

ExxonMobil



# PNG LNG Environmental and Social Report – Second Half 2015

*Energy for the World. Opportunity for Papua New Guinea.  
Eneji Bilong Wol. Luksave Bilong Papua Niugini.*



## About this Report

This Papua New Guinea Liquefied Natural Gas (PNG LNG) Environmental and Social Report – Second Half 2015 provides information about ExxonMobil PNG Limited’s safety, health, environment and social management progress during production.

It forms part of the PNG LNG Project’s commitment to ensuring the Government and citizens of Papua New Guinea, interested non-government organisations and other stakeholders are kept well informed of production activities.

This Report is available on the PNG LNG Project website, [www.pnglng.com](http://www.pnglng.com). Printed copies are also available.

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PNG LNG is operated by a subsidiary of ExxonMobil in co-venture with:



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# Executive summary



“EMPNG continues to improve efficiencies and meet our delivery targets thanks to the efforts of our workers and the support of the government and communities.”

Andrew Barry, Managing Director, ExxonMobil PNG Limited

During the second half of 2015, ExxonMobil PNG Limited (EMPNG) safely loaded and delivered its 150th LNG cargo since the start of production. By the end of December, 156 cargoes had been delivered to customers in Asia, with 52 cargoes transported in the second half of 2015 alone.

EMPNG, a subsidiary of Exxon Mobil Corporation, manages the production of the Papua New Guinea Liquefied Natural Gas (PNG LNG) Project on behalf of co-venture partners: Oil Search Limited, Kumul Petroleum Holdings Limited, Santos Limited, JX Nippon Oil and Gas Exploration Corporation, Mineral Resources Development Company Limited and Petromin PNG Holdings Limited, and their affiliates.

This PNG LNG Environmental and Social Report – Second Half 2015 provides a progress update on production activities from 1 July to 31 December 2015.

The next Environmental and Social Report will cover activities for the full year of 2016.

## Production

Since the start of production, EMPNG has safely produced more than 11 million tonnes of LNG. This includes more than 3.7 million tonnes produced in the second half of 2015.

Since start-up EMPNG has been focusing on safely increasing the efficiency of its operations to enhance the production rate of the Hides Gas Conditioning Plant (HGCP) and the LNG Plant.

Construction of the Permanent Facilities Compound was completed in July and EMPNG management, technical, functional support and administration teams moved into the facility in August. A *haus bung*, meaning ‘gathering’, was held to welcome workers to their new offices. Families of EMPNG workers were invited to visit the offices in September.

At the end of December, all drilling operations at Angore were completed and demobilisation of the drilling rig began.

## Safety, health and security

EMPNG has completed another year without a Lost Time Incident, continuing its record of zero Lost Time Incidents since production began.

While all teams worked to achieve ExxonMobil’s aim of ‘*Nobody Gets Hurt*’, the company’s production teams achieved 150 days without a recordable injury, while the Drilling organisation completed the year with only one recordable event.

**156**  
LNG cargoes  
loaded

More than 100 people from 20 EMPNG contractor companies attended the second Contractor Safety, Security, Health and Environment Leadership workshop of 2015 in Port Moresby in November. The workshop theme of 'Life Saving Actions' focused on the expectations that supervisors and managers must enforce to ensure high risk hazards are managed during safety-critical activities. Several contractors shared their safety experiences and appreciation of how much they had learned from EMPNG.

In October, the Lender Group's Independent Environmental and Social Consultant reported that EMPNG's occupational health program continued to maintain best practice as a result of monthly occupational health program performance reviews.

A container with more than 700 medical supply items was delivered to Tari Hospital during October as part of a joint initiative between EMPNG, the PNG Tribal Foundation and Project C.U.R.E. The medical supplies included general surgery packs, obstetric supplies, biopsy needles, laboratory supplies, microscopes and nebulisers.



Handover of medical supplies with (from left): Sisa Kini, EMPNG Community Development Support Manager; William Bando, Hela Provincial Administrator; Lynda Babao O'Neill, First Lady of Papua New Guinea; Dr Douglas Jackson, President of Project C.U.R.E.; and Dr Hamiya Hewali, Tari Hospital Chief Executive Officer

The donation to Tari Hospital is the culmination of more than a year's work, which began in Denver, USA, when Papua New Guinea's First Lady, Lynda Babao O'Neill, spoke at Project C.U.R.E.'s First Ladies Luncheon. Her speech resulted in PGK4 million (USD\$1.3 million) being raised for medical equipment and supplies for Papua New Guinea. Another four containers of medical supplies will be delivered to Daru, Mendi, Lae and Kikori hospitals.

Margaret Maipa Yagas from Morobe Province was named the recipient of an EMPNG-funded

Baylor College of Medicine International Pediatric AIDS Initiative scholarship in the second half of 2015. The scholarship is funding Margaret's studies toward a Masters in Public Health at the University of Texas School of Public Health in Houston, USA.



Margaret Maipa Yagas accepting her scholarship award from EMPNG's Deputy Production Manager, Dale Pittman

Also during the second half, Mildred Nigi, from the National Capital District, became the first Papua New Guinean citizen promoted to a security leadership position. EMPNG continues to appoint Papua New Guinean citizens to security roles, and is working with communities to reduce security risks in EMPNG work areas.

## Environment

EMPNG's biodiversity offset activities during the second half were focused on biodiversity offset program Component 4: Enhance existing protected area(s), and Component 5: Establish new protected area(s).

Component 4 aims to enhance the Lake Kutubu Wildlife Management Area (WMA), located within the Upstream area. During the second half, two community-based workshops were held to develop a conceptual enhancement plan for the Lake Kutubu WMA and identify roles, responsibilities and training needs for the Lake Kutubu WMA Committee. Outcomes of these workshops included the formation of working groups within the Lake Kutubu WMA Committee and plans to further progress the conceptual enhancement plan in 2016.

EMPNG also progressed Component 5, which aims to create new community-based protected areas in the Upstream area that are representative of the biodiversity values affected by the PNG LNG Project.

In the second half of 2015, work to progress this component included engagements with five villages in the Kikori delta.

**700**  
Medical supply  
items donated

EMPNG representatives and Village Liaison Officers spent 10 days in the Kikori delta engaging with communities to communicate the offset program, develop profiles for each of the villages and conduct an analysis to structure work programs relevant to village communities.



Goare villagers farewell EMPNG biodiversity representatives

EMPNG's ongoing commitment to preserving biodiversity has helped uncover some new plant and animal species that were previously unidentified in Papua New Guinea.

For example, during monitoring for the pig-nosed turtle (*Carettochelys insculpta*) conservation project – the *Piku* Project – which EMPNG supports, University of Canberra researchers discovered a new freshwater turtle species that is genetically related to the northern snapping turtle (*Elseya dentate*).

The newly discovered species, called *Elseya rhodini*, forms part of the Chelidae family of side-neck turtles that are restricted to the continents of South America and Australia, including the islands of New Guinea, Timor and Roti.

EMPNG's independent weed auditor conducted its eighth annual weed audit in November. The audit found that weed species diversity and total abundance were below pre-construction levels across all priority classifications.

An action plan developed during the first half of 2015 has resulted in an improvement in discharge water quality from wastewater treatment plants across the Upstream area. The plan included the replacement of wastewater treatment plants at three locations, and equipment and operational changes made at another three sites. Wastewater treatment plant operators also participated in a competency verification and training program.

EMPNG and its contractors conducted 28 spill response drills at worksites in the second half. The Drilling organisation conducted 18 of these,

while three were held in the Upstream area and another seven at the LNG Plant. Since the start of 2015, EMPNG has conducted more than 80 emergency response drills to ensure workers are appropriately trained and prepared for potential emergency situations.

## Workforce development

EMPNG's workforce, including company employees and contractors, was more than 2400 at the end of December. Almost 1900 of these were Papua New Guinean citizens, comprising 79 percent of the workforce. Women represent 25 percent of the workforce.

Third party contractors represent 68 percent of the production workforce. Nearly 89 percent of contract workers are Papua New Guinean.

In the second half of 2015, more than 43,300 hours of training were delivered through over 1300 courses.

Approximately three-quarters of EMPNG employees and contractors trained were Papua New Guinean citizens and of these, 34 percent were women.

In August, more than 20 representatives from 11 of EMPNG's third party contractors attended an environmental and social management training workshop conducted in Port Moresby. The workshop provided detailed training for contractors about their environmental and social responsibilities with regard to conformance with the Production Environmental and Social Management Plan.

Cultural awareness training continues to be provided to all workers during site inductions. In the second half, cultural awareness was highlighted in 222 site inductions. Supervisors receive specialised cultural awareness training. Throughout 2015, the LNG Plant and HGCP hosted 12 supervisor cultural awareness training sessions.

The third intake of 40 Operations and Maintenance trainees, including 12 women, completed nine months of Basic Skills training in December. A trade selection day was held in October to help the trainees select their career paths from the operations, electrical, mechanical and instrumentation disciplines. The trainees also participated in personal excellence training as part of their foundation coursework.

EMPNG Managing Director, Andrew Barry, congratulated the trainees on completion of their Basic Skills training at a celebration dinner held in late December.

**79%**  
of the production  
workforce is  
Papua New  
Guinean

The trainees are undertaking eight months of Advanced Skills training in their chosen specialist areas from January 2016.

EMPNG has also established a skills development program for electrical technicians, in partnership with the Don Bosco Technical Institute in Port Moresby. The four-week program includes topics such as safe practices when working in an electrical environment, installation and testing of equipment, electrical fittings, and testing and inspection requirements. In October, seven electrical technicians became the first group to complete the new training program. The program has helped prepare these technicians for their Papua New Guinean electrical license exam.



The Enterprise Centre team at Institute of Banking and Business Management office and training centre located in Port Moresby

## Supporting Papua New Guinean businesses

Six landowner companies (Lancos) and 200 non-Lanco Papua New Guinean businesses provide production-related services for EMPNG.

Lanco services include labour hire, maintenance, transportation, fuel distribution, container freighting and vegetable supplies. Non-Lanco Papua New Guinean businesses provide security, freight and logistics, transportation of personnel, food supply, customs clearance, surveying, maintenance supplies, medical services and construction material testing.

EMPNG's total in-country spend on third party services in the second half of 2015 was more than PGK183 million (USD\$61 million). Of this, more than PGK60 million (USD\$20 million) was spent on Lanco services.

Since the start of production, EMPNG has spent PGK848 million (USD\$282 million) on Papua New Guinean services. Of this, more than PGK363 million (USD\$120 million) was spent with Lancos.

Through the ongoing support of EMPNG and other organisations, the Enterprise Centre achieved over 3700 days of training during the second half of 2015. By the end of December, the Centre had delivered more than 8100 days of training for the year, well beyond its 6400 annual target.

During the second half, the Centre conducted 17 business assessments, including one Lanco. All of these were sponsored by EMPNG as part of the company's commitment to developing local businesses. Since its establishment in 2010, the Enterprise Centre has completed 395 business assessments. It has also delivered close to 20,300 training days and 1200 advisory and mentoring days to Papua New Guinean businesses.

## Social development

EMPNG works with partners to deliver social development programs at both the local and national level. The company held a 'Thank you' event in December to recognise the contribution of these partners during 2015.

EMPNG provided approximately USD\$3.37 million (PGK10.15 million) to more than 50 organisations for programs focused on health, education, the environment, livelihood and women's economic empowerment in 2015.

During severe drought conditions experienced in Papua New Guinea in the second half of 2015, EMPNG delivered more than 100 kilolitres of water to fill water tanks in 11 primary schools and three health clinics as part of drought relief efforts. In addition, EMPNG funded the supply of almost 40,000 kilograms of rice, in partnership with the Salvation Army, for distribution to drought-affected communities in the Western Province. The company also donated PGK68,500 (USD\$22,776) to the Uniting Church to assist their relief efforts in the Hela Province.

Throughout 2015, EMPNG has helped 187 households in LNG Plant site villages and 10 women's groups in the Upstream area by providing technical advice about planting drought resistant crops, as well as supplying planting materials and monitoring planting programs.

EMPNG provided a double classroom to Para Primary School and a new staff house for Baguale Primary School during the second half of 2015. Solar panels were also installed in two staff houses at Mananda Primary School, and new desks were delivered to the Mananda Flexible Open Distance Education Centre.

**PGK183m**  
spent in-country  
in the second  
half of 2015

As a result of ongoing EMPNG support, the Mananda Flexible Open Distance Education Centre is ready to take its first enrolments in 2016. In support of International Literacy Day on 8 September, EMPNG sponsored educational activities held at Buk Bilong Pikinini's 15 libraries throughout Papua New Guinea. The activities included reading sessions, poetry writing, drawing sessions and games.



Children playing games at the Buk Bilong Pikinini library at Koki as part of International Literacy Day activities

More than 950 students from LNG Plant site villages and Upstream area communities participated in ExxonMobil's Science Ambassador Program in 2015. Of these, 130 students experienced the program for the first time during the second half of the year.

The Science Ambassador Program gives students practical, hands on experience in science-related topics and includes science experiments, as well as information about careers in science, technology, engineering and mathematics.

EMPNG Operations Technical Manager, Jeff Ralston, has been appointed the inaugural Chairman of the Papua New Guinea University of Technology (Unitech) Industrial Advisory Board for Science and Engineering. The Board is working to improve Unitech's science and engineering programs so they can be accredited to international standards. As part of the company's support, EMPNG has donated PGK137,000 (USD\$45,553) for an External Examiners System that involves examiners comparing Unitech's standards and assessment processes with international universities.

EMPNG has also contributed PGK137,000 (USD\$45,553) to the Papua New Guinea Olympic Committee for its Olympic Values Education Program.

The Program aims to promote the role of sport in society and the Olympic values of respect, friendship and excellence. It includes the 'Love Your Coast PNG' program, which uses sporting heroes as role models to advocate proper waste management practices, such as reducing litter in public sports facilities and understanding the impact of plastic products on the marine environment.

Another PGK50,000 (USD\$16,625) donation was made to the PNG Women in Business Expo held from 2-12 July in Port Moresby. The Expo, attended by over 400 business owners, coincided with the XV Pacific Games and provided women in small business with the opportunity to display their products and services to visiting athletes and officials from participating island nations.

## Stakeholder and community engagement

EMPNG's community engagement activities focused on supporting women's groups in the Upstream area and providing support and crop planting advice to LNG Plant site communities.

During the second half, EMPNG conducted 460 formal community engagements in 68 communities and 3054 informal engagements in 80 communities. These engagements involved 14,626 attendees. In total, 1249 formal community engagements and 6224 informal engagements were conducted with more than 34,500 attendees during 2015.

EMPNG also hosted some 250 visitors to the LNG Plant site during the second half, bringing the total to approximately 350 for 2015. Among these were Papua New Guinea's First Lady, Lynda Babao O'Neill, and the Papua New Guinea Secretary for the Department of Community Development, Anna Solomon.

EMPNG Managing Director, Andrew Barry, said the company had an outstanding year in 2015 as a result of the hard work and support of EMPNG workers, the Papua New Guinean Government, co-venture partners, suppliers, contractors, landowners and communities in and around production areas.

"We welcome the opportunity to grow alongside the people of Papua New Guinea and help provide long-term benefits for this country," he said.

**34,500+**  
attendees at  
community  
engagements  
in 2015



# 1 Overview

This PNG LNG Environmental and Social Report – Second Half 2015 provides a progress update on production activities from 1 July to 31 December 2015.

ExxonMobil PNG Limited (EMPNG) operates the USD\$18.8 billion Papua New Guinea Liquefied Natural Gas (PNG LNG) Project gas production and processing facilities in the Southern Highlands, Hela, Western, Gulf and Central provinces of Papua New Guinea.

More than 800 kilometres of pipeline connect the facilities, which include a gas conditioning plant in Hides and liquefaction and storage facilities near Port Moresby. These facilities have the capacity to produce around 7.4 million tonnes of LNG per year, an increase of seven percent from the original design specification of 6.9 million tonnes of LNG per year. The location and elements of EMPNG's facilities are shown in Figure 1.1.

Some 250 billion cubic metres of gas are expected to be produced and sold during the life of the facilities. This will provide a long-term supply of LNG to Asia Pacific region customers, including: the China Petroleum and Chemical Corporation (Sinopec); The Tokyo Electric Power Company Inc.; Osaka Gas Company Limited; and CPC Corporation, Taiwan.

This Report, along with previous Environmental and Social Reports can be found on the PNG LNG Project website.

Visit the website at  
[www.pnglng.com](http://www.pnglng.com)



Printed copies and translated summaries are made available to Papua New Guinean citizens who may have limited access to the internet.

The next Environmental and Social Report will cover activities for the full year of 2016.

## 1.1 Production update

Since the start of production, EMPNG has safely produced more than 11 million tonnes of LNG and shipped 156 LNG cargoes to customers in Asia. This includes more than 3.7 million tonnes of LNG produced and 52 cargoes shipped during the second half of 2015.



Since start-up EMPNG has been focusing on safely increasing the efficiency of its operations to enhance the production rate of the Hides Gas Conditioning Plant (HGCP) and the LNG Plant.

### Hides Gas Conditioning Plant

The HGCP has maintained steady state operations and continues to meet supply requirements for the LNG Plant.

During the second half of 2015, pigging of the condensate pipeline was completed to remove sedimentation and ensure smooth operation of the line.

Condensate production remains steady.

Opposite:  
Plate 1.1 – Cable trays  
at the HGCP



Figure 1.1 - EMPNG facilities

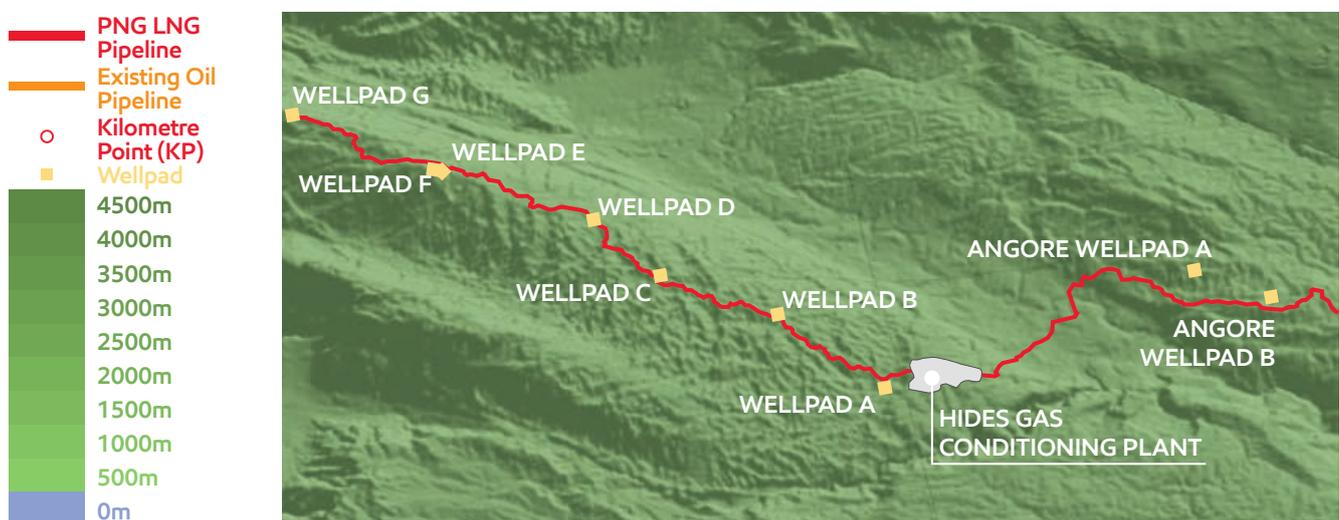






Plate 1.3 – Plant Technician, Priscillah Pora, working in the HGCP control room



Plate 1.5 – Mixed refrigerant and propane compressors on Train 1 at the LNG Plant

## Drilling

In July, Drilling Rig 702 completed drilling operations on the first well at Angore Wellpad A and subsequently commenced drilling of a second production well at Angore Wellpad A.

By the end of December, drilling operations at Angore were completed and demobilisation of the rig began.



Plate 1.4 – Drilling Rig 702 during drilling operations at Angore Wellpad A

## LNG Plant

Production at the LNG Plant remains steady. In September, a compressor servicing program was undertaken as part of normal maintenance procedures.

The LNG Plant continues to deliver power to the Port Moresby energy grid through an electrical substation at the site, which was developed as part of a Memorandum of Understanding signed with the Papua New Guinean Government earlier this year.

## Marine facilities

A milestone was achieved during the second half of 2015, with the 150th LNG cargo loaded for delivery to customers in Asia.

By the end of December, 156 cargoes had been delivered, with 52 cargoes transported in the second half of 2015 alone.

Sea trials have been completed on a second custom-built LNG vessel for EMPNG. The LNG carrier, to be named *Kumul*, is on schedule for delivery in April 2016. The first custom-built carrier, named the *Papua*, is currently in service along with two other dedicated EMPNG carriers, *Spirit of Hela* and *Gigira Laitebo*.



Plate 1.6 – Pilot craft *Coral* delivering the pilot to assist with an LNG tanker mooring at the LNG Plant Marine Terminal

## Permanent Facilities Compound

Construction of the Permanent Facilities Compound (PFC) was completed in July and EMPNG management, technical, functional support and administration teams moved into the facility in August (see *Case study: Environment core to head office design*).

A *haus bung*, meaning ‘gathering’, was held to welcome workers to their new offices. Families of EMPNG workers were invited to visit the offices in September.

# Case study

## Environment core to head office design

EMPNG's new head office has been designed to reduce impact on the natural environment and maximise energy efficiency.

Designed and constructed in accordance with the USA Green Building Council's Leadership in Energy and Environmental Design rating, EMPNG's head office building footprint was planned to reduce impact on the site and its surroundings.

The building incorporates environmental technology such as solar panels, motion sensors and timers for lighting, energy efficient windows and shades and an on-site wastewater treatment plant. Treated water from the plant can be used to irrigate gardens, consisting of native vegetation selected for their minimal water needs, and a sports field for workers.

The building also includes insulated walls and airtight glazing to reduce the need for indoor air-cooling. Additionally, it has an air-cooling system that uses energy wheels to transfer hot air out and cool air into the building. Further energy savings have been achieved by installing variable speed drives in air conditioning units and on water pumps used for drinking water.

Workers are strongly encouraged to support the environmental initiatives of their new office and to find ways to reduce waste at work and at home.

"Staff have embraced the new office facilities and have shown their support for the environmental initiatives," said Facilities Manager, Louise Jellard.

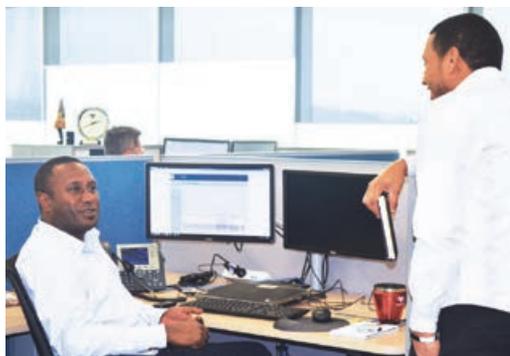
"Monitoring waste, using recycling bins, eliminating littering and being conscious of paper use will take us another step in the right direction," she said.

EMPNG Managing Director, Andrew Barry, said the environmentally conscious design and construction of the PFC was an example of EMPNG's long-term commitment to Papua New Guinea.

"This is just one of many ways in which EMPNG is showing our commitment to sustainable development principles in Papua New Guinea," he said.



The head office building has been designed to maximise energy efficiency



Government Relations Advisor, Tau Morove, with Community Affairs Officer, David Rovi at the new offices



Workers at the new offices have adopted office-based environmental initiatives



Phil Harney

Insect shield

# 2 Environmental and social framework

EMPNG operates in accordance with requirements of the Production ESMP to protect the wellbeing of its workers, local communities and the environment surrounding production facilities.

## 2.1 Approach

EMPNG's Production Environmental and Social Management Plan (ESMP) applies lessons learned from the construction phase, as well as ExxonMobil Operations Integrity Management System requirements and the International Finance Corporation Performance Standards.

The ESMP consists of two Environmental Management Plans and seven Social Management Plans, as shown in Figure 2.1. The Environmental Management Plans align geographically to production facilities. The Social Management Plans are based on key social themes.

The ESMP's requirements, and those of its supporting management plans, apply throughout normal operating conditions and in reasonably foreseeable abnormal operating conditions or emergency situations. The ESMP is published on the PNG LNG Project website.

Visit the website at [www.pnglng.com](http://www.pnglng.com)



EMPNG will periodically update the ESMP, in collaboration with stakeholders, to meet ongoing operational needs and the needs of Papua New Guinea's environment.

## 2.2 Management of Change

EMPNG manages temporary or permanent modifications to facilities and changes to previously approved documents through its Management of Change process. This involves considering health, safety, security, environmental and social management, operability and maintenance, regulatory, cost and scheduling requirements before any proposed change can be made.

Changes are classified according to how they need to be managed. Class I changes require Lender Group review before implementation, while Class II changes involve Lender Group notification in the PNG LNG Environmental and Social Report.

No Class I or II changes were raised during the second half of 2015.

*Opposite:*  
Plate 2.1 – Operations Integrity Management System assessment team and site coordinators discussing environmental and social requirements for a small production project on the Hides Wellpad Access Road

Figure 2.1 - Production Environmental and Social Management Plan structure





# 3 Procurement and supply

Local suppliers are used for production-related activities where possible. The Enterprise Centre continues to help develop the capacity of Papua New Guinean businesses.

## 3.1 Supplier development

Six landowner companies (Lancos) and 200 non-Lanco Papua New Guinean businesses provide production-related services for EMPNG. Lanco services include labour hire, maintenance, transportation, fuel distribution, container freighting and vegetable supplies. Non-Lanco Papua New Guinean businesses provide security, freight and logistics, transportation of personnel, food supply, customs clearance, surveying, maintenance supplies, medical services and construction material testing.

EMPNG's total in-country spend on third party services in the second half of 2015 was more than PGK183 million (USD\$61 million). Of this, more than PGK60 million (USD\$20 million) was spent on Lanco services.

Since the start of production, EMPNG has spent PGK848 million (USD\$282 million) on Papua New Guinean services, including more than PGK363 million (USD\$120 million) spent with Lancos.

## 3.2 Enterprise Centre

Through the ongoing support of EMPNG and other organisations, the Enterprise Centre completed over 3700 days of training during the second half of 2015. By the end of December, the Centre had delivered more than 8100 days of training for the year, well beyond its 6400 annual target.

EMPNG, along with eight Papua New Guinean Government departments and organisations such as UNICEF, OK Tedi Mining Limited and the Morobe Mining Joint Venture, engaged Enterprise Centre services in 2015.

Over 100 days of training were delivered to Lancos and businesses owned by women during the second half of 2015. For example, basic accounting and bookkeeping training was

provided to bakery and trade storeowners from the LNG Plant site villages in the second half. The Centre also delivered courses in project management, human resource management, communication skills, entrepreneurship training and information technology to Papua New Guinean businesses.

During the second half, the Centre conducted 17 business assessments, including one Lanco. All of these were sponsored by EMPNG as part of the company's commitment to developing local businesses. The Enterprise Centre's business assessments help suppliers to identify gaps in their business processes and enable the development of business improvement plans to strengthen their management and operational capabilities. Since its establishment in 2010, the Centre has completed 395 business assessments and delivered close to 20,300 training days and 1200 advisory and mentoring days to Papua New Guinean businesses.

More than 150 entrepreneurs were assisted through information workshops, the use of workstations and business meeting facilities in the second half of 2015. The Enterprise Centre has supported more than 17,850 Papua New Guinean entrepreneurs to date.

In November, the Centre hosted the biannual Small and Medium Enterprise Leadership Awards. This event recognises companies that have performed well during their business assessments. The 2014/15 Enterprise Centre Business Assessment Magazine, which showcases companies that have completed business assessments, was also launched at the awards.

By the end of December, 150 registrations were entered into the PNG Employment and Supplier Database. The Database is being used to connect job seekers with job opportunities, and businesses with business opportunities, from projects outside of the PNG LNG Project.

---

*Opposite:*  
Plate 3.1 – A Lanco representative participating in an Enterprise Centre training session



can

bilum

will

T-REX  
CROSSING!

SENSE

# 4 Communities

EMPNG is working with communities, non-government organisations and government agencies to deliver programs that are intended to build the capacity of local communities and community-based organisations.

## 4.1 Community investment

EMPNG aims to enhance economic empowerment in Papua New Guinea by supporting sustainable community development through implementation of the company's Community Development Support Management Plan and community investment programs. The Plan's focus areas are education, health, women's economic opportunities, environmental initiatives and agriculture. Activities are implemented as appropriate to their relevant geographical areas. These include:

- Local area programs such as planned activities conducted near production facilities
- National programs encompassing EMPNG's support for national initiatives and Port Moresby projects.

EMPNG works with partners to deliver social development programs at both the local and national level in: education; health; law and justice; and livelihood strategy development (such as agriculture, cultural promotion and the environment). The company held a 'Thank you' event in December to recognise the contribution of these partners during 2015. EMPNG provided approximately USD\$3.37 million (PGK10.15 million) to more than 50 organisations for programs focused on health, education, the environment, livelihood and women's economic empowerment in 2015.

### 4.1.1 Local area programs

EMPNG's local area programs support infrastructure and education initiatives in schools and local communities. They are designed to build sustainable capacity in communities surrounding production facilities.

At the end of 2015, nine schools in LNG Plant site villages and eight schools in the Upstream area were provided with gift vouchers and stationery to recognise high performing students during graduation ceremonies.

The awards were given to Grade 6, 7 and 8 students in the Upstream area and Grade 8, 10 and elementary students at schools in LNG Plant site villages.

### Upstream area

In August, EMPNG implemented a community livelihood improvement project to develop the capacity of community groups in the Upstream area. In 2015, the project focused on supporting local women's groups. In 2016, the project will support more women's groups and be introduced to schools. The project provides training on food and agriculture, poultry production, life skills and entrepreneurship. By the end of 2015, 10 women's groups had participated in 134 training sessions conducted with 2632 participants. The groups prepared land for planting crops in time for the start of the 2016 wet season. This project builds on the agriculture program introduced during the construction phase to support resettled households.

EMPNG provided a double classroom to Para Primary School and a new staff house for Baguale Primary School during the second half of 2015. Solar panels were also installed in two staff houses at Mananda Primary School and new desks were delivered to the Mananda Flexible Open Distance Education Centre.

As a result of ongoing EMPNG support, the Mananda Flexible Open Distance Education Centre is ready to take its first enrolments in 2016.

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*Opposite:*  
Plate 4.1 – Assistant Librarian, Helen George with EMPNG Community Investment Advisor, Valentina Kaman and local children at the Buk Bilong Pikinini library at Koki



Plate 4.2 – HGCP Superintendent, Martin Sagayaraj, at Para Primary School during handover of the new classroom



Plate 4.4 – EMPNG Upstream Production Pipeline Supervisor, Lary Adams, presents a cheque to James Irimaru, Chairman of the Kutubu Kundu and Digaso Festival



Plate 4.3 – Baguale Primary School students and teachers at the handover of the new staff house

The Festival aims to promote the preservation of cultural diversity and ecotourism in the Kutubu area through *sing-sings* (a 'gathering of tribes or villages where they showcase their distinct cultures), wildlife displays, arts and crafts.

Twenty-three *sing-sing* groups from Hela, Enga, Samberigi, Bosavi and Kikori participated in the Festival and more than 3000 visitors from the Hela, Southern Highlands and Gulf provinces attended the event. The Kutubu Kundu and Digaso Festival is a major annual cultural event hosted in the Upstream area, and is recognised by the National Cultural Commission.

EMPNG continues to support the community-led *Piku* or 'pig-nosed turtle (*Carettochelys insculpta*)' conservation project, with an additional USD\$100,000 (PGK300,752) provided in November. The *Piku* Project is a collaboration between EMPNG, the University of Canberra and the University of Papua New Guinea's Institute of Biological Research.

EMPNG has supported this project since 2012, with current funding used to support activities such as community outreach programs that raise awareness about the turtle, and monitoring to help understand how the turtle lives and the threats it faces in its environment. The *Piku* Project has a capacity building component to increase technical expertise in conservation science in Papua New Guinea, including a master's degree scholarship. The scholarship recipient, Yolarnie Amepou, has been stationed in Kikori since mid-2015 to help deliver the Project's conservation initiatives. Yolarnie received the environment award at the 2015 Pride of Papua New Guinea Awards for Women for her work in environmental protection.

The Centre supports youths to improve their high school results so they can qualify for tertiary education.

EMPNG has donated PGK50,000 (USD\$16,625) to the Institute of Business Studies School Debate competition, which will be held in Hela Province in 2016. The funding will assist with competition expenses, such as supporting the winning school to participate in the National Championships later in 2016. This support is enabling Tari Secondary School to participate in the competition for the first time.

Drought affected most areas in Papua New Guinea during the second half of 2015. EMPNG worked with local aid agencies to support drought relief efforts.

### Pipeline Right of Way

EMPNG contributed PGK29,000 (USD\$9643) to the Lake Kutubu Wildlife Management Area (WMA) Committee for the Kutubu Kundu and Digaso Festival, which was held in September. This year's theme was 'preserving our cultural heritage through saving our environment'.



## Supporting drought relief

During severe drought conditions experienced in Papua New Guinea in the second half of 2015, EMPNG delivered more than 100 kilolitres of water to fill water tanks in 11 primary schools and three health clinics as part of drought relief efforts.

In addition to supplying water to local communities, EMPNG funded the supply of almost 40,000 kilograms of rice, in partnership with the Salvation Army, for distribution to drought-affected communities in the Western Province. The company also donated PGK68,500 (USD\$22,776) to the Uniting Church to assist their relief efforts in the Hela Province.

In 2015, EMPNG helped 187 households throughout the LNG Plant site villages and 10 women's groups in the Upstream area by providing technical advice about planting drought resistant crops, as well as supplying planting materials and monitoring planting programs.

Communication materials, such as posters, were developed to inform communities about coping strategies and safe behaviours in times of drought.



EMPNG Managing Director, Andrew Barry, with Salvation Army and Uniting Church representatives Bob Haro and Captain Bernard Kila with containers of rice to be delivered to the Western Province

By the end of 2015, a team of local field assistants had been trained to monitor turtle nesting sites, measure turtles and engage with local communities about protecting nesting areas and sustainable harvesting.

In addition, three *Piku*-related children's books have been written, with 15,000 copies distributed to 14 schools in the Kikori region.

## LNG Plant site

EMPNG has extended the scope of work for its food and agriculture program for LNG Plant site communities, with an additional 107 households included across the villages of Papa, Lea Lea, Boera and Porebada. The company continues to support 80 households that were previously involved in the program through training and site visits. Approximately 500 households have received support through this program since its inception in mid-2012.

Following initial School Board of Management training and drafting of the new School Board of Management training manual earlier in 2015, further training was conducted with 132 participants including teachers, Board of Management members and community leaders in LNG Plant site communities between July and November. As part of the training, a module on science, technology, engineering and mathematics adapted from ExxonMobil's Science Ambassador Program was delivered to the participants.



Plate 4.5 – Members of the Boera Primary School Board of Management with community leaders

The School Board of Management training manual was also finalised during the second half of 2015.

EMPNG provided more than 500 Trukai Fun Run t-shirts to students at Papa, Lea Lea, Boera and Porebada primary schools and Redscar High School for their annual fun run held on 5 July in Port Moresby.

EMPNG also donated 119 t-shirts to teachers from Porebada, Boera, Papa and Lea Lea schools in October in recognition of International Teachers Day.

Blankets, towels and bed sheets were donated to the Boera Hisiubada Women's Fellowship during the second half to support people living with disabilities in Boera Village.



Plate 4.6 – LNG Plant Manager, Murray Bell, (second row) with students from Lea Lea Primary School wearing their Fun Run t-shirts



Plate 4.7 – Ryley Webster from the Papua New Guinea Olympic Committee visiting Porebada Primary School

EMPNG also installed water tanks at the Porebada Elementary School, Salvation Army Preschool in Porebada, Lea Lea Elementary School, Papa Community Preschool and Bogi Literacy Elementary School after field teams identified that natural water sources were extremely low.

#### 4.1.2 National programs

EMPNG has contributed PGK137,000 (USD\$45,553) to the Papua New Guinea Olympic Committee for its Olympic Values Education Program. The Program aims to promote the role of sport in society and the Olympic values of respect, friendship and excellence.

This includes the ‘Love Your Coast Papua New Guinea’ Program, which uses sporting heroes as role models to advocate proper waste management practices, such as reducing litter in public sports facilities and understanding the impact of plastic products on the marine environment. The Program, which included interactive outdoor sessions conducted by Papua New Guinean athletes, was introduced to schools in the LNG Plant site villages during the second half of 2015.

In December, EMPNG donated commemorative t-shirts to Cheshire disAbility Services for the International Day of People with a Disability.



Plate 4.8 – Joanne Hisiu, Senior Administration Assistant, one of the 20 EMPNG volunteers to join the Papua New Guinea Olympic Committee and members of Boera Village in a clean-up of the local beach as part of the ‘Love Your Coast Papua New Guinea’ program

The theme of the day was 'Inclusion Matters: access and empowerment of people of all abilities'. As part of the day, Cheshire disAbility Services held an integration ceremony for children with special needs who will be integrated into mainstream schools in 2016.



Plate 4.9 – Public and Government Affairs Operations Manager, Nora Scheller, presenting t-shirts to Cheshire disAbility Services

### Education and training

EMPNG contributed PGK50,000 (USD\$16,625) to the PNG Women in Business Expo held from 2-12 July in Port Moresby. The Expo coincided with the XV Pacific Games and provided women in small business with the opportunity to display their products and services to visiting athletes and officials from participating island nations.

Over 400 business owners participated in the Expo, including alumni from the Centre for Development and Population Activities Global Women in Management program.



Plate 4.10 – Director and Founder of PNG Women In Business, Janet Sape, presenting at the Expo opening

In 2014, EMPNG contributed USD\$181,000 (PGK544,361) to Population Services International to establish the Smart Economics of Gender-Based Violence Program.

The Program provides training over two years for women to help them grow small-scale businesses to support themselves and their families.

In the second half of 2015, five training sessions were delivered to 122 women in communities in Port Moresby, Lae and Tari. Small grants were awarded to some of the women to support the development of their businesses. Since January 2015, 395 women have completed the training program.

Two students from Kutubu Secondary School became the first from the Upstream area to attend the Mike Manning Youth Democracy Camp in Lae during September. Bill Buri and Silvia Maseni were among 55 students from 26 schools to participate in the Camp.



Plate 4.11 – EMPNG representatives and Kutubu Secondary School Principal, Bai Irabo with Bill Buri and Silvia Maseni at Moro Airport before they depart for the Mike Manning Youth Democracy Camp

The Mike Manning Youth Democracy Camp is a Transparency International Papua New Guinea Inc. initiative that aims to develop young leaders with high levels of integrity and transparency values. EMPNG has provided PGK54,800 (USD\$18,221) funding for the Camp.

EMPNG is also providing ongoing support to The Voice Inc. Centre for Leadership Excellence Program, which is developing the leadership potential of 150 students from the University of Papua New Guinea and the Papua New Guinea University of Technology (Unitech). EMPNG's support includes the weekly Clean Generation radio campaign that highlights positive youth empowerment stories.

EMPNG is providing additional support to Unitech with a PGK137,000 (USD\$45,553) donation to bring its engineering accreditation to international standards through introducing the External Examiners System.

The System involves external examiners assessing the University's standards, as well as comparing the compatibility of its assessment process, with international universities.

In support of International Literacy Day on 8 September, EMPNG sponsored educational activities held at Buk Bilong Pikinini's 15 libraries throughout Papua New Guinea. The activities included reading sessions, poetry writing, drawing sessions and games. EMPNG also provided information technology support to Baguale Primary School and refreshments and stationery for Papa, Lea Lea and Boera primary schools in the LNG Plant site communities.

In addition to supporting International Literacy Day activities, EMPNG provided Buk Bilong Pikinini with PGK68,500 (USD\$22,776) for the Koki Market Library. The Library aims to develop early reading skills of children aged between four and seven years. It is one of Port Moresby's busiest libraries and attracts more than 200 children a day. EMPNG has partnered with Buk Bilong Pikinini since 2011 and workers have donated more than 700 hours of their time for volunteer activities for this organisation.



Plate 4.12 – EMPNG volunteers with Buk Bilong Pikinini General Manager, Lucinda Kusip, in Port Moresby

### Science Ambassador Program

In 2015, more than 950 students participated in ExxonMobil's Science Ambassador Program, with 130 students experiencing the program for the first time during the second half of the year.

In the second half of 2015, Grade 8 classes from Papa, Lea Lea, Boera and Porebada primary schools in the LNG Plant site villages participated in oil and gas education sessions. Grade 8 classes from Baruni Primary School, located between Port Moresby and the LNG Plant site, participated in rocks and geology lessons led by EMPNG representatives.

Grade 10 classes from Redscar High School also participated in rocks and geology education sessions.

The lessons give students practical, hands-on experience and include science-related experiments, as well as information about careers in science, technology, engineering and mathematics.

### Community health

Margaret Maipa Yagas from Morobe Province has been named the recipient of an EMPNG-funded Baylor College of Medicine International Pediatric Acquired Immunodeficiency Syndrome (AIDS) Initiative scholarship. The scholarship is funding Margaret's studies toward a Masters in Public Health at the University of Texas School of Public Health in Houston, USA. Further information is provided in *Case study: Scholarship supports community health care*.

EMPNG, has provided a grant of PGK137,000 (USD\$45,553) for the Sir Theophilus Foundation to host fundraising activities to assist Port Moresby General Hospital with improving its corporate governance, including auditing, annual reports and training for health workers.

The Sir Theophilus Foundation is working in partnership with Port Moresby General Hospital to recruit specialist clinicians and health administration staff. The Foundation assists both public and private health service providers in Papua New Guinea.

In October, a container with more than 700 medical supply items was delivered to Tari Hospital as part of a joint initiative between EMPNG, the PNG Tribal Foundation and Project C.U.R.E.

In November, EMPNG donated PGK68,500 (USD\$22,776) for Operation Open Heart, an annual program that brings volunteer doctors, nurses and other cardiology specialists from Australia to perform heart surgeries at the Port Moresby General Hospital.

To date, Operation Open Heart has given more than 900 Papua New Guineans a second chance in life through corrective heart surgery.

### Volunteers

Since the start of 2015, more than 250 EMPNG employees and their families have contributed some 1500 hours in 10 volunteer activities for local communities.

Approximately 260 volunteer hours were recorded with 65 people engaged in three volunteer activities during the second half.

To commemorate International Literacy Day in September, 10 EMPNG volunteers donated four hours of their time to read books to children at Buk Bilong Pikinini libraries. The volunteers also participated in traditional dancing, face painting, storytelling in different languages and learning sign language.

At Boera, 20 EMPNG volunteers participated in a beach clean-up with the Papua New Guinea Olympic Committee and the local community during November. In Moro, 35 EMPNG volunteers were involved in a clean-up at the Kaimari Market.



Plate 4.13 – EMPNG volunteers ready to help with the Kaimari Market clean-up in Moro

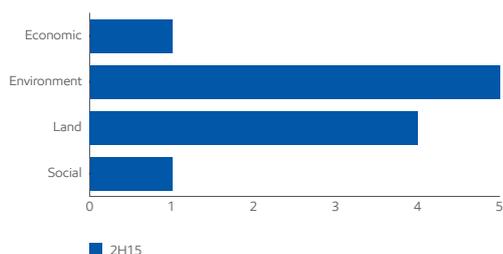
Other volunteer activities this year included planting and moving soil for a new children’s playground at the Port Moresby Nature Park, environmental clean-up activities for World Environment Day, and book sorting for Buk Bilong Pikinini libraries.

## 4.2 Community grievance management

As shown in Figure 4.1, 11 grievances were registered and categorised during the second half of 2015. This is a decrease compared to 49 grievances registered in the first half.

Figure 4.1 - Active grievances

Number by category



By the end of December, all grievances raised in 2015 were addressed and closed.

Five environment-related grievances were registered during the second half. Two of these regarded construction material that needed to be collected. Corrective action was implemented to address these grievances. Another two grievances involved claims about water pollution near the PFC, and one regarded an environmental damage claim about chemical waste at Angore Wellpad A. These three claims were investigated and found to be non-genuine.

The four land-related concerns registered during the second half related to compensation claims and requests for fast process payments to be completed.

One economic grievance regarding employment with EMPNG and contractors, and one social grievance relating to community health and safety, were also registered during the second half.

## 4.3 Compensation

Four Clan Agency Agreements were signed and four compensation payments made to landowning clans in the second half of 2015 for land access covering approximately 3 kilometres of the pipeline Right of Way (ROW) between Homa and Dagia River. This brings compensation payments completed to 94 percent for the pipeline ROW.

At the end of 2015, annual deprivation payments had been made to 88 percent of landowning clans. Twelve percent of clans remain involved in disputes regarding land ownership. These disputes are being managed by the clans through mediation, agreement, and/or by the Papua New Guinean court system.

EMPNG continues to monitor the remaining clans involved in land ownership disputes and will progress compensation payments when these disputes are resolved.

# Case study

## Scholarship supports community health care

Margaret Maipa Yagas has been named the recipient of an EMPNG-funded Baylor College of Medicine International Pediatric AIDS Initiative scholarship announced in August.

The scholarship is enabling Margaret to study a Masters in Public Health at the University of Texas School of Public Health in Houston, USA.



Scholarship recipient Margaret Maipa Yagas with EMPNG's Deputy Production Manager, Dale Pittman, Texas Children's Hospital doctors and representatives from the University of Papua New Guinea at the scholarship award on 10 August

Margaret was selected based on her experience as a Medical Social Worker at the Port Moresby General Hospital. In this role, she has observed what is needed to help improve the efficiency and availability of health and social work services in Papua New Guinea.

"Thanks to ExxonMobil and their partners, this scholarship will offer me the opportunity to further my education and develop strategies to improve those challenges," said Margaret.

The scholarship is the result of a public-private partnership between EMPNG, the Texas Children's Hospital and its partner the Baylor College of Medicine, the National Department of Health and the University of Papua New Guinea's School of Medicine and Health Sciences.

EMPNG has committed USD\$3.1 million (PGK9.3 million) over two years to fund the partnership, which aims to improve the skills and education of local health workers.

EMPNG Deputy Production Manager, Dale Pittman, said health and education were two areas that EMPNG was committed to supporting.

"Investing in the education of Papua New Guinean medical students and public health workers will help address the preventable health concerns faced in Papua New Guinea," he said.

As part of the partnership, experienced doctors from the Texas Children's Hospital and its partner, Baylor College of Medicine, are based in Port Moresby General Hospital to provide mentoring and training to medical students.

Almost 100 lectures have been delivered to more than 900 students at the University of Papua New Guinea, while some 765 young patients have been successfully treated for severe malnutrition as a result of the partnership.

EMPNG also continues to provide funding, medical supplies, infrastructure support and other assistance to health care programs in communities surrounding company facilities.

For example, in the second half of 2015 EMPNG funded the refurbishment of Para clinic to improve health care in Hides. The refurbishment included upgrades to solar and water systems to improve access to water and lighting at the clinic. The Para clinic also received a refrigerator to store vaccines.

At Homa and Benaria, EMPNG provided maintenance, plumbing and solar installation to local health clinics during the second half. Benaria also received support with constructing a dispensary to store medical supplies.



Handover of the refurbished Para clinic

# Case study

## Scholarship supports community health care

EMPNG provided PGK50,000 (USD\$16,625) to support Papua New Guinea's 2015 medical symposium, held from 30 August to 2 September. This year's theme 'advancing women's health through innovation' provided a platform to help address the status of women's health issues in Papua New Guinea. It was hosted by Papua New Guinea's Women Doctors Association.



Dr Esther Apuahe (left) and Dr Nora Dai (right) from the Women Doctors Association thank EMPNG Deputy Production Manager, Dale Pittman (centre), for EMPNG's support

Another PGK54,800 (USD\$18,221) was donated this year to Kikori Hospital for its STOP TB (tuberculosis) campaign. The funds helped the hospital with purchasing a new generator, fuel for the hospital dinghy, lifejackets for doctors and nurses who use the dinghy to visit local villages and tuberculosis information brochures.



Kikori Hospital staff receiving the STOP TB campaign donation from EMPNG

The Kikori district has among the highest incidences of tuberculosis in Papua New Guinea, so the hospital conducts in-village tuberculosis screening and awareness raising activities in three to four villages each quarter.

EMPNG also donated an ambulance to Kikori Hospital in the second half of 2015.

### Up close



## Medical supplies for Tari Hospital

A container with more than 700 medical supply items was delivered to Tari Hospital in October as part of a joint initiative between EMPNG, Project C.U.R.E. and the PNG Tribal Foundation. The medical supplies included general surgery packs, obstetric supplies, biopsy needles, laboratory supplies, microscopes and nebulisers.

The donation to Tari Hospital is the culmination of more than a year's work, which began in Denver, USA, when Papua New Guinea's First Lady, Lynda Babao O'Neill, spoke at Project C.U.R.E.'s First Ladies Luncheon. Her speech resulted in PGK4 million (USD\$1.3 million) being raised for medical equipment and supplies for Papua New Guinea. Another four containers of medical supplies will be delivered to Daru, Mendi, Lae and Kikori hospitals.



Donation of medical supplies to Tari Hospital as part of the joint initiative between EMPNG, Project C.U.R.E and the PNG Tribal Foundation



Welcome reception at Tari Hospital, with Project C.U.R.E., PNG Tribal Foundation and Hela Provincial Government representatives



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# 5 Workforce

To help develop the skills and technical capacity of Papua New Guinean citizens, EMPNG provides ongoing training and accreditation opportunities to the production workforce.

## 5.1 Workforce composition

Over 2400 workers, including EMPNG employees and contractors, were employed in production-related roles at the end of December. Almost 1900 of these were Papua New Guinean citizens who comprised 79 percent of the workforce. Women represent 25 percent of the workforce. Third party contractors represent 68 percent of the production workforce. Nearly 89 percent of contract workers are Papua New Guinean.

## 5.2 Workforce training

Workforce training is provided through a combination of in-house training and externally delivered courses.

EMPNG provides training for its employees, while contractors deliver worker training relevant to their scopes of work.

In the second half of 2015, more than 43,300 hours of training were delivered through over 1300 courses.

Approximately three-quarters of EMPNG employees and contractors trained were Papua New Guinean citizens and of these, 34 percent were women.

### 5.2.1 Employee training

More than 29,300 hours of training was provided to some 2360 EMPNG employees across more than 1100 courses in the second half. This training focused primarily on developing the technical skills of the production workforce, including building the capacity of graduate engineers and Operations and Maintenance trainees. Other non-technical courses delivered included Operations Integrity Management System training, business conduct, legal compliance, cyber security awareness and fundamentals of safety.

### Up close



## Engineering the future

EMPNG Operations Technical Manager, Jeff Ralston, has been appointed Chairman of an advisory board charged with maximising the standard of university education for science and engineering students in Papua New Guinea. His appointment as inaugural Chairman of the Unitech Industrial Advisory Board for Science and Engineering continues the company's commitment to develop a skilled workforce of Papua New Guinean citizens. The Board is working to improve Unitech's programs so they can be accredited to international standards.

EMPNG has provided additional support with a PGK137,000 (USD\$45,553) donation to fund external examiners to visit the university in 2016 as part of the accreditation process. The company has also donated 100 laptops and data storage devices to Unitech and purchased new equipment for the engineering laboratories, to be delivered in early 2016.



Operations Technical Manager, Jeff Ralston, meets with engineering students at Unitech

Opposite:  
Plate 5.1 – Mechanical Maintenance Technician, Marcus Taru, at the HGCP



Plate 5.2 – Third intake of Operations and Maintenance trainees with management at the celebration dinner to commemorate their completion of Basic Skills training

As part of a review of career roadmaps for the Operations and Maintenance trainees, an adjustment was made for some courses not previously credited. Fifty-eight percent of EMPNG employees trained in the second half were Papua New Guinean citizens and, of these, 37 percent were women.

Since the start of production, EMPNG employees have received some 66,400 hours of training.

Cultural awareness training continues to be provided to all workers during site inductions. In the second half, cultural awareness was highlighted in 222 site inductions. Supervisors receive specialised cultural awareness training. During the second half, the LNG Plant and HGCP hosted 12 supervisor cultural awareness training sessions.

### Engineering and technical professionals

Engineering graduates Kenny Hampalekie, Christine Sahuburua, Ginisegana Solien and Immaculate Wanjik were appointed as full-time EMPNG employees during the second half of 2015. Ginisegana was appointed as a Civil-Geotechnical Engineer, Christine as a Facilities Surveillance Engineer, Immaculate as an Electrical Engineer and Kenny as a Facilities Surveillance Engineer.

EMPNG expanded its 12-week summer internship program accepting seven engineering students as interns in the second half of 2015. Five of the interns recently completed their third year of studies, while the other two have completed their second year.

The ExxonMobil Education Assistance Program continues to support three employees with completing part-time university studies while they work.

Programmatic Engineering Technician, Nerolyn Verave, is studying Chemical Engineering, and Facilities Surveillance Engineering Technician, Joe Arthur, is studying Mechanical Engineering, both at Charles Darwin University, Australia. Public and Government Affairs Operations Analyst, Belinda Gurra, is undertaking a Mechanical Engineering degree at the University of Southern Queensland, Australia.

Many Papua New Guinean citizens who have been hired as engineers and technical professionals with EMPNG have achieved their Early Career Milestones for their relevant disciplines. These milestones measure skills, knowledge and experience that new employees must attain within the first few years of their employment with the company.

### Operations and maintenance

The third intake of 40 Operations and Maintenance trainees, including 12 women, completed nine months of Basic Skills training in December.



Plate 5.3 – Roman Bukura receiving a certificate for completion of Basic Skills training from Operations Support Superintendent, Graeme Hunt

A trade selection day was held in October to help trainees select their career paths from the operations, electrical, mechanical and instrumentation disciplines. The trainees also participated in personal excellence training as part of their foundation coursework.



Plate 5.4 – Trade selection day presenters from the operations, electrical, mechanical and instrumentation trades

EMPNG Managing Director, Andrew Barry, congratulated the trainees on completion of their Basic Skills training at a celebration dinner held in late December. The trainees are undertaking eight months of Advanced Skills training in their chosen specialist areas from January 2016.

Four experienced Papua New Guinean technicians who trained with expatriate technicians are working in operations and

maintenance roles at the LNG Plant and HGCP. One of these technicians was promoted to Lead Operations Technician at the HGCP during the second half of 2015.

EMPNG has also established a skills development program for electrical technicians, in partnership with the Don Bosco Technical Institute in Port Moresby. The four-week program covers topics such as safe practices when working in an electrical environment, installation and testing of equipment, the use and selection of tools and test equipment, electrical fittings and testing and inspection requirements. In October, seven electrical technicians became the first group to complete the new training program. The program has helped prepare these technicians for their Papua New Guinean electrical license exam.

### 5.2.2 Contractor training

During the second half of 2015, contractors provided approximately 14,000 hours of training relevant to their scopes of work. This training was delivered to more than 2200 participants who attended some 220 courses. Almost 96 percent of training participants were Papua New Guineans, and of these, 33 percent were women.

Topics covered included Job Safety Analysis, working at heights, hazard and loss prevention, hygiene, time management, manual handling and other work procedures.



Plate 5.5 – Electrical technicians with their supervisors and Don Bosco Technical Institute staff on completion of the training program



## Contractors complete ESMP workshop

In August, more than 20 representatives from 11 of EMPNG's third party contractors attended an environmental and social management training workshop conducted in Port Moresby.

The workshop provided detailed training for contractors about their responsibilities with regard to conformance with the PNG LNG Project's ESMP. It included an overview of the ESMP, training on environmental and social obligations applicable to EMPNG's contractors, ESMP roles and responsibilities and reporting expectations.

The workshop also provided an opportunity for contractors to network with each other and with EMPNG representatives.

EMPNG Environmental and Regulatory Supervisor, Laura Ann Dresser, said the workshop proved valuable as it enabled contractors and EMPNG to share their experiences regarding implementation of the ESMP.

"The workshop enabled contractors to share their stories and best practices, and receive input from EMPNG about how best to apply requirements of the ESMP in their work scopes," Laura Ann said.

"The contractors advised us that they felt more confident with managing their ESMP responsibilities as a result of what they had learned at the workshop," she said.



Environmental and Regulatory Supervisor, Laura Ann Dresser, providing the Environmental Management Plan overview at the contractor ESMP training workshop



Plate 5.6 – A contractor training session on customer service

## 5.3 Workforce health

In October, the Lender Group's Independent Environmental and Social Consultant (IESC) reported that EMPNG's occupational health program continued to maintain best practice as a result of monthly occupational health program performance reviews. These reviews cover team health and safety program performance, as well as the effectiveness of clinical, environmental health and industrial hygiene program implementation. They also enable EMPNG to identify opportunities for continuous improvement in its primary health management areas of medical, public health and industrial hygiene.

### Medical

High standards of performance are being maintained in clinical operations across all EMPNG worksites.

During the second half of 2015, EMPNG clinicians completed 7028 consultations for patients at camp clinics in the Upstream area and another 4532 patient consultations at the LNG Plant site clinic. Since the start of the year, clinicians have completed 19,799 consultations across EMPNG clinics. Consultations included general medical reviews, pre-employment examinations, follow-up vaccinations and medical screening, malaria prevention and occupational health examinations.

As part of EMPNG's emphasis on vaccine preventable disease management, clinicians provided health awareness sessions and completed 3065 vaccinations during the second half across all clinics, with 4042 vaccinations completed since the start of 2015. The clinicians also provided tuberculosis prevention awareness, tuberculosis screening and follow-up consultations.

Over 2000 tuberculosis screening tests were completed during the second half, taking the total to 3000 screening tests for 2015.

The clinical service provider continues to deliver weekly health awareness toolbox talks to workers. This has been well received by the workforce, with many local workers taking information home to their families and friends. During the second half of 2015, topics covered included common foodborne illnesses and prevention and sexually transmitted infections including Human Immunodeficiency Virus (HIV)/AIDS to coincide with World AIDS Day on 1 December.

### Public health

Monthly health assessments are conducted to monitor the management of camp hygiene and sanitation, food and potable water safety, vector surveillance and control and infectious disease outbreak. In the second half of 2015, assessments showed that EMPNG and its contractors continued to meet camp health standards and effectively implement program improvements.

As part of a cycle of continuous improvement, EMPNG has updated its camp hygiene and food safety guidelines and conducted additional training for key camp workers and contractors. For example, in the second half of 2015, improvements were made to food stock rotation for both frozen and dry foods to ensure food was not used after the printed expiry date.

Catering and delivery practices have also been reviewed to ensure that foods are delivered at the correct temperature and within their required timeframe. Toward the end of 2015, EMPNG reviewed the processes of local food suppliers to ensure safety and quality was maintained for the purchase and delivery of higher risk foods, such as eggs.

Following a review of camp cleaning procedures conducted in the first half of 2015, standardised sanitation practices were implemented during the second half. EMPNG has confirmed that cleaners are implementing effective cleaning procedures that are required for infection control in clinics and to reduce the spread of pathogens in camps.

### Industrial hygiene

Industrial hygiene site assessments completed during the second half of 2015 included heat stress prevention, benzene safety, noise and hearing conservation, hazardous materials management, respiratory protection and maintenance activities.

## Up close



### Blood drive helps local health clinics

EMPNG collected a record 70 bags of blood from 86 employee volunteers during a blood drive held in September. Blood Bank nurses from Port Moresby General Hospital coordinated the blood drive and visited local businesses to collect donations from volunteers.

Anna Megueria, coordinator of the blood drive said corporate donations were important because Papua New Guinea's blood bank stocks were low.

"The blood stock levels are particularly low during the times when high schools and colleges are closed for holidays, and during such periods we encourage more corporate staff to donate blood," she said.

"Blood cannot be manufactured, it can only come from the kind generosity of volunteer blood donors and we thank EMPNG for their timely donation."

EMPNG Managing Director, Andrew Barry, said people's lives were saved by blood provided through volunteers.

"We are thrilled to be part of the drive to make a positive difference in the lives of others and we thank our donors who have given lifesaving blood," said Andrew.

Blood collected through the blood drive has been provided to Papua New Guinea's blood bank and will be distributed to hospitals around the country as needed.



EMPNG Managing Director, Andrew Barry, with Nursing Officer, Eddie David, during the blood drive

These assessments showed that EMPNG and its contractors met industrial hygiene program requirements.

Toolbox talks were held during the second half to raise awareness about industrial health hazards such as high noise and the appropriate use of hearing protection devices including earplugs and earmuffs.

### Other strategic initiatives

EMPNG held information sessions and activities across worksites to commemorate World AIDS Day on 1 December. For example, the company's physician, Dr Cain Kapiri, presented information about HIV prevention to employees at EMPNG's head office in Port Moresby. Similar employee briefings were held at the LNG Plant and in Upstream area camps, such as at the HGCP and Moro. The distribution of communications materials, such as pamphlets, to workers, supported these briefings.

EMPNG has recognised World AIDS Day each year since the start of construction.

Through ongoing education sessions, EMPNG is encouraging its workers to help communities become more aware of the prevalence of HIV/AIDS and to take action to reduce the transmission of HIV.



Plate 5.7 – Dr Cain Kapiri, EMPNG Occupational Health Physician, presenting a HIV/AIDS awareness session to workers in Port Moresby

EMPNG also encourages workers to undertake voluntary HIV testing to know their health status.

## 5.4 Workforce safety

EMPNG has completed another year without a Lost Time Incident, continuing its record of zero Lost Time Incidents since production began.

While all teams worked to achieve ExxonMobil's aim of 'Nobody Gets Hurt', the company's production teams achieved 150 days without a recordable injury, while the Drilling organisation completed the year with only one recordable event.



Plate 5.8 – Daniel Kandiki, Warehouse Operator at the HGCP - every worker plays a role in achieving ExxonMobil's aim of 'Nobody Gets Hurt'

Some of the key activities conducted during the second half of 2015 to help maintain safety in the workplace were:

- The ‘Finish Strong’ campaign – This campaign involved nine sessions of presentations from senior management to workers and contractors to reinforce the message that safety is a core value in EMPNG. It emphasised EMPNG’s Safety Focus Areas and what was expected from management and workers toward the end of the year to maintain the company’s vision of *‘Nobody Gets Hurt’*.
- Work Management System weekly workshops – This initiative focused on the awareness and application of EMPNG’s permit-to-work system, to ensure that contractors and subcontractors are appropriately trained to execute their work on-site in accordance with EMPNG’s Work Management System. Additional aspects included training on EMPNG’s Production Life Saving Actions, which cover high-risk activities such as rigging and lifting, working at heights and electrical work.
- Motor vehicle incident analysis and driving safety improvement – EMPNG recognised a pattern of minor motor vehicle incidents, especially in the Upstream area. Through this analysis, a “Circle of Safety” initiative was developed that requires drivers to perform a walk-around of their vehicles to identify potential safety hazards.
- The second Contractor Safety, Security, Health and Environment Leadership workshop of 2015 – More than 100 people from 20 EMPNG contractor companies attended the workshop in Port Moresby in November. The workshop theme of ‘Life Saving Actions’ focused on the expectations that supervisors and managers must enforce to ensure high risk hazards are managed during safety-critical activities. Several contractors shared their safety experiences and appreciation of how much they had learned from EMPNG.
- Facilities Integrity Management System implementation – During the second half of 2015 there was increased momentum with workers implementing EMPNG’s Facility Integrity Management System. Key work activities completed included: preventative maintenance on emergency response equipment; and the compilation of vital safety equipment lists into maintenance tracking tools for production teams.

### 5.4.1 Core safety processes

Core safety processes involve the use of indicators to determine safety performance. Leading indicators are used to measure the effectiveness of EMPNG’s safety systems while lagging indicators are used to measure actual incidents and their consequences.

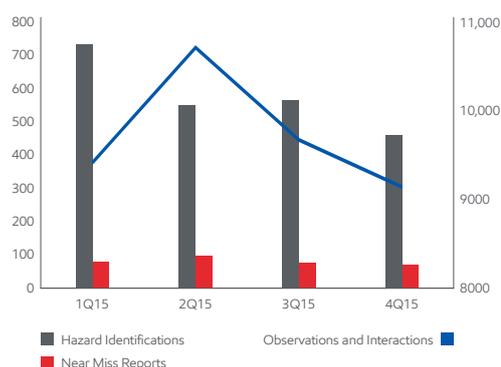
Key leading indicators include Observations and Interactions, Hazard Identification and Near Miss Reports.

During the second half of 2015, the Observations and Interactions program focused on maximising learning from trends observed over time.

As shown in Figure 5.1, more than 18,800 Observations and Interactions were recorded during the second half of 2015. Although this is a decrease from the first half of the year, this result reflects that more than 90 percent of the workforce submitted one or more Observations and Interactions by the end of the year.

**Figure 5.1 - Core safety process reporting**

Number by quarter



The number of Near Miss Reports and Hazard Identifications has remained relatively consistent throughout the year.

EMPNG’s ongoing commitment to high safety performance standards has enabled the company to maintain a current 365-day moving average of 0.17 for the Total Recordable Incident Rate and 0.00 for the Lost Time Incident Rate.

## 5.5 Security

In the second half of 2015, Mildred Nigi, from the National Capital District, became the first Papua New Guinean citizen promoted to a security leadership position. EMPNG continues to appoint Papua New Guinean citizens to security roles, and is working with communities to reduce security risks in EMPNG work areas.



## Mildred earns top job

Mildred Nigi started her career five years ago as a contract night guard before working her way to becoming an executive driver and then a Site Security Contact for the PNG LNG Project's Port Moresby office. In November 2015, Mildred's hard work paid off when she became the first Papua New Guinean to be promoted to the position of Security Lead for Port Moresby and the LNG Plant site.

EMPNG Managing Director, Andrew Barry, personally met with Mildred to award her the promotion. Mildred's new role will take effect from 1 January 2016.

"My greatest challenge has been getting my head around the lead roles and responsibilities now that I'm covering an area and not just a site," Mildred said.

EMPNG's Security Manager, Mike Reid said Mildred's promotion was a reflection of her proven work performance, along with her recognised capabilities.

"Mildred has proven to be an outstanding employee and is a stalwart in supporting all the female staff with all their personal security issues outside the office," Mike said.

Mildred said a highlight of her career was attending security leadership training in the United States of America at the end of 2015.

The proud mother of six children advises women who are considering starting a new career that "You will never know how good you are until you get in. Above all, respect for yourself and others is key. It is an earned value in life."



Mildred Nigi, Port Moresby and LNG Plant site Security Lead

The company and the Royal Papua New Guinean Constabulary have a Memorandum of Understanding in place to cover security in areas around production facilities.

Both government and contracted security personnel complete regular training in the Voluntary Principles on Security and Human Rights.

## 5.6 Worker welfare and conditions

High standards of worker welfare and conditions are maintained during production through the ongoing implementation of EMPNG's Labour and Working Conditions Management Plan.



Plate 5.9 – Receptionists, Violet Sijam and Fiona Inina, at their new workspace in the head office building

### 5.6.1 Camps

The refurbishment of camp amenities for the production workforce was 90 percent complete by the end of 2015.

At the LNG Plant, refurbishment works were completed for water utilities, covered walkways and bitumen carpark areas. Upgrade works also include a new recreational area for employee meetings, social gatherings and sports.

Refurbishment of the HGCP dining facility was almost complete at the end of 2015. Increased security measures have also been implemented in female accommodation areas for the safety and comfort of female workers.

Regular camp newsletters continue to provide updates and general information to camp residents. A dedicated television information channel was trialed at the HGCP Camp during the second half to provide another means of timely communication with camp residents.



Plate 5.10 – HGCP workers Philomena Yapi, Shirley Kom, Hilda Wagia, and Doreen Mandibi

Camp committees at both the HGCP and LNG Plant camps are now well established and facilitating ongoing communication and feedback from camp residents, which enables EMPNG to maintain high standards at the camps.

Toward the end of 2015, camp dining rooms increased the promotion of healthy eating options while demonstrating to workers that they could maintain food variety. For example, to celebrate Christmas, holiday menus featured healthy options of seafood and fresh fruits.

### 5.6.2 Labour and working conditions

EMPNG is maintaining high standards of workplace conduct through implementation of its Standards of Business Conduct. The Standards outline EMPNG's policies regarding topics such as ethics, conflicts of interest, corporate assets, anti-corruption, health, safety, environment, alcohol and drug use, equal employment opportunity and harassment in the workplace. They also explain the company's procedures and open door communication approach.

The Standards of Business Conduct are provided to all new EMPNG employees as part of their induction process, while existing workers receive periodic refresher training.

As part of EMPNG's open door communication approach, employees are encouraged to ask questions, voice concerns and make appropriate suggestions regarding the company's business practices. Employees can also escalate their concerns to a more senior level or to a specific department, such as the Human Resources department.

To enable ongoing open communication between employees and senior management, bi-monthly lunch and learn sessions are held with EMPNG Managing Director, Andrew Barry. These sessions cover topics relevant to employees and enable them to directly ask Mr Barry questions. Regular site management and Human Resources sessions are also conducted to provide workers with updates and enable them to ask questions and provide feedback.

With EMPNG settling into production, the company has relaunched its social club for the production workforce. During the second half of 2015, the social club organised employee Independence Day celebrations at EMPNG's head office and hosted an end-of-year event to recognise the contribution of employees throughout 2015.



# 6 Environmental management

Management and monitoring procedures are in place to reduce the potential impact of production activities on the surrounding environment.

## 6.1 Air

Ambient air emissions monitoring, which started in June 2015, continued at the LNG Plant, HGCP and Hides Waste Management Facility throughout the second half of 2015. To further improve the quality of meteorological data collected, the height of the HGCP weather station was increased to 10 metres. Ambient air and weather data information is being consolidated into an air model for each facility. These are planned to be completed in 2016.



Plate 6.2 – Ambient air quality monitoring at the HGCP

An interim ambient air monitoring report, covering results from June to October 2015, identified a possible exceedance of the ozone parameter at the LNG Plant and an exceedance of total suspended particulates at the Hides Waste Management Facility. EMPNG is investigating these results.

Stack testing was completed at the HGCP, LNG Plant and Hides Waste Management Facility during the second half. Preliminary results showed all data to be below emissions criteria

and all equipment as compliant, with the exception of one low-level incident recorded at the waste incinerator for the LNG Plant site camp. At the time of testing, the incinerator was processing oily waste, which resulted in exceedances for carbon monoxide and dioxins/furans.

To rectify this, the incinerator operator updated the operations procedure to clearly weigh the proportion of oily waste to general waste. This ensures that the incinerator does not process concentrated industrial waste at any one time, which results in compliant emissions from the incinerator.

The next round of stack testing is scheduled to be conducted at the LNG Plant in March 2016 and at the HGCP and Hides Waste Management Facility in April 2016. This testing will include new sources identified during a proactive review of stack testing sources conducted in November-December.

Additional equipment, including three regeneration furnaces at the LNG Plant, will be included in the 2016 testing.

Five low-level vapour release incidents occurred during the second half of 2015. Three involved minor vapour leaks observed during loading operations at the LNG Plant. One incident was a pinhole leak at the HGCP, which caused a small vapour release, and another involved a small gas release at Wellpad G when a high-pressure gas sample was taken. All releases were immediately addressed. Facilities continue to be monitored to identify and address any unplanned releases to air.

Total greenhouse gas emissions, including fuel gas use, are calculated and reported on an annual basis.

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Opposite:  
Plate 6.1 – Lake Kutubu

For 2015, EMPNG generated approximately 1900 kilotonnes of carbon dioxide equivalent, with gas turbine fuel consumption the primary contributor, as would be expected during normal operations.

Gas turbine fuel consumption accounted for 82 percent of annual greenhouse gas emissions at the HGCP and 86 percent at the LNG Plant. Fuel gas consumption is closely monitored.

Annual greenhouse gas emissions from flaring activities significantly decreased compared to 2014, with a 51 percent decline at the HGCP and 87 percent reduction at the LNG Plant. These reductions were achieved as EMPNG transitioned from the construction and start-up phases through to steady state operations.

During the second half, the Drilling organisation generated 8647 tonnes of carbon dioxide equivalent, while aviation produced 1879 tonnes. With drilling nearing completion, greenhouse gas emissions have steadily declined. While there was a slight increase in emissions from aviation activities during the second half of 2015, annual aviation-related emissions were low.

## 6.2 Noise

Noise monitoring surveys were conducted at the LNG Plant, HGCP and Hides Waste Management Facility during the second half of 2015. EMPNG site Environmental Specialists were also trained to take noise readings as part of the regular ongoing noise monitoring protocol.

Noise survey results were used to generate updated noise models for each facility, to enable accurate confirmation of predicted noise performance.

Results from the noise monitoring surveys showed that the LNG Plant and Hides Waste Management Facility were within the noise criteria specified in the applicable Environmental Management Plan. Readings for the HGCP were also within the criteria in the process plant area. However, two non-conformances were raised in relation to exceedances of noise criteria at the HGCP wastewater treatment plant.

To address the issue, sound attenuation walls were installed around blowers and pumps to reduce noise levels. Subsequent noise readings showed that the wastewater treatment plant conformed to the criteria.

In addition to noise monitoring surveys, noise modelling was undertaken in the second half for the LNG Plant, HGCP and Hides Waste Management Facility. The modelling confirmed results found in the noise monitoring surveys conducted during the second half.

From 2016, site Environmental Specialists will undertake bi-annual noise monitoring surveys at production facility boundaries to verify ongoing conformance.

## 6.3 Water

EMPNG extracts water as required for production activities from sources such as groundwater, seawater and streams. The amount of extracted water is tracked to ensure conformance with permitted extraction volumes.

The quality of extracted water is regularly tested and EMPNG monitors processed wastewater to ensure it meets the guidelines for its intended use and conforms with ESMP requirements.

### 6.3.1 Consumption

Water is used in drilling operations, worker camps, safety showers, dust suppression, fire water systems and cleaning of utilities in the process plants.

EMPNG extracts water from groundwater sources for its Hides operations, while seawater is used for LNG Plant operations.

In the second half of 2015, approximately 131,000 kilolitres of groundwater was extracted and used in the Upstream area. Water quality testing at the HGCP, Komo Airfield and Moro B Camp showed that extracted water complied with EMPNG's raw water quality criteria.



Plate 6.3 – HGCP Camp

Water was also extracted from a stream near the Kutubu Central Processing Facility to support geotechnical-drilling works in the area. The total volume extracted was 36.84 kilolitres. During extraction, the stream's flow rate was monitored to ensure it did not decrease by more than 10 percent.

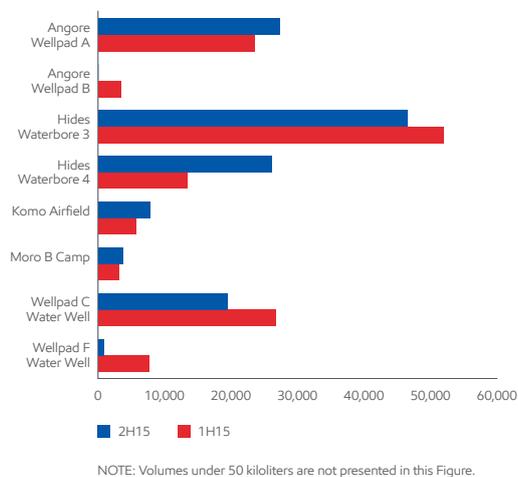
Freshwater volumes taken from each extraction source during the second half of 2015 are shown in Figure 6.1.



Plate 6.4 – Water being used for dust suppression at the HGCP

### Figure 6.1 – Freshwater extraction

Volume (kilolitres) by extraction source



At the LNG Plant, more than 339,600 kilolitres of seawater was extracted to supply the desalination plant, which generated 40,251 kilolitres of potable water in the second half.

#### 6.3.2 Water quality monitoring

The quality of EMPNG’s wastewater, process water and the health of surrounding receiving water bodies is confirmed through regular monitoring.

EMPNG uses both permanent and temporary wastewater treatment plants to treat wastewater from worker camps and offices.

An action plan developed during the first half of 2015 has resulted in an improvement in discharge water quality results from wastewater treatment plants across the Upstream area. The plan included the replacement of wastewater treatment plants at three locations, along with equipment and operational changes at another three sites. Wastewater treatment plant operators also participated in a competency verification and training program.

Commissioning of the new wastewater treatment plant at the HGCP continued during the second half of 2015. Weekly sampling during the second half demonstrated that the plant was achieving over 90 percent of the discharge criteria. Planning is underway for a new wastewater treatment plant to be commissioned at Moro B Camp during 2016.



Plate 6.5 – Aerial view of Moro showing the airfield and Moro B Camp (right)

A temporary wastewater treatment plant was demobilised from the drilling contractor's office in Hides and moved to the Angore Camp to support its existing wastewater treatment plants. Wastewater from the drilling contractor's office was stored in a holding tank and regularly pumped out by vacuum truck for delivery to the HGCP wastewater treatment plant.

The temporary wastewater treatment plant at Hides Wellpad F ceased operations in November, ahead of completion of drilling operations in December. Monitoring showed that this plant had remained compliant with licence criteria.

Monitoring of wastewater treatment plants in the Upstream area resulted in seven low-level incidents being reported in the second half for exceedances of water management criteria. The incidents were investigated and the receiving water bodies were monitored to confirm that there were no observable environmental impacts. Results showed that water quality of the receiving waters met Papua New Guinea's freshwater guidelines and/or appropriate background levels, except for two instances. At the HGCP, biological oxygen demand levels were above water quality guidelines, and oil and grease concentrations were above the water quality guidelines at Moro B Camp. Subsequent monitoring showed levels to be within EMPNG's water quality criteria.

At the PFC, works were completed to hydraulically commission the on-site wastewater treatment plant in the second half, with final commissioning expected during early 2016 following an engineering appraisal.



Plate 6.6 - Wastewater treatment plant at the PFC site services yard

A low-level incident was raised when wastewater was discharged into the Eda Ranu sewerage main without prior treatment during commissioning works for the PFC wastewater treatment plant.

Discharge ceased immediately after the incident was identified and wastewater was pumped out of the wastewater treatment plant and temporarily transferred to the LNG Plant for treatment. EMPNG notified CEPA of the incident.



Plate 6.7 - Nicole Yasi, Environmental Specialist, preparing equipment for water sampling of the LNG Plant site retention pond

CEPA subsequently advised that discharge into Eda Ranu sewerage main was permitted during commissioning of the wastewater treatment plant and that the Environment Permit for the PFC would be updated to reflect this in early 2016.

EMPNG continues to monitor process wastewater within the LNG Plant site and HGCP retention ponds.

Monitoring during the second half of 2015 showed that EMPNG was operating within the prescribed water management criteria.

Stormwater runoff monitoring at the HGCP identified one low-level incident for exceeding the water management criteria for turbidity and total suspended solids at one location. EMPNG is addressing this by investigating improvements in sediment control in this area.

EMPNG also conducts regular monitoring of receiving water bodies. Monitoring during the second half of 2015 found that severe drought conditions within the Upstream area affected background turbidity, dissolved oxygen and total suspended solids concentrations as waterway flows stagnated and water levels decreased.

Other than those parameters affected by drought, water quality of the receiving waters complied with Papua New Guinea's water quality guidelines appropriate for the respective water conditions (freshwater or marine), and/or appropriate background levels.

A third party specialist conducted annual freshwater ecology and water quality monitoring in the Hides and Komo areas during the second half. Results of this monitoring showed that waterways, where residual impacts associated with construction activities were present, were recovering.

## 6.4 Materials management

Where possible, EMPNG avoids significant impacts from the procurement and use of raw materials. Some aggregate from quarries is occasionally needed for maintenance, repair works or special projects.

During the second half of 2015, EMPNG approved the use of two third party quarries in the Upstream area; the Para Quarry and the Timalia River Borrow Pit.

Approximately 3744 cubic metres of limestone was obtained from the Para Quarry and Wellpads C and G during the second half for: road maintenance; erosion repair works; backfill works at the Hides Wellpads; and the construction of gabions for drainage maintenance.

These works also required approximately 60 cubic metres of gravel sourced from the Timalia River Borrow Pit, along with an additional 1.5 cubic metres of sand and 14 cubic metres of gravel sourced from a third party quarry located in Tari.



Plate 6.8 – Hides Wellpad G

At the LNG Plant, bedding and concrete works, as well as camp upgrade works, required the purchase of approximately 1870 cubic metres of sand, concrete and aggregate from third party quarries. Camp upgrade works also required the procurement of approximately 6.5 cubic metres of timber from third party suppliers.

## 6.5 Spill prevention and response

To reduce the likelihood and consequences of emergency situations, EMPNG maintains dedicated personnel, plans, equipment, drills and workforce training. These resources encompass liquid and gaseous hydrocarbon spill prevention and response.

During the second half of 2015, EMPNG recorded thirteen low-level incidents involving 10 hydrocarbon spills, two chemical spills and one sewage spill to ground. Six of the hydrocarbon spills were less than 2 litres and three were less than 7 litres each. One hydrocarbon spill involved the release of approximately 100 litres of oily water to ground when the flush sump to the HGCP retention pond overflowed during heavy rainfall.

The chemical spills both occurred when monoethylene glycol waste was released to ground during transfer between containers. One of these spills involved 3.8 litres of monoethylene glycol and the other involved 1 litre. The sewage spill involved approximately 1600 litres of partially treated sewage releasing to a concrete bunded area and then migrating outside the bunded area to ground when a pipe on the HGCP wastewater treatment plant split.

All spills were responded to appropriately and in a timely manner.

Six near misses were also recorded during the second half. These involved spills that were contained within sealed bunded areas or on concrete.

The Drilling organisation recorded four low-level incidents involving hydrocarbon spills to ground during the second half. The spills were associated with leaks from vehicles, with volumes ranging between 3 and 84 litres. Three near miss spills were also recorded.

No spills were recorded at the PFC during the second half of 2015.

EMPNG and its contractors conducted 28 spill response drills at worksites in the second half. The Drilling organisation conducted 18 of these, while three were held in the Upstream area and another seven at the LNG Plant.

Scenarios conducted during the second half of 2015 included: a release of monoethylene glycol in the Upstream area; an oil release from an offshore third party vessel; an oil release caused by a collision between marine vessels; a shoreline oil release by a third party; oil spill recovery in difficult terrain; a release of various drilling fluids from primary containers and during fluid transfer; oil spill recovery in difficult terrain; and a condensate release from a pipeline leak along the ROW.

Spill response scenarios included desktop exercises, field discussions, full equipment deployment and practical execution of response methods as described in *Case study: Training workers for emergency response*.

In addition to these scenarios, workers receive ongoing training about spill prevention and response through toolbox talks, site inductions and individual coaching.

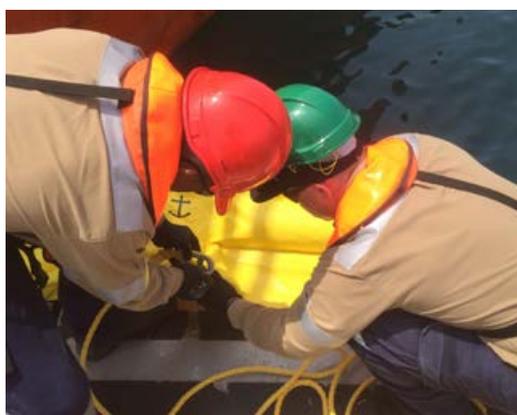


Plate 6.9 – Emergency responders preparing to deploy a containment boom during simulation of an oil release



Plate 6.10 – Completed deployment of the containment boom

This training helps reinforce the mandatory use of drip trays and absorbent pads at worksites. EMPNG also maintains regular inspections of spill kits across all worksites.

## 6.6 Waste management

EMPNG applies waste reuse initiatives and uses approved third party facilities to recycle production waste where practicable.

These measures are enabling the company to reduce the amount of waste sent to landfill.

A register of all waste received and collected at production waste processing facilities is maintained by the company's waste contractor. The register records information such as the waste transfer number, waste classifications, quantities and treatment/disposal methods.

In the second half of 2015, more than 77,000 litres of waste drilling oil was processed at third party facilities to be reused as fuel, while 4408 tonnes of processed drill cuttings were reused as landfill cover. Another 801 tonnes of surplus drilling material, such as cement and salt, were reused within drilling operations.

The Hides Waste Management Facility high temperature incinerator reused 41,610 litres of waste oil from EMPNG operations as fuel, and more than 20 tonnes of scrap metal and light plastics were recycled through third party facilities. Additionally, 3 tonnes of good quality surplus wood from packaging materials was donated to communities for building.

An increase in waste volumes was recorded in the Upstream area during the second half as a result of the demobilisation of drilling activities.

At the end of the drilling program leftover chemicals were either returned to suppliers for future reuse, or appropriately disposed of in the Hides Waste Management Facility high temperature incinerator or through approved third party facilities in Australia.

A landfill survey was conducted at the LNG Plant Waste Management Facility in November to confirm the current waste volume in the Facility's operational landfill cell. Specialised containers also arrived at the LNG Plant Waste Management Facility to securely store waste oil and hazardous chemicals from production prior to transportation to third party facilities for processing.

Following the decommissioning of a rotary kiln incinerator at the LNG Plant in June 2015, the incinerator from the PFC construction site was permanently transferred to the LNG Plant site and used to dispose of both restricted and non-restricted wastes throughout the second half of 2015.



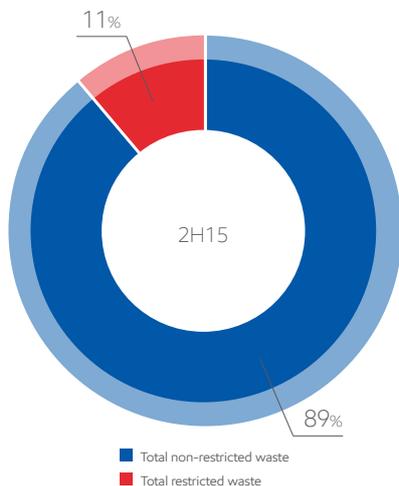
Plate 6.11 – The PFC incinerator in its new permanent location at the LNG Plant site

Regular waste collection began from the PFC during the second half, with approximately 134 tonnes of solid waste collected and sent to the LNG Plant Waste Management Facility for treatment.

In December, a waste register was established specifically for the PFC to record and classify all waste collected from this facility.

### Figure 6.2 - Waste types

Percentage of waste generated by classification



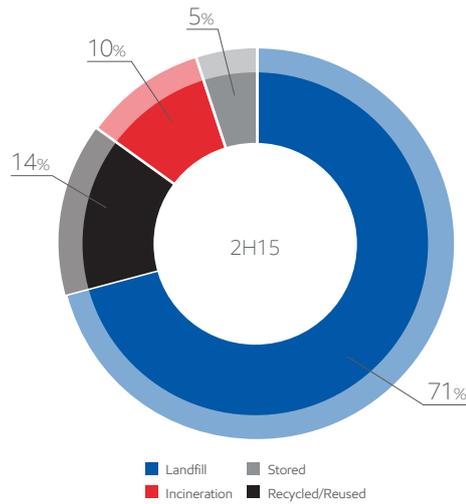
A clean-up of a section of Saraga Creek, which runs through the PFC site, was also conducted.

Most waste produced in the second half of 2015 was classified as non-restricted, as shown in Figure 6.2. The predominant waste type was construction waste from the demobilisation of drilling operations.

Solid waste by disposal method is shown in Figure 6.3.

### Figure 6.3 - Disposal methods

Percentage of waste by disposal method



## 6.7 Reinstatement, erosion and sediment control

Aerial and ground inspections are used to monitor the effectiveness of EMPNG's erosion and sediment control measures in areas near production facilities.

Specialist teams manage the repair and augmentation of control measures when needed.

A milestone was achieved during the second half of 2015 when erosion repair works and seeding were completed at Komo Airfield.



Plate 6.12 – Newly seeded areas and lined drains at Komo Airfield



Plate 6.13 – Aerial surveillance of a regenerating section of the ROW

Maintenance was also conducted on erosion control measures at the HGCP, Kutubu Main Line Valve and along the pipeline ROW at Homa Ridge and Kilometre Points 61, 62, 81, 82, 86, 97, 98, 100, 107, 113, 132, 135 and 150.

Additional maintenance was undertaken to address some erosion along areas of the pipeline ROW that caretaking clans involved in Clan ROW. Maintenance Agreements identified.

EMPNG conducts ongoing surveillance at reinstated sites to address weeds or erosion.

In addition to surveillance, the progress of revegetation and habitat recovery is incorporated into EMPNG's Biodiversity Strategy as part of Programmed Monitoring Activity (PMA) 2: Condition Surveys.

# Case study

## Training workers for emergency response

Since the start of 2015, EMPNG has conducted more than 80 emergency response drills to ensure workers are appropriately trained and prepared for potential emergency situations.

The drills were conducted through desktop exercises, field-based discussions, full equipment deployment and practical execution of response methods.

Emergency response scenarios included: oil spill recovery in difficult terrain; a condensate spill from a wellpad; an aviation fuel release from a fuel storage area; an off-site truck rollover; a release of monoethylene glycol in the Upstream area; a condensate release from a pipeline leak along the ROW; and an oil release offshore by a third party.

One major exercise held during the second half was an oil spill response scenario involving LNG Plant emergency responders and shipping crew on 7-8 November.

This exercise provided emergency response personnel with the opportunity to practice their skills in shoreline containment and recovery booming techniques, as well as gain further experience with boat dispersant spray system application. It also enabled EMPNG to recognise challenges with spill response and identify solutions.

Lessons learned from spill response scenarios conducted during the year have been incorporated in EMPNG's emergency response plans.



Prior to deployment the boom is flaked out and the anchor point prepared



An emergency responder monitoring boom deployment to prevent twisting as the boat tows the boom into position



Unloading of equipment and placement of the boom at the exercise staging area – the boom is then connected in preparation for deployment



Emergency responders, John Vaike and Maiku Kore, after completing boom deployment



# 7 Biodiversity

Biodiversity management and monitoring programs are conducted by EMPNG to preserve Papua New Guinea's unique biodiversity.

## 7.1 Biodiversity management

EMPNG's Biodiversity Strategy governs the company's management of biodiversity in Papua New Guinea.

The Strategy is implemented and monitored through supporting plans and protocols that are designed to safeguard biodiversity in areas where EMPNG operates and, in particular, the biodiversity values in the Upstream area.

An important part of the Biodiversity Strategy is the offset program. This program was designed to balance the residual impacts associated with the construction of the PNG LNG Project with equivalent biodiversity gains.

During the second half of 2015, EMPNG's biodiversity offset activities focused on biodiversity offset program Component 4: Enhance existing protected area(s), and Component 5: Establish new protected area(s).

Component 4 aims to enhance the Lake Kutubu WMA, located within the Upstream area. During the second half of 2015, two community-based workshops were coordinated by Dr Katayo Sagata from EMPNG's program partner, the Institute of Biological Research.

The first workshop was held over one week between late October and early November to develop a conceptual enhancement plan for the Lake Kutubu WMA. The conceptual enhancement plan specifies the long-term vision and objectives for the WMA.

The second workshop, held over four days in December, focused on identifying roles, responsibilities and training needs for the Lake Kutubu WMA Committee. Outcomes of these workshops included the formation of working groups within the Lake Kutubu WMA Committee and plans to further progress the conceptual enhancement plan in 2016.

EMPNG also progressed Component 5, which aims to create new community-based protected areas in the Upstream area that are representative of the biodiversity values affected by the PNG LNG Project.

In the second half of 2015, work to progress this component included a meeting with the Hela Provincial Administrator and the Administrator's technical officers in October to explain the aims of EMPNG's offset program and the need to create a new protected area in the high montane region of Hela Province. The Hela administration has invited further engagement from EMPNG regarding biodiversity conservation in the area.

In addition to the meetings in Hela Province, EMPNG representatives and Village Liaison Officers spent 10 days in the Kikori delta holding meetings in Goare, Omati, Kopi and Waira villages. A meeting was also held in Ero Village, which is the site of the Aird Hills WMA. These village-based meetings were well attended by residents. They focused on communicating the offset program, developing village profiles and conducting an analysis to structure work programs relevant to village communities.



Plate 7.2 – Members of the Lake Kutubu WMA Committee who attended the second workshop

Opposite:  
Plate 7.1 – Biodiversity Advisor, Rebekah Ilave, monitoring a Programmed Monitoring Activity 2 survey site at Mubi River



Plate 7.3 – Biodiversity Lead, Dr Jane Mogina, returning to the live-aboard vessel following village-based meetings in the Kikori delta

Biodiversity monitoring progressed during the second half, with work completed on the acquisition of Landsat and high-resolution Rapid Eye imagery to assess broad forest change as part of PMA1: Remote Sensing of Indirect Impacts. This imagery will be analysed in early 2016.

PMA2: Condition Surveys also progressed with 50 focal habitat sites monitored between the Homa and Paua areas, and Kopi Scraper Station. Most of the sites monitored were found to be in good condition, with many returning to pre-construction levels.

Some sites monitored were being used by local communities, but were kept in good condition.



Plate 7.5 – Small lake at Kilometre Point 15 on the Hides Spine



Plate 7.4 – An active megapode (stocky, medium-large chicken-like birds with small heads and large feet in the family Megapodiidae) mound observed near the pipeline ROW during PMA2 monitoring

For example, a small lake at Kilometre Point 15 was observed to be supporting thriving populations of frogs, mayflies and dragonflies, indicating a healthy ecological community.



Plate 7.6 – A PMA2 monitoring site near Kilometre Point 2 featuring a cave and underground river

A preliminary report related to PMA3: Biodiversity Surveys was completed, with more than 510 animal and plant species documented during the surveys. This includes at least 26 species previously unknown to science (new species), or species that were known but are yet to be scientifically named (undescribed) as outlined in *Case study: Monitoring uncovers new species*.

Fifteen species listed by the International Union for Conservation of Nature in a category of least concern or higher are also included.



Plate 7.7 – Crested satinbird (*Cnemophilus macgregorii*) photographed in Moro during a PMA3 survey

The preliminary report recorded 291 species of plants, 30 species of frogs, 161 species of birds, 25 species of non-volant mammals and six species of bats from survey sites at the Hides Spine and Moro.

## 7.2 Ecological management

All mangrove species on the ROW exhibited healthy growth during monitoring in the second half of 2015.

Grey mangrove (*Avicinnia marina*) was the first species to start colonising the ROW after reinstatement.



Plate 7.8 – Flowering and fruiting grey mangrove shrub on the ROW at the LNG Plant landfall site

### Up close



## Monitoring uses world experts

World-renowned bird of prey expert, Leo Legra is providing his expertise to EMPNG's biodiversity team with monitoring of raptor species in Papua New Guinea. Leo, who completed his Bachelor of Science degree with the University of Papua New Guinea, is well known for his work with the New Guinea harpy eagle, for which he received funding from the Peregrine Fund to study the nesting ecology, habitat use and behavioural biology of this species. He is using this knowledge to provide technical support to EMPNG with bird diversity and species surveys as part of PMA3.

"Given that the harpy eagle, as well as other cryptic raptors, are habitat specialists and are often found in forests that have an abundance of prey and are largely undisturbed, biodiversity surveys can give some indication of the abundance and availability of prey in the survey areas and whether such habitats are healthy enough to sustain populations of raptors," Leo said.

A world-leading expert on the long-beaked echidna, mammologist Muse Opiang, has also been engaged by EMPNG to help implement the company's biodiversity program. Muse is a graduate of the University of Papua New Guinea where he completed honours studies in the long-beaked echidna. His research is recognised around the world because he is considered to be possibly the only person who has been able to capture, radio-track and study this rare and endangered echidna species. Muse said he was pleased to see companies such as EMPNG working closely with the Government and communities to preserve biodiversity in Papua New Guinea.



Left: Leo Legra, New Guinea harpy eagle specialist; Right: Muse Opiang, long-beaked echidna specialist



## Tree kangaroos

Tree kangaroos are the largest native land mammals in Papua New Guinea.

Of the 14 species of tree kangaroo, 12 are endemic to New Guinea. They are unique among kangaroos because they are arboreal (live in trees), although they come down to the ground frequently.

Tree kangaroos feed on leaves and fruits and tend to be solitary. They are heavily hunted for food, which has reduced populations of most species throughout New Guinea.

Of the 12 New Guinea species, 11 are classified in the International Union for Conservation of Nature Red List of Threatened Species.

Three species of tree kangaroo occur in the Upstream area. The brightly coloured Goodfellow's tree kangaroo (*Dendrolagus goodfellowi*) occurs only in the montane forests of Papua New Guinea.

The *Dendrolagus notatus* species is found in the central ranges of Papua New Guinea. Its habitat and distribution are similar to the Goodfellow's tree kangaroo but generally occur at higher elevations. It appears to exist at naturally low densities.

The lowland tree kangaroo (*Dendrolagus spadix*) is one of the least-known tree kangaroos and has a broad distribution in the south-central lowlands of Papua New Guinea – mainly on the Kikori River, where there is little settlement. Little is known of this species.



A rare sighting of a *Dendrolagus notatus* during a biodiversity survey

Saplings of this species are now showing signs of maturity by flowering and fruiting.

Fixed photo points established on the high tide, middle tide and low tide marks in the first half of 2015 are proving useful for mangrove monitoring.



Plate 7.9 – Nicole Yasi, Environmental Specialist, and Rebekah Ilave, Biodiversity Advisor, marking fixed photo points for future mangrove monitoring

Two sandalwood (*Santalum macgregorii*) trees, listed as endangered by the International Union for Conservation of Nature, are monitored each month at the LNG Plant site.

Monitoring during the second half found that the sandalwood trees were recovering well from a bushfire that occurred in September and were flowering and fruiting profusely.

Ecology monitoring has also observed that the wallaby population at the LNG Plant site is growing.

EMPNG is working with LNG Plant site management to increase worker awareness about wildlife protection within the facility and identifying wallaby habitat areas for appropriate wildlife management.



Plate 7.10 – Agile wallaby (*Macropus agilis*) at the LNG Plant site

## 7.3 Quarantine management

EMPNG and its contractors comply with the Papua New Guinean National Agriculture Quarantine and Inspection Authority's regulations and procedures when managing freight imports into Papua New Guinea.



Plate 7.11 – Healthy flowers of sandalwood

In the second half of 2015, EMPNG received 608 shipments into Papua New Guinea, bringing the total shipments received for the year to more than 1900.

Seventy-five shipments were inspected during the second half, with 10 of these requiring re-fumigation in accordance with National Agriculture Quarantine and Inspection Authority procedures.

Eighteen percent of total shipments were inspected this year, with 7 percent of these requiring re-fumigation.

## 7.4 Weed, plant pathogen and pest management

EMPNG's independent weed auditor conducted its eighth annual weed audit in November. Priority 1 weed species at the HGCP were found to be at their lowest level since construction began, with only two species recorded during the audit. This is attributed to EMPNG's ongoing weed control activities, particularly with regard to the control of existing Priority 1 weeds and the prevention of additional Priority 1 species.

At the Hides Waste Management Facility, the audit identified two Priority 1 weed species, a significant decrease from the previously highest recorded level of eight.

Along the pipeline ROW and in areas of priority ecosystems, weed species diversity was low compared to pre-construction survey levels.

This is due to extensive weed control conducted by EMPNG's third party contractor, and as a result of the success of the Clan ROW Maintenance Agreement program.



Plate 7.12 – The annual weed audit included aerial surveillance

Some weed species have extended their range within their weed management zones. For example, molasses grass (*Melinis minutiflora*), anglestem willow primrose (*Ludwigia leptocarpa*) and greenleaf desmodium (*Desomodium intortum*) have spread to some new locations within the zone. This extension of weed range is expected as part of natural ecological succession following ground disturbance from construction.

During the audit, a comprehensive status review was conducted of all the weeds found at EMPNG sites.

This review involved the reclassification of 14 weed species. The Priority 2 weed highlands trefoil (*Desmodium sequax*), was upgraded to a Priority 1 weed because of an overall increase in abundance, while coleus (*Plectranthus scutellarioides*), was reclassified from a Priority 3 weed to a Papua New Guinean native species.

The remaining 12 Priority 2 weeds were downgraded to Priority 3. Changes to the classification of weed species are determined through research conducted by the weed auditor in collaboration with specialist organisations such as the Queensland Herbarium in Australia.

EMPNG continues to educate and engage with its workforce and local communities to enable greater weed control and prevent weeds from being transported across sites.



Plate 7.13 – Village Liaison Officer weed identification training at the HGCP

## 7.5 Access control

EMPNG’s access control system is used to collect data from security checkpoints about the types of vehicles that enter EMPNG-controlled roads and the reasons for the road use.

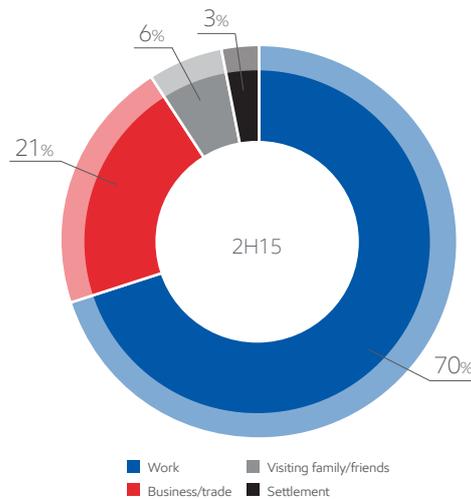
In the second half of 2015, EMPNG recorded 1016 vehicles using the company’s access roads, primarily for work, business/trade or visiting family and friends, as shown in Figure 7.1.

The types of vehicles that used EMPNG-controlled roads are shown in Figure 7.2.

The number of private vehicles using the southern logistics route in the Upstream area increased in late 2015 because of people participating in celebrations for the Evangelical Church of Papua New Guinea’s 50<sup>th</sup> Anniversary in Samberigi. Missionaries from Papua New Guinea, Australia and New Zealand attended the event.

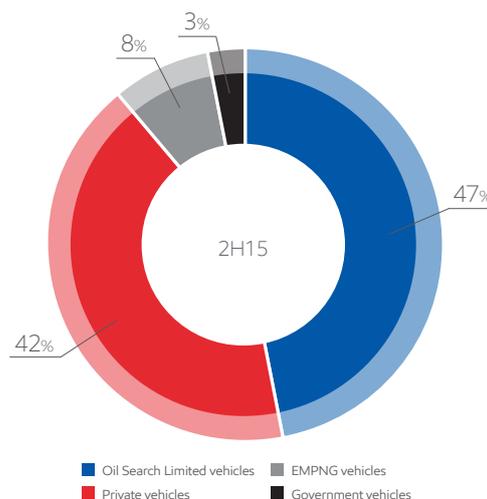
**Figure 7.1 - Purpose of access**

Percentage of traffic using EMPNG controlled roads by purpose



**Figure 7.2 - Vehicle types**

Percentage of vehicle types using EMPNG access points



Despite this increase, an overall comparison of access control data collected since early 2015 shows no significant change in the volume or composition of traffic using EMPNG’s access roads. This indicates that the company’s access control measures are proving effective.

EMPNG continues to maintain access control at the Hides Wellpad Access Road through the use of access control checkpoints and worker site identification cards.

# Case study

## Monitoring uncovers new species

EMPNG's commitment to preserving the biodiversity of Papua New Guinea has helped uncover some new plant and animal species not previously identified in the country.

During monitoring for the *Piku* Project, which EMPNG supports, University of Canberra researchers discovered a new freshwater turtle species that is genetically related to the northern snapping turtle (*Elseya dentate*). The newly discovered species, called *Elseya rhodini*, forms part of the Chelidae family of side-neck turtles that are restricted to the continents of South America and Australia, including the islands of New Guinea, Timor and Roti.



The head of the newly discovered *Elseya rhodini*

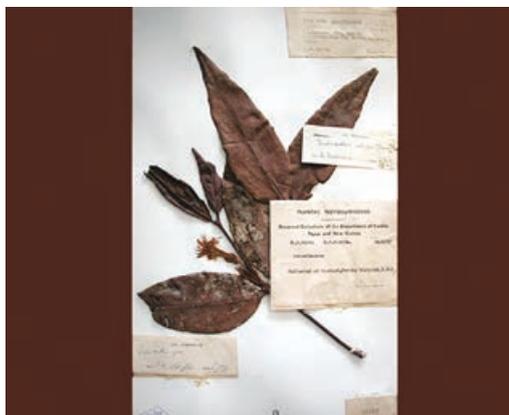


Habitat of *Elseya rhodini* at Wau Creek in Kikori

EMPNG continues to provide funding for turtle research, with PGK290,000 (USD\$96,425) provided to the *Piku* Project in 2015, bringing the total funding provided for this project to PGK2.6 million (USD\$864,500) to date.

In addition to the new turtle species, a new plant species was discovered along the onshore pipeline ROW during pre-construction surveys. In the second half of 2015, this species was officially named *Distrianthes exxonmobilenis*.

This plant has been found rooted to mossy tree trunks around the forests of Juha and the Strickland basin region in Papua New Guinea's Western Province. The shrub-like plant was among 16 new plants, five non-volant mammals including two marsupials, 11 lizards, 60 frogs and one bat species discovered during EMPNG's biodiversity baseline studies.



Newly named plant species *Distrianthes exxonmobilenis*

EMPNG Managing Director, Andrew Barry, said the company remains committed to protecting Papua New Guinea's unique environment for future generations.

"Papua New Guinea contains an estimated 5-10 percent of the world's plant and animal species on a land area accounting for less than one percent of the Earth's surface," Andrew said.

"Building a large scale project like ours means a large environmental footprint. We have a biodiversity strategy and offset plan in place to minimise our footprint and to protect Papua New Guinea's environment for the long-term."



# 8 Performance

System assessments, site inspections, surveys, sampling and measurement are among the monitoring and evaluation tools used to assess the effectiveness of the ESMP. They also enable EMPNG to determine whether mitigation measures designed to manage production risks are achieving their intended outcomes.

## 8.1 Incidents

EMPNG's approach to managing incidents is outlined in the company's incident management system. An incident is defined as a situation that has an unintended impact on a person's health, safety, security or livelihood, or has an impact on property, the environment, or legal/regulatory compliance. EMPNG classifies incidents through assigning a corresponding Severity Level of <0, 0, 1, 2, or 3. Severity Level <0 has no significant impact, while Severity Level 2 or 3 require notification to the IESC, or relevant government authority.

In the second half of 2015, EMPNG recorded 32 low-level environmental incidents classified Severity Level <0 and nine near misses. The causes of these incidents were investigated and EMPNG and its contractors implemented corrective actions to reduce the likelihood of reoccurrence. None of these incidents resulted in a significant impact to the environment.

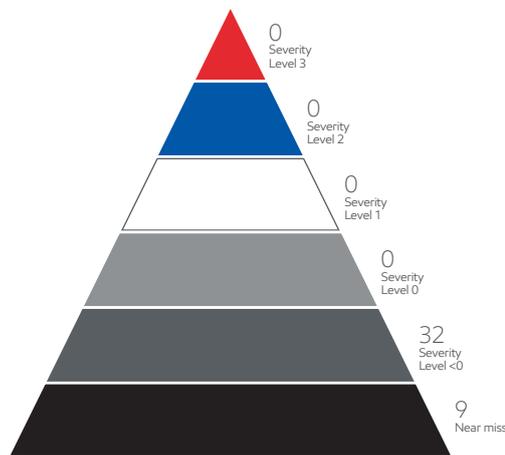
Figure 8.1 shows the incidents and near misses recorded by Severity Level.

No Severity Level 0, 1, 2 or 3 incidents, requiring notification to the IESC or relevant government authority, occurred during the second half.

## 8.2 Monitoring and evaluation

EMPNG monitors, verifies and evaluates its conformance with the ESMP through implementation of the ExxonMobil Operations Integrity Management System. This enables the company to confirm its mitigation of recognised risks so that intended outcomes are achieved.

**Figure 8.1 - Incidents**  
2H15 numbers by Severity Level



Site Environmental Specialists implement EMPNG's verification program by inspecting worksites, conducting field observations and monitoring air, noise and water discharge in accordance with EMPNG's environmental protocols.

### 8.2.1 Results

Situations that do not meet ESMP requirements are defined as non-conformances. Three Severity Levels are used to classify non-conformances, with Severity Level I involving no damage or reasonable expectation of damage, to Severity Level III requiring expeditious corrective actions. These Severity Levels align with the incident Severity Levels of <0, 0, 1, 2 and 3.

Thirteen Severity Level I environmental non-conformances were recorded during the second half of 2015.

*Opposite:*  
Plate 8.1 – Jeremiah Liliura, Environmental Advisor, collecting ambient air quality readings from the monitoring station at the HGCP

Seven related to exceedances of wastewater management criteria, one regarded a discharge of wastewater into the Eda Ranu sewage main during commissioning works at the PFC, one related to an exceedance of stormwater runoff criteria, one was raised for a spill of partially treated sewage at the HGCP and another one was in regard to an exceedance of air quality criteria. These non-conformances were also recorded as Severity Level <0 incidents. The remaining two non-conformances regarded exceedances of noise management criteria.

Corrective actions have been implemented to prevent reoccurrence and there was no damage to the environment caused by any of the non-conformances recorded.

EMPNG continues to detect potential non-conformance situations through field observations that identify an intervention and/or corrective action required to prevent a non-conformance. Examples of good environmental practices are recorded as positive field observations.

Non-conformances and field observations recorded in the second half of 2015 are shown in Figure 8.2.

Of the 49 field observations recorded, seven were for erosion and sediment control management, 12 regarded waste management, three were for air emissions, 11 related to water discharges, 12 were for spill prevention and response management and four were for biodiversity-related aspects.

**Figure 8.2 - Non-conformances and field observations**

2H15 numbers by Severity Level

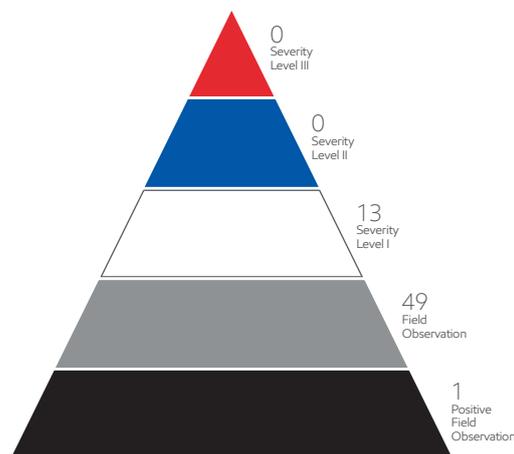


Plate 8.2 – IESC representatives reviewing reinstatement progress along a section of the ROW



Plate 8.3 – IESC representatives with EMPNG personnel at the LNG Plant landfall site to inspect the progress of mangrove regeneration

By the end of December, 16 field observations remained open, with actions progressing to close these observations. One positive observation was recorded during the second half for waste management at the LNG Plant.

Findings from the October IESC monitoring visit are available on the PNG LNG Project website.

Visit the website at [www.pnglng.com](http://www.pnglng.com)



### 8.3 External monitoring

The IESC conducted a monitoring visit during October. The visit included meetings with EMPNG executives in Port Moresby and site visits to the LNG Plant and Hides facilities.



Plate 8.4 – IESC representatives talking to the Belopa Women's Group



# 9 Stakeholder engagement

Ongoing engagement and collaboration enables EMPNG to keep communities and other stakeholders informed about production activities.

## 9.1 Communities

EMPNG conducted 460 formal community engagements in 68 communities, and 3054 informal engagements in 80 communities, during the second half of 2015. These engagements involved 14,626 attendees.

For the year of 2015, EMPNG conducted 1249 formal community engagements and 6224 informal engagements with 104 communities involving more than 34,500 attendees.

In the Upstream area, engagements included supporting women's groups and explaining pipeline ROW caretaking activities to clans involved in Clan ROW Maintenance Agreements. Engagement activities also included the presentation of graduation prizes to students from local primary schools.

In LNG Plant site villages, engagements focused on providing support and crop planting advice as part of the LNG Plant food and agricultural program.



Plate 9.2 – Agricultural specialist, Michael Atuai, provides nursery management advice to Daisy Guba and her family at Daisy's nursery in Boera

EMPNG also provided support and business mentoring to local businesses, and raised awareness about bushfire prevention.

In November, more than 40 students from Bogi Literacy School in Lea Lea Village participated in a road safety awareness session conducted by EMPNG. The session included a presentation about road safety rules and examples of unsafe situations and safe behaviours on roads.



Plate 9.3 – Students from Bogi Literacy School in Lea Lea

### 9.1.1 Issues identification

As shown in Figure 9.1, economic issues accounted for 31 percent of all issues raised in the second half of 2015. These mainly regarded requests for community development support and questions about clan caretaking activities and employment with EMPNG. This is consistent with the first half of 2015, whereby economic issues accounted for 26 percent of all issues raised.

In the second half of 2015, government topics accounted for 26 percent of issues raised, with most regarding the Government's distribution of royalties from LNG production. This is also consistent with the first half of 2015 in which government issues accounted for 20 percent of issues raised.

*Opposite:*  
Plate 9.1 – Aerial view of a local community in the Upstream area



## Forty years of independence

EMPNG donated PGK14,000 (USD\$4655) of sporting equipment and refreshments to Upstream area and LNG Plant site communities in September to support celebrations for Papua New Guinea's 40<sup>th</sup> year of independence.

The donations were provided to communities such as Anguale and Tolapu villages in the Upstream area and Papa, Lea Lea, Porebada and Boera villages near the LNG Plant site.

More than 800 EMPNG workers and their families also joined together to celebrate Papua New Guinea's Independence Day with a family fun day at the company's head office in Port Moresby. The day included a walk-through timeline of historic events in Papua New Guinea, face painting, games and traditional dances from the Autonomous Region of Bougainville and the Madang, Oro, Milne Bay, Manus and East New Britain provinces. During the event, EMPNG's Papua New Guinean workers were encouraged to 'adopt an expat' and dress them in traditional outfits from their home province.



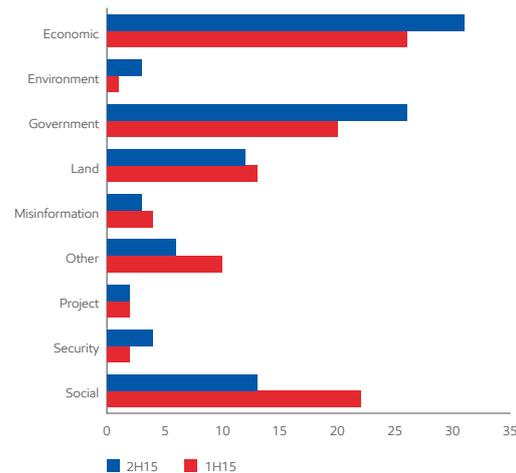
Students from Lea Lea Primary School performing a traditional *sing-sing*, a 'gathering of tribes or villages where they show off their distinct cultures', during their Independence Day celebrations



An independence march held at Papa Village

## Figure 9.1 - Issues

Percentage received by issue category



Social concerns comprised 13 percent of issues recorded in the second half, with most relating to requests for support with community health programs, training and financial assistance. This category also included expressions of gratitude from communities for EMPNG's community support programs. By comparison, social issues accounted for 22 percent of issues raised in the first half of 2015. These also regarded requests for community health support and included positive comments about EMPNG's stakeholder engagement activities.

Land issues accounted for 12 percent of issues raised in the second half and mostly related to compensation payments and land access.

## 9.2 Government

EMPNG is engaging with all levels of government to keep government representatives informed about production activities.

### 9.2.1 Infrastructure and government support

During the second half of 2015, EMPNG provided support with a field assessment conducted by two Papua New Guinean companies to determine telecommunications needs in Upstream area communities. EMPNG also provided financial and engineering support for emergency repairs along sections of the Highlands Highway through to the end of December.

### 9.2.2 Advocacy

More than 190 students from Papa, Lea Lea, Boera and Porebada primary schools visited the LNG Plant site in the second half of 2015. The students were among some 250 visitors to the LNG Plant site during the second half, bringing the total to approximately 350 visitors throughout 2015.



Plate 9.4 – Grade 8 Papa Primary School students touring the LNG Plant site

Other visitors included Papua New Guinea’s First Lady, Lynda Babao O’Neill, who participated in an LNG Plant site tour in August, along with the Papua New Guinea Secretary for the Department of Community Development, Anna Solomon, and alumni from the Centre for Development and Population Activities Global Women in Management program.

During a visit by the ExxonMobil Board in June to Papua New Guinea, Chairman and Chief Executive Officer, Exxon Mobil Corporation, Rex Tillerson and other directors and executives visited a number of PNG LNG Project locations. A delegation from LNG Japan Corporation also visited the LNG Plant while attending the annual Papua New Guinea Chamber of Mines and Petroleum Conference in November.



Plate 9.6 – Rex Tillerson, Chairman and Chief Executive Officer, Exxon Mobil Corporation (right) with Operations Technicians, Olema Uru and Esther Kila, at the LNG Plant

EMPNG conducted a three-day workshop during the second half with some 40 petroleum and geology students from the University of Papua New Guinea. During the workshop, the students were provided with an overview of the oil and gas industry and insights into the exploration, construction and production phases. The workshop included a tour of the LNG Plant and a presentation about the PNG LNG Project from EMPNG Managing Director, Andrew Barry.

As well as tours and workshops, EMPNG’s advocacy program provided status updates to key stakeholders about production progress, community development programs and national content initiatives, such as the training and development of local workers, Lancos and associated suppliers.



Plate 9.5 – Papua New Guinea’s First Lady, Lynda Babao O’Neill (far right), with Anna Solomon (far left), Secretary for the Department of Community Development, and alumni from the Centre for Development and Population Activities Global Women in Management program, Lucy Igo and Vavine Dai, with Marine Supervisor, Laufa Lavai



Plate 9.7 – Students from the University of Papua New Guinea participated in a three-day workshop at the LNG Plant

### 9.2.3 Benefits assurance delivery

Monthly royalties from EMPNG’s LNG production continue to be paid to the Papua New Guinean Government for distribution to landowners. The funds are deposited in a Government-appointed trust account with the Bank of Papua New Guinea. The Department of Finance and the Department of Petroleum and Energy are the custodians of the trust account. Mediation continues with Upstream area landowners, through Papua New Guinea’s National Court, regarding the distribution of benefits from oil and gas production. The Papua New Guinean Government is funding this mediation.

### 9.2.4 Revenue management

During the second half of 2015, the Papua New Guinea Extractive Industries Transparency Initiative (EITI) National Secretariat awarded the Independent Administrator role to contractor Ernst & Young Global Limited. Since this appointment, Ernst & Young have drafted an inception report and reporting templates, completed data collection and progressed drafting of the first Papua New Guinea EITI country report. The launch of the first country report is scheduled to be held in Port Moresby in February 2016, ahead of the Global EITI Conference in Lima, Peru, later that month. Papua New Guinean leaders have been invited to speak at the Global EITI Conference. Papua New Guinea’s delegation will be composed of multi-stakeholder group members and other representatives from government, industry and civil society.

The EITI is a voluntary initiative that aims to improve governance in resource-rich countries through the disclosure and verification of company payments and government revenues from oil, gas and mining projects. EMPNG is among 21 members of Papua New Guinea’s EITI multi-stakeholder group. ExxonMobil has served continuously on the EITI board since its inception in 2002.

## Up close



### Developing leadership

EMPNG is working with the governments of Papua New Guinea and Australia to help strengthen leadership capabilities in Papua New Guinea and advance efforts to promote sustainable economic development.

Together, these governments – having recently launched the Pacific Leadership and Governance Precinct – held a workshop in November that focused on strengthening the leadership capabilities of Papua New Guinean officials tasked with managing the nation’s economy.

The University of Queensland-delivered workshop, conducted in partnership with EMPNG, emphasised how pragmatic policy-making and implementation can overcome existing capacity constraints in Papua New Guinea.

The Pacific Leadership and Governance Precinct will strengthen Papua New Guinea’s higher education curriculum in areas that include governance, public policy and ethical decision-making.

Papua New Guinea’s Minister for Public Service, Sir Puka Temu, said courses offered through the Precinct would promote national development and standards of competence and strengthen the culture of integrity in the public service.

EMPNG’s support for the Precinct has been provided under a Memorandum of Understanding signed with the Commonwealth of Australia in December 2014. The Precinct is among numerous projects that EMPNG is engaged in to help build capacity in Papua New Guinea.

Other partnership initiatives include a pioneering effort to build law and justice capacity in Hela Province, as well as programs to promote sound revenue management.



EMPNG Managing Director, Andrew Barry, shares his perspective on “Leadership in the Extractives Sector” at the 6 November workshop



Plate 9.8 – EMPNG representatives and PNG Hunters rugby league players at the EMPNG information booth during the Chamber of Mines and Petroleum conference

### 9.3 Media

In the second half of 2015, EMPNG Managing Director, Andrew Barry, presented at Gastech in Singapore, the Papua New Guinea Clean and Renewable Energy Conference, the Pacific Leadership and Governance Precinct, the Papua New Guinea Chamber of Mines and Petroleum Conference and the Papua New Guinea Advantage Investment Summit held in Brisbane, Australia.

EMPNG also hosted an information booth during the Chamber of Mines and Petroleum conference, with PNG Hunters rugby league players signing autographs for conference attendees. EMPNG is a key sponsor of the PNG Hunters team.

A new advertising campaign was launched in August to highlight the long-term contribution that EMPNG is making to Papua New Guinea. The campaign, called *Stori bilong mi* or 'My story', provides real-life stories of people who have been involved with the PNG LNG Project and the benefits this has provided to their families and communities.

A media *bung* or 'get-together' was held in Port Moresby in December to provide an update on EMPNG operations and thank the media for their support this year.

The third and fourth editions of *PNG LNG TIES* were published during the second half.

*PNG LNG TIES* is an eight-page pictorial broadsheet-sized newsletter that covers production and business updates, along with stories about EMPNG's interactions with local communities.



Plate 9.9 – EMPNG Managing Director, Andrew Barry, presenting at the media *bung* in December

Seven thousand copies of the third *PNG LNG TIES* edition were distributed to EMPNG workers, government, media, local communities and other stakeholders. This edition was also published on the PNG LNG Project website. The fourth edition of *PNG LNG TIES* will be distributed in early 2016.

Visit the website at [www.pnglng.com](http://www.pnglng.com)



The *PNG LNG Environmental and Social Report – First Half 2015* was distributed during the second half of 2015. The Report's Executive Summary was published in Tok Pisin and printed copies of the Report were made available to stakeholders with limited access to the internet. The First Half 2015 Report, along with previous Environmental and Social Reports can be found on the PNG LNG Project website.



# 10 Acronyms

Acronym	Definition
2H15	Second half of 2015 – 1 July to 31 December 2015
AIDS	Acquired Immunodeficiency Syndrome
EITI	Extractive Industries Transparency Initiative
EMPNG	ExxonMobil PNG Limited
ESMP	Environmental and Social Management Plan
HGCP	Hides Gas Conditioning Plant
HIV	Human Immunodeficiency Virus
IESC	Lender Group's Independent Environmental and Social Consultant
Lanco(s)	Landowner company (companies)
LNG	Liquefied Natural Gas
PFC	Permanent Facilities Compound
PMA	Programmed Monitoring Activity
PNG	Papua New Guinea
ROW	Right of Way
Unitech	Papua New Guinea University of Technology
WMA	Wildlife Management Area

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*Opposite:  
Plate 10.1 – A Huli  
performer at the Goroka  
Show tribal gathering  
and cultural event.  
Image courtesy of Laura  
Ann Dresser*



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For the purposes of this Report, the currency conversion rate used, between Papua New Guinea Kina (PGK) and United States Dollars (USD\$) is 0.3325 [PGK1 = USD\$0.3325]. This rate is as published by the Bank of Papua New Guinea at 31 December 2015.



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