ownership of the EMPNG built road linking two logging tracks between Kopi shore base and Kopi scraper station (Row 16);
- ownership of two bridges along the Hides to Komo road: Waguba Bridge and Tamalia Bridge (this road was an existing public road which EMPNG upgraded); and
- that discussions commence on possible opportunities for future access to other roads and bridges between Gobe and Kutubu.

This third bullet suggests the government's intention to open up a Southern Route linking the coastal lowlands to the Highlands, and tie in with other road infrastructure currently being constructed. EMPNG is revisiting risk assessments already undertaken, and is currently negotiating with the government on how they would be able to maintain their commitments relating to induced access and weed management.

The IESC is encouraged that the letters from the Dept. of Works and Implementation recognize that EMPNG has made significant commitments to control vehicle access to their infrastructure, to prevent potentially damaging third party activities through enhanced access. Without the ability to fulfill those commitments, the situation represents a potentially significant risk in relation to avoiding induced access, the spread of weeds, pests and pathogens, and maintaining ecological integrity.

With regard to ongoing control of vehicular access, EMPNG advises that the status of access control/monitors listed in the Table 5.1 below remains the same as reported previously, apart from **.

Table 5.1: Status of Access Controls/Monitors

No.	Access location	AGI	Current Vehicle Access Control/Monitor Status, as advised by EMPNG
1	Hides Ridge		Manned station at vehicle wash. All vehicle access is logged.
2	CV-1	X	Unmanned boom-gate installed and locked, between Angore WP-B and the RoW
3	Angore		Boom-gate installed but open, & not permanently manned. Permanent control measures to be implemented post-drilling.
4	MLV-1 Benaria	X	No boom-gate currently installed. Vehicle Access Monitor at Benaria village, not at bridge/project infrastructure. EMPNG advise that when gate installed, VAP will no longer be required, as it will be locked. **Note: the Government has initiated construction of their bridge, which will remove the need for EMPNG to retain its temporary construction bridge.
5	MLV-2 & Homa-Benaria Ridge access road	X	Boom gates (two) installed and locked, one at MLV-2 and one at the intersection of the tax-credit public road and MLV-2 Homa Ridge access road.
6	MLV-3	X	Boom-gate installed and locked.
7	MLV-4	X	Boom-gate installed and locked.
8	CV-2	X	Rely on OSL road controls at Moro.
9	Agogo tie-in	X	Boom-gate installed and locked.
10	Kutubu MLV	X	Boom gate installed and locked.
11	CP-1 (on OSL Manu-Kantobo road)	X	Rely on OSL road controls at Manu & EMPNG Access Monitor with boom-gate at Gobe.
12	Kantobo-Mubi EMPNG road (Heartbreak Hill)		The EMP states a locked unmanned boom-gate to be at KP164 – this is not currently in place. Instead EMPNG rely on OSL road controls at Manu and Access Monitor with boom-gate at Gobe (not locked).
13	Gobe-Mubi EMPNG road		Boom gate now reinstated at Gobe and manned with Access Monitor. Not locked.
14	Gobe MLV	X	Boom gate installed and locked.
15	CP-2	X	Boom gate installed and locked.
16	Kopi shore base to	X	The EMP states locked boom gates at each end of the EMPNG road

No.	Access location	AGI	Current Vehicle Access Control/Monitor Status, as advised by EMPNG
	Kopi scraper station		linking two old logging track – these are not currently in place. Instead, a single boom gate is installed with an Access Monitor noting road-use. Boom-gate not locked.
17	KP232		Boom gate installed and locked.
18	Kikori River Bridge		Boom gate installed and manned with Access Monitor. Not locked.

The strategy for access control is explained in the introduction above, in that access will generally be allowed only to EMPNG vehicles. However, in practice, locations with Access Monitors noted in the table above do not currently restrict vehicular access. Instead vehicles that use EMPNG roads are monitored. At these sites, Access Monitors record vehicle data during day-shift hours, then the boom-gates are left open when the Monitor is not on duty. (Note: EMPNG advises that Monitors are only in place during daylight hours for health & safety reasons and because traffic levels are low/non-existent during the night, so is therefore commensurate with risk.)

Data being gathered now by Access Monitors is providing useful information with regard to road users of EMPNG roads, with breakdowns of total vehicle numbers and reasons for visit. With regard to any attempts to undermine EMPNG's attempts to control access since our last visit, we were advised that a padlock was recently removed from the boom-gate at CV-1. Following investigation, EMPNG found there was no evidence of third party vehicular incursion in the vicinity of the RoW. Review of access controls was a priority for the IESC on this trip, and we observed several access locations during a road-trip between Kutubu and Kopi, and a helicopter trip visiting MLV-3 and the intersection of the public tax credit road with the Homa Ridge access road to MLV-2. The majority of access monitors and controls were observed in place. However at Kikori Bridge (Row 17 in table above), we observed two boom gates installed (one either side of the bridge – EMPNG advises that only the southern side of the bridge is being monitored), but both boom gates were in the raised position and no Access Monitors were present – therefore no records of vehicle access were being made.

The Vehicle Monitoring Plan sets out authorization criteria for use in determining those commercial, third party and clan members with legitimate access requirements, so they can be placed on an Approved List and awarded a permit. However, in practice, the Access Monitor does not have an Approved List of pre-authorized vehicles and permits are not used to demonstrate who has pre-authorization. Monitors were not aware of the process to tell those drivers without permits how to obtain a permit. Access is not generally allowed only to EMPNG vehicles or those vehicles sanctioned through the pre-approval process, but provided to any vehicles wanting to use the road. Hence the IESC conclude that the VMP is not currently being adequately implemented, and the requirements of the Upstream EMP are generally not met.

For the reasons detailed here, the Observation in our last report is now replaced by a Non-Conformance Level 1. in the Issues Table. The IESC consider that effective access control to prevent potentially damaging third-party activities will only be achieved when boom-gates are either locked or permanently manned with a guard checking all vehicles for permits and restricting access to only those with a permit or on a pre-authorized list. The IESC believe effective enforcement of access controls to be particularly important at this early stage of Operations, especially as biodiversity monitoring activities and indicators are not yet fully established and integrated into the Upstream EMP.

5.3.2 Recommendations

1. We recommend the continued collection of road use data, as this will provide a valuable baseline of information when considering the implications of the government's request for use of project infrastructure. We also recommend that EMPNG fully consider what additional information should be gathered, so the project can continue to demonstrate no measurable adverse impacts on the ability of the critical habitat to maintain its high biodiversity value (IFC PS6 para 10).

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

Information regarding the slope stability and erosion control issues at Komo is provided in Section 4.4. Vegetation regeneration on stable zones is progressing, although success in some areas is patchy. EMPNG contractor is advising on the situation, and has made recommendations on how best to encourage regrowth. For example, in areas where the original channels were washed out (see last report), vetiver grass *Chrysopogon zizanioidesis* is now being planted to encourage soil stability along the edges of replacement drainage channels. In addition, where Japanese Millet was used originally to provide initial cover (but didn't survive long enough for secondary growth to establish effectively), now couch grass seed (*Cynodon dactylon*, no longer considered a P3 weed as recently naturalized in PNG) is being used along with fertilizers to counteract high concentrations of manganese found during recent soil testing.

Slope stability issues remain in certain areas of the HGCP where maintenance work is yet to remedy soil erosion. Elsewhere at HGCP, re-generation is progressing slowly. Mangrove regeneration at the pipeline landfall at the LNG plant site is progressing. EMPNG has agreed to the use of photo-points to be able to better ascertain and monitor regeneration success.

The IESC road-trip between Moro and Kopi allowed us to observe reinstatement at various sections of the RoW – successful natural re-vegetation now appears to be widespread. We were advised that a few special focus areas remain, typically on steep slopes, but these areas are being worked on by teams along the pipeline. Natural re-vegetation continues to progress slowly along the Hides wellpad access road, but has been clearly more noticeable during our last two visits.

EMPNG contractor is currently undertaking their 2015 reinstatement audit, covering randomly selected sites across the Upstream area and the LNG Plant site. The results of this audit will be described in more detail in our next report.

The first of the regeneration monitoring campaigns has just been completed by the New Guinea Binatang Research Centre. These surveys will be undertaken every 2 years, to monitor re-generation at selected plots for species composition, vegetation structure and ecological integrity. The methodology employs a combination of fixed and randomized sampling and a benchmarking scoring system to monitor the progression of succession and edge effects in areas on and adjacent to the RoW. The findings from these first studies will be described in our next report, once the analysis has been undertaken and resulting report completed.

5.4.2 Recommendations

No recommendations resulting from this trip.

5.5 INVASIVE SPECIES, PESTS AND PLANT PATHOGENS

EMPNG's objectives are to prevent priority invasive species, pests and plant pathogens from entering or becoming established at (or in the vicinity of) their facilities and infrastructure, and ensure containment of existing priority invasive species, pests and plant pathogens already present. Supporting the Upstream and LNG Plant EMP's are an Invasive Species Monitoring Protocol (currently finalized at Rev.0), and a Register of Invasive Species, Pests and Pathogens.

EMPNG's approach to weed management utilizes the identification and prioritization of weeds: Priority-1 (P1) weeds are defined as species that rapidly colonize disturbed areas and displace and/or invade native vegetation; the Project aims to control and monitor all P1 weeds and exclude them from all work areas through active control. Priority-2 (P2) weeds are defined as species that may rapidly colonize disturbed areas and displace native vegetation, but rarely invade natural habitats; P2 species are monitored but only controlled where a species shows signs of increasing invasiveness or is growing alongside P1 weeds.

EMPNG seeks to manage the threat of spread of *Phytophthora cinnamomi* by preventing the spread or introduction of Type A2 into unaffected areas, in particular ecologically sensitive areas susceptible to senescence. With regard to quarantine, EMPNG has 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

5.5.1.1 Weeds

BioTropica continues to conduct weed audits roughly every six months. In conversations with BioTropica (EMPNG's external invasive species specialists) and field staff specifically about P1 weeds, we understand priority concerns to be:

- the increased number of occurrences of Anglestem willow primrose *Ludwigia leptocarpa* at an increased number of locations: the Homa Ridge access road (a range extension for this P1 weed), the RoW from Gobe to Moro, at a number of points around the Lake Kutubu catchment, and at Angore Wellpad B,
- the widespread distribution of *Piper aduncum* along the RoW, and that it's now been found on the Homa Ridge access road and Hides Ridge wellpad access road.

Summary highlights from BioTropica's November 2014 weed audit report:

- overall species abundance shows little variation over time, apart from examples noted above and Highland's trefoil *Desmodium sequax* expanding its abundance around HGCP and the Hides Ridge wellpad access road (before the vehicle wash);
- overall, diversity is stable at the majority of sites;
- the only recent plant range extension across the project has been the *Ludwigia* on the Homa Ridge access road, most likely transferred from populations now established at Moro. *Piper Aduncum* has also now been found on the access road;
- Hides Wellpad B continues to be problematic, primarily due to the fact that gravel for the wellpad base was sourced from a Tari quarry and thus P1 weeds were brought in with the construction material;
- a single cane toad (which is listed as a pest in EMPNG's Invasive Species, Pests and Plant Pathogens Monitoring Protocol) was observed at Tamadigi camp,. At the regenerating camp site, P1 weeds *Ludwigia leptocarpa*, *Piper aduncum* and Bitter vine (*Mikania micrantha*) are also becoming increasingly common;
- a small number of improvements were suggested regarding RoW vegetation control when undertaken by community teams – these are being adopted via communication packages to be used by P&GA during community engagements.

The expansion in distribution and abundance of *Ludwigia leptocarpa* and *Piper aduncum*, especially in the vicinity of Lake Kutubu and the Homa Ridge access road, is currently of particular concern. The Homa-Benaria Ridge and Lake Kutubu are both priority ecosystems as per the Biodiversity Strategy. All *Ludwigia* plants observed in these areas during the Nov 2014 audit were reproductive with both flowers and seed capsules present, suggesting the populations were becoming established. In the lacustrine /swamp forest context at Lake Kutubu, *Ludwigia* becomes more difficult to control, e.g. Glyphosate herbicide should not be sprayed into watercourses. BioTropica advises that effective action could rectify the current situation if targeted promptly. EMPNG advises they are increasing monitoring surveillance and control, especially on the Homa Ridge Access Road and the Hides Spineline. They are working with their existing external contractors Mosquito Zone to train personnel for targeted control campaigns. The species also remains present in previously recorded sites between Omati and the Ai'io River.

EMPNG is retaining use the mobile wash-down facility at the base of the Homa Ridge access road, so vehicular access needs to be arranged via EMPNG Logistics and use of the wash-down is mandatory for all vehicles.

One highlight to note is the value provided by the vehicle wash-down station at the 'clean-line' at the base of the Hides Ridge which reduces the ingress of weeds onto the ridge.

Weed management will be a focus area for the next visit when we hope to be able to report in more detail.

5.5.1.2 Quarantine

EMPNG and Contractor performance data for 1Q 2015 are included in the following two IESC graphs, presenting information on:

- top graph (Figure 5.1): The proportion of consignments requiring a NAQIA inspection on arrival into PNG (showing numbers of consignments within the graph bars), and
- bottom graph (Figure 5.2): The proportion of those inspections that result in the need for fumigation of that consignment i.e. the inspection outcome.

Data are now also presented for construction of the new EMPNG Production Facilities Complex (PFC) buildings in Port Moresby, which had not been shown previously. Inspections are typically triggered by: inadequate/incomplete documentation accompanying the consignment, or the source of the consignment coming from a country that NAQIA deems to be higher risk. Thus the likelihood of inspection is not always within the control of EMPNG or their Contractors. However, fumigations are typically triggered by a suspicious item (e.g. insect) found during the NAQIA inspection, and hence are usually preventable by good housekeeping and management at the packing source of the consignment.

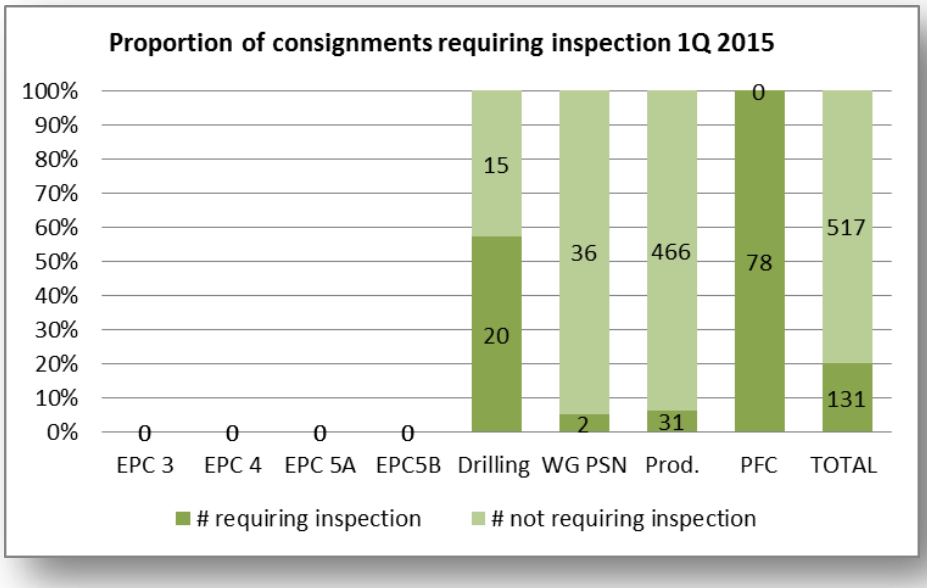


Figure 5.1: Proportion of Consignments Requiring Inspection by Contractor

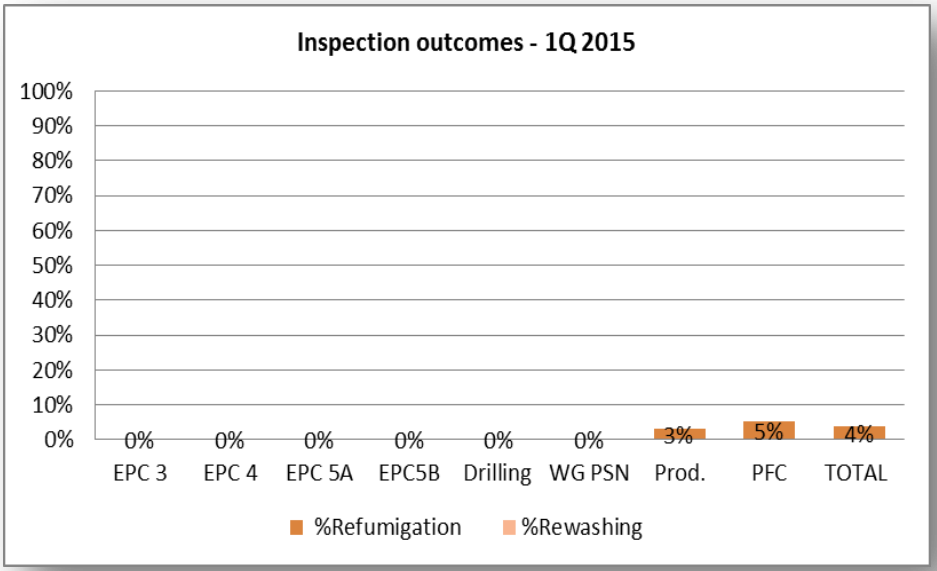


Figure 5.2: Inspection Outcomes, indicating the Need for Fumigation following Inspection

Key points on performance in relation to fumigation include:

- all of the construction-phase EPC contractors have now demobbed;
- drilling shipment volumes are now winding down, and imports should be complete during 3Q 2015. The organization had targetted the improvement of fumigator practices at the point of consignment origin during 2014, and performance has greatly improved with no fumigations required during the quarter;
- Wood Group is currently recording a low number of shipments, with no inspections resulting in fumigation;
- production shipment numbers are currently relatively constant with 4Q 2014, with nearly 90% of shipments being airfreight. The 3% fumigation shown in the 2nd graph above represents 1 inspection resulting in a refumigation;
- all PFC imports are currently requiring inspection. On inspection it was found that the Contractor importing these shipments had not used ISPM-15 treated pallets as required by EMPNG's procedures. EMPNG is investigating.

5.5.2 Recommendations

1. We request that weed information be presented in such a way as to allow a better understanding of the threats to the integrity of weed management zones. Without this weed management zone framework, the IESC is not able to form an opinion on the adequacy of EMPNG's actions to prevent harmful increases in distribution, diversity and abundance. Information required within each zone includes: any diversity/expansion/abundance changes; any movements between zones, especially the quarantine zones; main current threats to each zone; EMPNG target actions in each zone; progression of problems and/or successes within each zone; etc.
2. We encourage further prompt targeted action to avoid *Ludwigia leptocarpa* from becoming more established around Lake Kutubu (bearing in mind Glyphosate 570 herbicide should not be used in watercourses) and on Homa Ridge Access Road.
3. Company should reiterate to their Contractors the importance of their adherence to EMPNG's Quarantine Procedure, especially the requirement for only using ISPM-15 treated and stamped timber packaging.

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 its May 2015 visit. The social review addressed the usual range of social issues, but focused primarily on the activities to close out the Project's resettlement requirements and on development of the production phase Community Development Support (CDS) program.

Activities included the following:

- presentations by relevant project departments;
- briefings by and discussions on outstanding issues with the resettlement evaluation teams;
- discussions with the ANUE livelihood restoration team;
- visit to a women's group;
- discussions with the resettlement auditor;
- briefings and discussion with the CDS manager and team.

6.1.2 Waiver

The IESC social review is substantially based on documents and data provided by the Project and interviews conducted with project staff, project affected people, and other stakeholders. It is 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 - STRUCTURE

6.2.1 Project Strategy

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

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

6.2.2 Observations

The functions of the construction phase Land and Community Affairs (L&CA) group have become part of the responsibilities of the project phase Public and Government Affairs (P&GA) group. Under the new structure, the Compliance Manager who was responsible for completion of resettlement tasks has become the Transition Manager and retains responsibility for closing out resettlement. She continues to be supported by members of the resettlement field and evaluation team.

The IESC considers the new organizational structure and staffing satisfactory.

6.2.3 Recommendations

None arising from this review.

6.3 MANAGEMENT OF DISPLACEMENT IMPACTS –STATUS AND CLOSURE

6.3.1 Observations

The Project has made excellent progress toward closing out resettlement. Internal outcome evaluations of the standard of living of physically displaced households and livelihood restoration of economically displaced households, IESC outcome evaluation verifications, detailed re-assessment of outcome

evaluation data, and ANUE garden adequacy surveys have been completed. The resettlement completion audit by an independent resettlement expert to determine whether implementation of resettlement complies with the requirements of IFC PS5 and relevant portions of PS7 was in progress during the IESC visit. The audit is one of the original project commitments and referenced in the LESR and the Resettlement Policy Framework (RPF).

The Resettlement Close Out Report is in its final draft form awaiting audit results and identification of any additional remedial actions to be done prior to final completion. This report is a Project document recommended by the IESC to demonstrate the positive Project responses to issues that arose during implementation, identify for future displacement the issues that constrained achieving some of the original resettlement goals, and ensure that results of the internal outcome evaluation and IESC verifications of standard of living and livelihood restoration are maintained in one place. Additional details on each are provided below. See IESC February 2015 report for additional details and full information on outcomes will be contained in the Project's Resettlement Close Out report.

6.3.1.1 Outcome Evaluation Coverage

The detailed assessment of the original displacement survey and outcome evaluation results indicated that the original number of affected households/persons was based on the number of agreements signed irrespective of the number of agreements signed with an individual household, the extent and significance of a loss to a household, or the extent and nature of the entitlements associated with each agreement. Data assessment showed that many of the households included in the original displacement numbers experienced only minimal economic impacts (e.g., lost a very small portion of a garden or unused land) for which they were compensated, thus did not require additional assistance to restore standard of living or livelihoods. The assessment also found that a large number of households signed duplicate agreements and a large number of households were amply compensated for speculative structures and were not entitled to additional assistance.

Table 6.1 below shows the final number of affected households in each category, of which 421 households were entitled to additional support to restore livelihoods and/or standards of living.

Table 6.1: Displacement Impact Categories and Numbers

Type of Displacement	Number
Physical	**210**
Physical and economic	**156**
Economic only	**55**
Entitled to additional assistance	**[421]**
Compensation for minor loss	542
Compensation for speculative structure(s)	691
Minor inconvenience (e.g., during construction)	86
Total	1,740

The project internally evaluated the standard of living outcomes of 100% of the physically displaced households and conducted three evaluations of the livelihood restoration of economically displaced households including almost 100% of the households that were both physically and economically displaced in the first survey and a sample of about 50 % of all economically displaced households in the second and third surveys. The IESC conducted review visits of a sample of households, the majority of which the internal evaluation had placed in the declined livelihood condition category.

6.3.1.2 Standard of Living of Physically Displaced Households

Final results of the standard of living outcome evaluation, incorporating changes made by the IESC verifications are shown in Table 6.2 below.

Table 6.2: Results of Standard of Living Outcome Evaluation and IESC Verifications

Category	No. Households
Declined	1
Maintained	253
Improved	100
Could not locate	12
Total	366

Though only one household was identified as experiencing declined conditions, a number of households were found to have water access issues.[4] As recommended by the IESC, the Project undertook an assessment of water access for physically displaced households that claimed a water accessibility issue and for non-displaced households that claimed to have poor access to water as a result of construction of project facilities (Komo airport and HGCP). The assessment found that 12 households should be reviewed to determine actual water situation and if appropriate further assistance provided. Each of the 12 households will be revisited by the end of June to identify the type of assistance needed and if required identified remedial actions will be provided by the end of August 2015. At the time of the IESC visit, the Project had further determined that seven households would be supplied with additional water access assistance due to special circumstances (e.g. death of spouse for older individual)

Assessment of the non-displaced households claiming that construction of facilities at Komo and HGCP obstructed their access to water concluded that the Project had met its water obligations by provision of community water structures. The assessment concluded, however, that some owners of the land on which community structures were placed had fenced off the structures and were charging fees for water access. "Public" land, such as churches, schools, women's group centers, and markets, was found to be the best location for water structures. The assessment will be completed by the end of July and will propose remediation measures, including possible repair of damaged water structures and addition of water tanks to public community facilities (tbd end 2015). The community development support program is also considering water provision or repair in its planning.

6.3.1.3 Livelihood Restoration of Economically Displaced Households

Final results of the livelihood outcome evaluation for economically displaced households are shown in Table 6.3 below. Data review and follow up visits also addressed issues such as under-estimation of impact of loss and misidentification of appropriate recipient for assistance (See February 2015 IESC report for additional information).

Table 6.3: Livelihood Evaluation Results

Category	No. Households
Declined	3
Maintained	157
Improved	51
Total	211

Table 6.4 shows the results of the food adequacy survey for displaced households participating in the agricultural livelihood program.

4 The Resettlement Completion audit may require some additional remedial actions for both standard of living and livelihood restoration. See discussion of audit.

Table 6.4: Food Adequacy Results

Category	No. Households
Declined	0
Maintained	124
Improved	73
Could not locate	6
Total	203

Though the evaluation results are positive, about 10 households were identified as needing supplementary agricultural assistance focused on increasing agricultural productivity and income. Additionally, ANUE has produced a report identifying lessons learned and these are being carefully considered for the agricultural component of the Community Development Support program.

6.3.1.4 Vulnerable Households

The final assessment identified 80 households in the vulnerable category. Of these, 75 households have received additional assistance for standard of living and/or livelihood restoration, as applicable to displacement impact. An additional two households are included in the households that will receive water access assistance and one household is included in the supplementary agricultural assistance group. The other two households have instigated legal action thus, though the Project is willing to provide additional assistance, the legal process must first be concluded.

6.3.1.5 Resettlement Completion Audit

The independent Resettlement Completion Audit is in progress, with field work now completed. A draft of the report will be submitted to the Project by early July 2015.

The IESC Social Expert's visit partially overlapped with the Auditor's field work affording ample time for lengthy and productive discussions. The IESC notes that the Project is providing excellent support to the Auditor. The Auditor noted some concerns, most of which are very similar to the concerns previously noted by the IESC and being addressed by the Project. The audit report will identify any additional remediation needed with a time bound implementation plan.

6.3.1.6 Resettlement Closeout Report

A near-final draft of the Resettlement Close Out report has been prepared by the Project and reviewed by the IESC. This report is a Project document recommended by the IESC to demonstrate the positive Project responses to issues that arose during implementation, identify for future displacement the issues that constrained achieving some of the original resettlement goals, and ensure that results of the internal outcome evaluation and IESC verifications of standard of living and livelihood restoration are maintained in one place. The final report will contain the following sections:

- outcome evaluation, verification, & food survey processes;
- findings of the combined evaluation methods;
- reasons for any declined conditions;
- remedial actions, implementation status and/or schedule;
- explanation of contextual issues affecting achievement of optimal conditions, particularly standard of living (self-resettlement limitations, security of tenure, access to services); and
- lessons to be applied to any future displacement;
- resettlement completion audit results, any remedial actions indicated and their implementation status and/or schedule.

6.3.2 Recommendations

1. Complete assessments of water access conditions of the 12 displaced households by end of June and provide any necessary remedial actions by end of July 2015.

2. Complete assessment of community water issues (Komo and HGCP) by end of July and propose/deliver any necessary remediation measures by end 2015. Assure that the CDS program considers water provision as a potential component.
3. Report to the IESC on the 10 households identified as needing supplementary agricultural assistance.
4. Report to IESC on the status of the legal process of the two Vulnerable People households and potential for the Project to provide any needed assistance in the near future.
5. Submit the final draft Resettlement Closeout Report to the IESC for review within one month of finalization of the Resettlement Completion Audit report.

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, and 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

Project security during Production is the joint responsibility of Global Corporate Security (used in certain high risk areas) and the Project Security team. As indicated in the October 2014 IESC report, safety and security risks *to communities* during the Production phase are fewer in number than the risks during Construction, but Production risks potentially have a wider impact, such as spills, explosions and other technical failures. These risks are discussed in the section of this report on the Emergency Response plan and process (see Section 3.4**).** The emergency response system is fully in place and the Project is at about 90-95% full capability, though additional training is required given that more capacity may be required from Lancos.

As anticipated, there has been a dramatic reduction in the number of security incidents impacting the Project, probably related to the demobilization of both workers and sites. There have been only four corporate reportable incidents to date, compared to a much larger number during the construction phase. Incidents within and between communities still occur. The Project is aware that security incidents both within/between communities and those that may affect the Project are likely to escalate once benefits distribution at the local level begins. Project security, therefore, continues to work closely with the Village Liaison Officers to understand and to deal early with community issues to avoid having to call in government security forces.

Host Government Security "forces" play an important role in certain areas through a MoU with the PNG government. One of their most important roles is provision of high level security for maintenance, particularly along the pipeline route. Though the Project cannot control Government forces, it provides them with training on the Voluntary Principles for Human Rights.

The Project is the process of nationalizing its own security team through a sensitive selection process and mentoring of local staff by expatriate staff.

In terms of safety, the Project engages frequently with communities on safety. The focus in the upstream areas continues to be on pipeline safety through implementation of a pipeline RoW safety campaign. In the plant area, the emphasis is on water hazards. The Project is also working with its own security staff, particularly facilities guards, to develop a stronger understanding of safety concepts.

6.4.3 Recommendations

1. Provide the IESC with additional information on "use of force" as defined in the security force MOU with the PNG government.

6.5 PROCUREMENT AND SUPPLY

6.5.1 Project Strategy

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

- maximize procurement from local suppliers and economic benefit for local businesses;
- improve capacity and skills of local business to capture business opportunities associated with the Project, both locally and nationally; and
- ensure that EMPNG environmental and social standards and commitments are adequately communicated by the contractor to its subcontractors and suppliers and included in their contractual arrangements (as outlined in Table 4.1 of the Plan – *Risks and Impact Mitigation*).

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

6.5.2 Observations

6.5.2.1 Contractor National Content[5]

The Project recruited a National Content Manager in January 2015. The Manager is currently developing a comprehensive National Content Strategy for implementation of a three tiered plan, the tiers of which are:

- Recruitment and training of local & national employees
- Development and use of qualified local vendors for the supply of goods and services
- Investment in health, education, and infrastructure that aids development of local capabilities and improves the socioeconomic environment of host communities (done in collaboration with the CDS program).

The objectives of the contractor strategy are to:

- Maximize procurement from local suppliers and economic benefit for local businesses.
- Improve capacity and skills of local businesses to capture business opportunities associated with the Project, both locally and nationally.
- Ensure the EMPNG environmental and social standards and commitments are adequately communicated by the contractor to its subcontractors and suppliers and included in their contractual agreements.
- Recruit and train local and national employees to meet workforce requirements.

Contractor National Content Requirements

National content requirements are contained in agreements with contractors and a National Content Exhibit is currently in four of the main contracts and will be added to new or renewed contracts following a prioritized list of the remaining contractors. The exhibit states that contractors shall "develop and

5 National content information for direct hires is presented in Section 7 *Labour and Human Resources*.

implement a Local and National Content Plan… in accordance with the requirements in this Exhibit". The Exhibit requires maximization of employment of PNG citizens in all job categories and sourcing of all PNG works will be in accordance with the requirements of this Exhibit and relevant law. First priority is to be given to local persons (proximate to Company locations), second priority to regional citizens, and third priority to persons elsewhere in PNG. It also specifies that contractors should give preference to local Lancos for provision of employees

The Project has developed a template for reporting on national content. The National Content Exhibit stipulates that workforce reporting should include headcount, nationality (PNG or Foreign), gender, geographic priority (the three locales noted above), and field of work, as well as workforce training data.

Local Businesses

To date, the Project has awarded 29 contracts to PNG contractors and sub-contractors, of which eight are Landowner Companies (Lancos) including LABA Holdings, LABA Security Services, LABA Alliance Group, Hides Gas Development Company, Hides Security Services, Hides Alliance group (HAG), Mananda Umbrealla JV Ltd, and KUJV. The representative Lancos are the primary points of contact for engaging the local Project area Lancos in Project work. EMPNG will provide a list of PNG businesses (including Lancos) to suppliers for reference. Additionally, the IBBM Enterprise Centre assesses local businesses and maintains a database of successfully assessed businesses, and the Investment Promotion Authority has been asked to identify all female-owned businesses.

Most local business capacity building is done through the Enterprise Centre. The Centre assesses businesses to identify potential new contractors and suppliers, provides communication services, links businesses to financial services, and provides training and mentoring.

Table 6.5 shows the number and type of training and business development support activities for Lancos.

Table 6.5: Number and Type of Capacity building Trainings and Business Development Support Measures provided to Landowner Companies

Training Courses	Number of LANCO Organizations	Number of Participants
1. MYOB Advance	6	3 Males/5 Females
2. Introduction to Supervision	2	4 Males
3. Safety at Workplace	3	5 Males/1 Female
4. Book Keeping & Accounting	8	7 Males/ 8 Females
5. Soft Skills for Woman in	10	10 Females
6. Customer Service	1	1 Male/11 Females
7. Employee & Industrial Relations	12	18 Males/4 Females
8. HR Management	Scheduled for mid May	TBA
9. Project Management	Scheduled for mid May	TBA
10. Organizational Skills	Scheduled for end of May	TBA
11. MYOB	Scheduled for June	TBA
12. Leadership & Influence	Scheduled for June	TBA
13. Business Communication	Scheduled for mid May	TBA

Contractor Employees

Reporting on contractor national content to the IESC has improved since the October 2014 visit, but data provided by contractors is still incomplete and somewhat difficult to interpret. Five of the main contractors (G45, HAG, HSS, LSS, Woodgroup) have submitted partial data and the other contractors have not yet sent in their 1Q15 National Content reports. The National Content Manager is working with contractors to improve reporting. The IESC looks forward to receiving during our upcoming October 2015 visit the full data for each contractor as outlined in the National Content Exhibit. Available statistics are given below.

Contractor staff, all PNG citizens, who have positions on the Project that otherwise would be filled by direct hire employees number 377 in Q1 2015. Available data on origins shows 147 from non-affected areas and 31 from the LNG plant area.

Numbers of PNG citizen employees of third-party contractors that provide various services to the Project (e.g., janitorial, some drivers) are shown below by contractor:

- G4S = 139 total, 127 male and 12 females;
- HAG = 118 total, 59 male and 29 female;
- HSS = 187 total, 178 male and 9 female;
- LSS = 178 total, 160 male and 18 female; and
- Woodgroup = total 259 total, 236 male and 23 female.

6.5.2.2 ESMP Rollout

The roll out of ESMP requirements to contractors started rather slowly, as discussed in greater detail in Section 3.1. The delay in concluding the rollout hinders both the Project's and the IESC's ability to evaluate contractor compliance to ExxonMobil's policies, the Labour and Working Conditions Management Plan, and IFC PS 2. Given that the Project is more than one year into the Operations phase, the IESC will expect to receive full reporting on compliance to the above mentioned requirements during its October 2015 visit. See Section 7.3 for a more detailed recommendation.

6.5.3 Recommendations

National content

1. For future visits, provide the IESC with the National Content reports submitted by contractors and reviewed by Contract Owners. The reports should show the (i) total number of staff of each contractor and for National Content, the headcount, gender, origins (the priority areas and locals should be separated by "upstream" and "downstream), and work fields and (ii) trainings given by gender, origins, and work fields. This follows the requirements set out in the National Content Exhibit.
2. The National Content presentation to the IESC for direct hires should give totals by the categories listed above for workforce and for trainings, highlight any issues related to achievement of National Content goals, and Project responses to issues.

ESMP Rollout

1. Provide the IESC with the results of monitoring for compliance to IFC PS2 and the Labour and Working Conditions Management Plan, highlight any compliance issues and/or material non-compliances, and Project responses to issues. See Section 7.3 for a more detailed recommendation.

6.6 COMMUNITY SUPPORT STRATEGY

6.6.1 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) during construction, currently under 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.

6.6.2 Observations

CDS has made excellent progress toward addressing IESC February 2015 recommendations for improving the initial five year CDS program by:

- Developing an execution plan (sequential flowchart) for the planning process to facilitate sequencing of each task and to inform decisions on additional staffing;
- Augmenting the evaluation procedure with reporting guidelines and measureable indicators; and
- Including monitoring and evaluation (M&E) requirements contracts for contractors and defining and assigning Project contract management responsibilities.

6.6.2.1 Execution Planning

CDS, in collaboration with project and non-project "partners," has developed a program design for the next five years defining goals and business drivers, strategic themes, program level output and to some extent outcome indicators, program components, and individual projects within each program component. The IESC notes that the program design flowchart can be considered the CDS initial five year strategy.

CDS also have developed fairly detailed execution plans for planning and implementation of the five year program both upstream and LNG plant site areas. This flowchart forms the basis for preparation of the detailed execution plan for each Terms of Reference.

6.6.2.2 Evaluation Procedure

An evaluation procedure is well advanced. Appropriate *measurable indicators of outcomes* have been identified for the two programs that will start soon (agricultural livelihoods and the Plant Site School Board Management Training Project as part of education capacity building). *Outcome* indicators at the program level have yet to be identified. These indicators should include the measurement method to be used to determine whether the objective of each program is being achieved.

CDS has proposed that *Project level evaluation* be done annually based on start date by the implementing contractor and reviewed by CDS. The IESC supports this approach. *Component level evaluations* are proposed to be done by an independent entity. The IESC supports this approach and recommends that program evaluation be done every three years to determine if the program goals are being achieved and to allow sufficient time to implement any necessary corrective actions.

Review of the CDS program as a whole is proposed to be done at the end of the five year period. The IESC suggests this date be moved up to the end of four years to allow use of results and lessons learned for the longer term CDS planning.

The CDSMP contains a requirement for an "independent third party audit of processes and outcomes three years after production commences." The IESC suggests that the independent program level evaluation is more useful than an audit to understanding outcomes. CDS should determine, however, whether a *process* audit is required by ExxonMobil.

6.6.2.3 Third Party Contractor Management

Contract management responsibilities have been assigned for the initial projects and requirements and reporting formats are clearly set out in the contracts and Scopes of Work agreed with contractors.

Two CDS Officers in Port Moresby are responsible for monitoring and evaluation, managing contracts, and coordination. Team members are responsible for projects in particular geographic areas.

6.6.2.4 Initial Projects

Livelihoods - Agricultural Projects

The Project has signed a contract with ANUe to implement the Phase 2 agriculture livelihood project (ALP) in the plant site affected areas and the contract with ANUe for the upstream community livelihood

improvement project (CLIP) is expected to be signed in mid-June. The SOW for the Plant Site project is comprehensive and well done. The project builds on the very positive outcomes of the Phase 1 project in terms of diversification of diets and income generation. The Phase 2 project adds 200 persons to the Phase 1 group of 389 persons at the plant site. In the upstream area, ANUe is expanding potential by helping the 10 upstream women's groups to continue and increase interactions with similar women's groups across the country.

Education - Capacity Building

The Project has signed a contract with Esmie Sinapa Development Consultants and Services for a school board of Management Training project for the five Plant site school boards. A similar project will be implemented with eight schools in the upstream affected areas. The objective of this project is to increase school participation and educational quality through developing a sense of shared responsibility and interest in developing Project Area schools. Focus will be on:

- Engaging stakeholders to contribute to development of a Board manual;
- Identifying roles and responsibilities and formalizing them in a MOU;
- Incorporation of a board member training program into the Government Training program; and
- Including Board training in the Education Department's bi-annual "Whole School Quality Assessment" system and organize monitoring feedback to EMPNG.

6.6.3 Recommendations

1. Identify program level outcome indicators and the measurement method to be used to determine if the objective of each program is being achieved.
2. Conduct program evaluations every three years to determine if goals are being achieved and the need for any corrective measures.
3. Conduct external evaluation of the five year initial phase of the CDS program as a whole at the end of four (rather than five) years to allow use of results and lessons learned for the longer term CDS planning.
4. Determine whether a *process* audit is required by ExxonMobil.

6.7 STAKEHOLDER ENGAGEMENT AND CONSULTATION

6.7.1 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.

6.7.2 Observations

The Project continues to engage widely with communities. In 2015 to date, the Project conducted 2,417 engagements involving 134 communities in the project impact area (11,713 attendees). The main issues discussed with upstream communities continue to be land, compensation payment, livelihoods, pipeline safety, and schools. Plant area community discussions have focused mainly on agricultural improvements, small business development, and schools, as well as water hazards.

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

6.7.3 Recommendations

None arising from this review.

6.8 COMMUNITY GRIEVANCE MANAGEMENT

6.8.1 Project Strategy

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

6.8.2 Observations

Grievances registered in 2015 (through April) total 27. Most of these grievances are related to various kinds of community development support requests or project employment, displaced households wanting more livelihood assistance, and access to water. The annualized grievance closure rate for the last 12 months is 81% (above the target of 75%). The rate was higher than 75% for most months, but rates for May and September 2014 and March 2015 fell well below 75% as a result of grievances that required input from a number of entities and sometimes protracted negotiations. One group grievance, for example, concerned delayed deprivation payments for an access road because one of the clan agents on the complaint relocated, thus all the individual agreements had to be changed to reflect the replacement clan agent.

The number of issues registered in 2015 to date is 1,284. Most issues concern requests for community development or employment, queries on land deprivation payments and compensation, pipeline safety, and the clan vetting process for royalty payments. A large number of "issues" registered are actually positive comments regarding the good quality of community engagement and the impact of the Project on improving community health and safety.

6.8.3 Recommendations

None arising from this review.

6.9 STATE CLAN BENEFITS INTERFACE -UPDATE

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

6.9.2 Observations on Status

The Project recognizes that the delays in finalization of the payment process caused by lack of Government funding and other distractions is a risk to the Project and, in the opinion of the IESC, is actively pursuing avenues to expedite the process. The Project continues to pay into the Royalty Trust Account established by DPE and the PNG Department of Finance to ensure that royalty income is kept separate from other funds.

The status of activities is as follows:

- Phase 1 (clan vetting) completed resulting in approximately 1,200 clans vetted by a Ministerial Determination;
- Phase 2 for the Plant site (PPFL 2 and Kido PL4 Seg 8) has been completed, and Ministerial Determination is pending; and
- The Government has endorsed the Execution Plans and budget for upstream Phase 2 activities.

In addition to on-going factors delaying royalty payments, a number of cases have been filed in courts claiming that the clan vetting exercise was flawed and, thus, invalid. These claims have been rolled into one, and the judge ruling on the case has called for a mediation process that would replace the whole clan vetting results. Mediation would be lengthy and expensive and, in the opinion of the Project, is unlikely to be useful or fair.

The Project, though not a party in the case, is working in various ways to get the process back on track by assisting the DPE field team with logistics and technical support, developing Company understanding of the legislative framework and delivery mechanisms, and providing training and awareness for key internal stakeholders. The Project assisted DPE to prepare for a May workshop and is supporting the State to limit the mediation process to specific disputes applying in the areas where the claimants reside, rather than re-opening the whole process.

7 LABOR AND HUMAN RESOURCES

7.1 INTRODUCTION

The IESC consulted with a variety of people and groups during its May 2015 visit. Activities included presentations by relevant project departments (in POM and at HGCP) and informal discussions with a variety of persons working at and residing in the HGCP camp.

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 National Content – Direct Hires

A main objective of the Project's National Content strategy is to replace expatriate staff with PNG citizens through both targeted recruitment and training and development. At present, the Project employs 323 PNG citizens of which 239 are male and 83 are female. Available statistics on origins of direct hires list 133 as national (outside project affected area) and 22 are local (within project affected areas). Given the skills needed, most PNG staff were hired from Port Morseby, though family origins vary and some are originally from the highlands. The IESC looks forward to more detailed statistics on national content.

In terms of workforce development, the Project is providing skill area training, with 360 trainings to date for 266 of the PNG employees. Training methods include on-line courses (78 female and 110 male employees), instructor provided training (51 female and male), and management procedure training (10 female and 30 male). Training aimed at replacing expatriates in management/supervisor positions with PNG citizens began in 2010 and is expected to be accomplished by 2020, though some very senior replacements may take longer. The first intake involved 59 PNG trainees, the second intake began in 2011 for 75 PNG trainees, and the third intake began in 2015 and will go to 2020. PNG trainees from intake 1 are expected to begin displacing expatriates toward the end of this year. In addition to skills training, experienced mentor/s and supervisors have been maintained to ensure appropriate mentoring and coaching for the later intakes.

7.2.2 Labor and Working Conditions

The Labour and Working Conditions Management Plan guides recruitment and hiring practices and other labor and working conditions requirements. Human Resources is responsible to ensure that the Management Plan and other relevant policies and procedures are followed. These include ExxonMobil policies and guidelines covering ethics, equal opportunity, harassment, Open Door communication, and safety and global diversity, national content, and total remuneration. Exhibit M1 sets out the human rights requirements for Minority Groups (applied in PNG). The requirements of IFC PS2 are all addressed in these plans and other policies and guidelines, including working conditions, terms of employment, non-discrimination and equal opportunity, grievance process, child and forced labor, supply chain worker communication, conflict management, pay processes, supervision, cultural diversity, and industrial handling procedures.

The information provided to the IESC clearly outlines the Project's and ExxonMobil's requirements, but with the exception of issues and grievances and grievance management, additional information will be

needed to confirm compliance to PS2 and international standards and PNG labor law. The IESC requests that future information on labor and working conditions for direct and contract provided project labor and other main contractor labor use Table 4.1 of the Labour and Workforce Production Management Plan as the basis for providing information on conformance with IFC PS2, PNG law, and Project/ExxonMobil requirements. An example of the information needed is given below.

Table 7.1: Example of Labor and Workforce Information to be Provided to the IESC

Labor Item	Monitoring Method & Frequency	Information for IESC
Recruitment and selection and contracting	Assessment – Quarterly	Results of assessment
Child Labor	Verification – Biannual	Results of verification
Wages, salaries, and benefits for PNG citizens (equal pay in contracts, pay increases, etc.))	Verification – Quarterly	Results of verification
Grievances	Assessment - Monthly	Results of assessment(s) by month and cumulative, and grievances by number, type, location; sample of grievances from PNG staff; resolution of grievances.
Management of conflict	Assessment - Monthly	Results of assessment, and type of conflicts, locations, resolutions
Cultural diversity training	Verification - Monthly	Results of assessment
Worker engagement	Assessment - Monthly	Results of assessment, and type and frequency of main engagements, and results of engagements

7.2.3 Labor Grievances

Grievances related to labor and working conditions and accommodation are managed through a Procedure and the Open Door communication policy. The latter approach focuses on providing easy access to supervisors or line management as the first recourse. The information given to the IESC indicates that grievances are not tracked centrally. The IESC would like information on whether grievance assessments that are provided to project senior management note frequent, persistent and unresolved grievances.

Additional support measures to ensure that employees can easily submit issues or complaints to management include availability of complaint/concern forms and places to deposit them, annual *haus bungs*, HR Forums to express issues and concerns at the LNG Plant and HGCP workplaces and accommodation, and reviews of and responses to frequent concerns by the Employee Development Committee. The Committee issues formal decisions on requests and concerns; for example, in December 2014, the Committee approved several requests from the Employee Forum on point of rotation, stopover in Port Morseby, transportation while in Port Morseby, and remote area work allowances.

7.2.4 Workforce Accommodation

The following observations are made based on presentations from HGCP and PNGLNG and IESC experience at staying in and conducting informal discussions with HGCP residents:

- Camp residents are happy with the accommodation;
- There is a growing sense of community in the camps, e.g., high levels of participation in activities, number activity level of voluntary committees (social, sports, other activities);
- Services are well monitored - for example, inspections and issues meetings, reports on KPIs, MOH and Project health/hygiene inspections, IMM monthly meetings on concerns and performance;
- Site inductions and daily tool box meetings provide good coverage of health, safety, security, and special topics (e.g., conflict, violence against women);

- Room allocation is fair (based on seniority) and transparent, and residents accept that this is the correct criterion;
- Accommodation is considered comfortable, the food more than adequate and reasonably nutritious, and recreational, exercise, and sports facilities are good; and
- Improved security has been provided for female accommodation, separate female accommodation is available at the PNG LNG camp, and security services are provided by both male and female officers at both camps.

Camp grievance mechanism

The camp grievance mechanism is covered in the Labor Management Plan and Procedure, and utilizes the same type of Open Door Communication approach as its first level of recourse. The camp offices open early and close late at HGCP and are open 24 hours/day at the LNG camp. Inductions and tool boxes clearly explain the complaint and concern process and information is also shared via a newsletter, emails, and notices. HGCP has formed a camp committee that greatly strengthens communications both between residents and between residents and camp management. A similar committee is being formed at the PNG plant camp. Additionally, a newsletter and email notices contains camp information and comment cards are easily accessible with forms placed in rooms and responses made rapidly.

As a result of these measures, as well as accommodation improvements, the records of camp related grievances, issues, and concerns show minimal complaints. Management responds quickly to issues raised. Many of the comments submitted highlight the positive aspects of the camps, particularly in areas such as performance of camp personnel, housekeeping and laundry, recreational facilities, and food service.

7.2.5 Gender in the Workforce

The Project has made considerable effort to recruit and train PNG females. Recruitment is enhanced by the application of internationally recognized labor and accommodation standards, as well as by special attention to the needs of women in the workplace and in accommodation (mentioned above). The IESC earlier made a recommendation that the Project should retain the practice of providing female "confidants" for female workers. The Project is now providing a Workplace Assistance Program with at least one female counselor. The Service provides counseling and referral services for emotional and interpersonal issues, including marital conflict and gender violence, both of which were issues during construction. The IESC looks forward to conferring with the counselors during the October visit.

7.3 RECOMMENDATIONS

1. *National Content*: Provide to the IESC for future visits more detailed statistics on national content status, including:
   - Total number of employees in each category by expatriate and PNG citizens,
   - PNG employees by job category,
   - Origins of PNG employees (downstream project affected area, upstream project affected area, PNG non-affected areas),
   - Percentage of PNG employees participating in training,
   - Origins of PNG staff participating in training.
2. *Labor and workplace standards*: Provide the IESC with information on compliance to the Management Plan, IFC PS2, PNG law, and Project/ExxonMobil requirements against the information provided in Table 4.1 of the Management Plan. Table 7.1 (above) identifies the critical information needed.
3. *Labor and Workplace Grievances:* The IESC would like information on whether the grievance assessments provided to senior management note frequent, persistent and unsolved grievances.
4. *Gender in the Workplace*: The IESC looks forward to conferring with the counselors (including the female counselor) during the October 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

EMPNG Production safety performance through Q1 2015 continues to be excellent. Production has not had a Lost Time Incident (LTI) since taking over from the construction team with a total of 8,950,445 man-hours worked as of the end of Q1 2015. At the end of Q1 2015, the average monthly Total Recordable Incident Rate (TRIR) since the start of Production through Q1 2015 is 0.36. The number of Observations and Interventions (O&Is) continues to be about 10,000 per Quarter. Near Miss incidents reported have remained at a more or less constant level since 3Q14) and the number of hazards reported has more than doubled since 3Q14. The number of hazards and near misses reflect changes in process to find them – e.g., hazard hunts. Both the leading and lagging indicators demonstrate that the EMPNG worker safety program is functional and effective.

8.1.2.2 Worker Health

From the standpoint of occupational health, the Project has a well-developed program as indicated by key performance indicators (leading indicators) and management of illness cases (lagging indicators). KPIs for these indicators show that there is always room for improvement, again with respect to the maintenance of MSDS in hazmat areas, incomplete follow-up of significant health recommendations, and medical surveillance exams are behind schedule. During Q1 2015 there were eight cases of serious vector borne diseases, which reflect mainly the disease burden outside-the-fence. None of these diseases, which included three cases of dengue and one of active tuberculosis, were apparently contracted within the workplace, but rather in local communities or Port Moresby. Medical services continue to improve, with upgrades to trauma equipment, improvements to the infectious disease laboratory diagnostic capabilities, successfully moving the Lawes Road Occupational Health Clinic laboratory to the LNG plant, and introducing an occupational examination program. Industrial hygiene procedures also continue to improve with an ongoing baseline exposure assessment strategy and monitoring program, providing assistance with the implementation of exposure control programs (noise, benzene, respiratory protection) and continuing to mentor and train Production staff. With respect to environmental health, a water, food, and camp hygiene sanitation program is fully implemented; key roles in health program delivery functions (e.g., food/water services) are being evaluated; and the environmental health program is now fully integrated as part of site

medical teams. The worker health program continues to be closely linked to the community health program.

8.1.3 Recommendations

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

8.2 COMMUNITY HEALTH

8.2.1 Observations

The Production Community Health Program (CHP) plans to continue the relationship established with the PNG Institute of Medical Research (IMR) and work collaboratively to better understand the disease burden of PNG and also how it can impact inside-the-fence health. Ongoing initiatives of the Medicine and Occupational Health (MOH) group include supporting IMR via continuation of a grant for the Integrated Health and Demographic Survey System (iHDSS) core monitoring/surveillance and completion of health studies; supporting communication of iHDSS and Health Study findings with external stakeholders; and facilitating IMR in making presentations at the Millennium Development Goals Conference in POM (March 2015) and in association with World TB Day in Hiri Villages near the LNG plant.

During 1Q 2015, PNG IMR submitted for review the March 2015 edition of the Bi-annual Scientific Report and final Health Study reports for tuberculosis, Healthy Pregnancy (STI's), Non-Communicable Disease (NCD's), and Maternal and Newborn Health. Reviewing this report is part of the upcoming work of the MOH, but the results of the information presented in this report and iHDSS data are that one of the goals of the MOH group needs to be providing support to disseminate this information to a wider audience. Some of the main findings, including that TB is at epidemic levels in some areas and that the TB is evolving to be drug-resistant, is information that requires action.

8.2.2 Recommendations

None arising from this review.

APPENDIX A

IESC 14TH MONITORING VISIT – TRIP SUMMARY

TRIP SUMMARY

May 17:

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

May 18:

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

May 19:

IESC Environmental Team - Port Moresby – travel to Komo and visiting Komo and then flying a special flight to obtain good photographs of Angore A well drilling and continuing along the RoW to Moro and visiting Lake Kutubu; spend night in Moro Camp B; IESC Social Representative –travels to Komo and has meetings on labor and working conditions with a review of the camp in the afternoon and spends night at HGCP Camp.

May 20:

IESC Environmental – drives from Moro to Kopi Shore Base and reviews RoW access controls and reinstatement of pipeline; overnights at OSL Camp at Kopi Shore Base; IESC Social – visit to a women's group followed by meetings at HGCP to review resettlement and livelihood restoration/standard of living topics, as well as meet with the Resettlement Auditor; overnight at Hides Camp.

May 21:

IESC Environmental – tour area of Kopi Scraper Station; scheduled helicopter flyover delayed, so group drives to Kikori Bridge and picks up helicopter there and then flies to the Omati Delta and then back to HGCP with a stop to look at access controls on Benaria Ridge and also flying Hides Ridge; IESC Social – travel to POM and travels to LNG plant to review labor and working conditions and camps; overnight in POM.

May 22:

IESC Environmental Team – visit Angore Wellpad A; tour Hides Ridge from ground and finish the day with a tour of erosion and sediment control issues around the HGCP; overnight at HGCP; IESC Social – Attends Community Develoment Support meetings in POM; overnight in POM.

May 23:

IESC Environmental Team – flies to POM and then travels to LNG plant with tour of mangrove reinstatement area and landfill; overnight at POM; IESC Social –preparation for Closeout meeting at hotel; overnight at POM.

May 24:

IESC Environmental Team – meetings regarding Biodiversity. Miscellaneous communication with EMPNG staff and preparation for Closeout meeting at hotel in POM.

May 25:

IESC Environmental Team – morning meeting with senior management regarding Government requests for Project infrastructure; Biodiversity specialist meeting with WCS representative. Other IESC Team members visit Port Moresby Nature Park. Otherwise miscellaneous communication with EMPNG staff by entire team and preparation for Closeout meeting at hotel in POM.

May 26:

Closeout meeting in morning;

IESC team departure.