



PNG LNG Environmental and Social Report – **Annual 2022**



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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 0.2840 [PGK1 = USD0.2840]. This rate is as published by the Bank of Papua New Guinea as at 31 December 2022.

TO OUR STAKEHOLDERS

In 2022, an ExxonMobil affiliate celebrated 100 years of continuous operations in Papua New Guinea and PNG LNG marked its 13th year since the start of construction, and eighth year of production.

ExxonMobil PNG Limited (EMPNG) continues to go from strength to strength across all areas of the business. We are maintaining our industry-leading safety performance with more than 100 million hours worked since the start of production, zero Lost Time Incidents at the LNG Plant site and five consecutive years without a Lost Time Incident in the Upstream area.

Our commitment to preserving Papua New Guinea's unique biodiversity in collaboration with local communities remains firm. We are progressing enhancement programs outlined in our Biodiversity Strategy, which includes working closely with local organisations to build conservation capacity across Papua New Guinea through advanced degree opportunities and Conservation Rangers Training.

Sustained record production levels of LNG, feed gas and naphtha is enabling us to consistently deliver energy to our valued customers in Papua New Guinea and across Asia. Our ongoing focus on process optimisation is intended to capture maximum value from each molecule produced to provide continued reliability of energy for our customers.

EMPNG's 3770-strong workforce of employees and contractors is the jewel in our crown. We are proud of our highly skilled Papua New Guinean workforce, which includes many women in leadership positions. Both EMPNG and contractor teams continuously demonstrate dedication both on and off the job, such as through community-based volunteer activities.

Our relationships with local suppliers also remain strong and our engagements with Papua New Guinean businesses are focused on helping them to grow skills and operational capacity.

We remain committed to the ongoing delivery of social investment programs in collaboration with local communities, government, civil society organisations and international donors to progress major community-based initiatives throughout the PNG LNG area of operations.

The success of PNG LNG's operations in Papua New Guinea for more than a decade has truly demonstrated that Papua New Guinea is a good place to invest for the future.



“

If we look at how far Papua New Guinea has come over the past century, and how much has been progressed in the past decade alone, we can be excited about what the next decade and century will bring to this wonderful nation and its people.

A handwritten signature in white ink that reads "Peter Larden".

Peter Larden, Chairman and Managing Director,
ExxonMobil PNG Limited

”



About this Report

This *PNG LNG Environmental and Social Report – Annual 2022* provides information about ExxonMobil PNG Limited's safety, health, environment and social management performance during production. It forms part of PNG LNG's commitment to keep the Government and citizens of Papua New Guinea, interested civil society organisations and other stakeholders informed of production activities.

Printed copies are available.

ExxonMobil

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

Santos



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EXECUTIVE SUMMARY

In 2022, ExxonMobil PNG Limited achieved a significant milestone of more than 100 million hours worked since the start of production.

Papua New Guinea Liquefied Natural Gas (PNG LNG) continues to deliver a reliable supply of energy to its customers throughout Asia, while providing career, business and community development opportunities for Papua New Guinean citizens.

As a subsidiary of Exxon Mobil Corporation, ExxonMobil PNG Limited (EMPNG) manages the operation of PNG LNG facilities on behalf of its co-venture partners: Santos Limited, Kumul Petroleum Holdings Limited, JX Nippon Oil and Gas Exploration Corporation, Mineral Resources Development Company Limited and their affiliates.

This Environmental and Social Report provides a progress update on EMPNG's environmental and social performance from 1 January to 31 December 2022.

Production

PNG LNG continues to optimise production operations through the 'Big Value, Small Changes' focus that was introduced in 2021. This helped the Production team achieve even greater plant efficiencies in 2022, resulting in 8.6 million tonnes of LNG produced and 114 LNG cargoes loaded during the year.

Since the start of production, more than 69 million tonnes of LNG have been produced, with 920 LNG cargoes and 86 naphtha cargoes loaded for customers in Asia.

In July 2022, a new daily LNG production record of 9.4 million tonnes per year equivalent was achieved, and the highest daily level of naphtha production was also recorded at 722 cubic metres per day on average compared to the previous record of 579 cubic metres per day on average. More than 96 percent uptime was sustained throughout the year, which included both scheduled and unscheduled maintenance.

National content

A national content milestone was achieved in 2022 with six of the eight supervisory roles in the Upstream Operations team occupied by Papua New Guinean citizens. Papua New Guineans now comprise 90 percent of the Upstream area Operations team and 100 percent of the Pipeline Operations team. By the end of 2022, the PNG LNG total

workforce consisted of 3770 workers, of whom 88 percent were Papua New Guinean citizens, including 633 women. The PNG LNG workforce includes EMPNG employees, staff contractors and personnel from 25 third-party contractor organisations working on production-related activities for PNG LNG.

Ten engineers were recruited during the year through the Graduate Engineering Recruitment Program. Another three graduates from other disciplines were recruited for the Graduate Management Development Program. The first participants of the Graduate Management Development Program successfully completed their three-year rotation program in 2022, and have settled into their new roles within the company.

Seven engineering students were also engaged through EMPNG's Intern Engineering Recruitment Program to undertake on-the-job training at PNG LNG facilities.

The Operations and Maintenance training program celebrated its first decade in 2022, and welcomed the eighth intake of 28 trainees, including eight women. All 24 trainees from the seventh intake of this program completed their training and began working at EMPNG worksites as Junior Technicians in November 2022.

By the end of 2022, 12 graduates of the Operations and Maintenance training program had advanced to supervisory roles, and five were in lead roles with EMPNG, with 33 percent of these positions occupied by women. Fifty-five percent of all EMPNG field operations leadership roles are now occupied by graduates of the Operations and Maintenance training program, of whom 14 percent are women.

During 2022, EMPNG and its contractors delivered the equivalent of 148,000 hours of training to 9180 participants through 3790 courses.

Online courses continued, and face-to-face learning was reintroduced as pandemic restrictions eased. Ninety-four percent of training participants were Papua New Guineans, of whom 23 percent were women.

EMPNG also continues to help build the capacity of Papua New Guinean businesses. In 2022, nine landowner companies (Lancos) and 143 non-Lanco Papua New Guinean businesses were engaged in production-related activities.



LNG Plant Marine Terminal

EMPNG's total in-country spend with Papua New Guinean businesses was PGK633 million (USD180 million) compared to PGK645 million (USD183 million) in 2021. Approximately 46 percent of the in-country spend in 2022 was spent on Lanco services, which equates to PGK292 million (USD83 million) compared to PGK185 million (USD52 million) spent on Lanco services in 2021.

Since production began, EMPNG has spent PGK5.8 billion (USD1.7 billion) on Papua New Guinean services, of which PGK1.8 billion (USD538 million) was spent with Lanco businesses.

EMPNG implements strategic community investment programs to help encourage focused, long-term community and economic development.

As part of these programs, construction of a new community resource centre, store building, market building, wash bay facilities, and multi-purpose basketball and volleyball courts were completed near the Hides Gas Conditioning Plant (HGCP) in 2022. The facilities, worth PGK4.6 million (USD1.3 million), were funded by EMPNG and constructed by Lanco Hides Gas Development Company Limited. They will serve as a multi-purpose venue for community meetings, markets, sporting events and social gatherings for Hides communities.

Eighteen *haus wins* have also been constructed across the Upstream area with funding from EMPNG to provide community meeting places and easier access to clean water for people who live and work in the surrounding communities. Each of the *haus wins* consists of two large rainwater tanks and a shaded structure that provides a space for community meetings and social gatherings.

In October, work started on a new Komo Rural Local-Level Government chamber building funded by EMPNG. The building is being constructed by Lancos Hides Energy Services Limited, Komo Airfield Development Company and Hides Management Services. When completed, it will provide a meeting and conference room, as well as an administrative hub for 24 ward counsellors of the Komo Rural Local-Level Government.

Following the success of the rugby league competition in Komo, EMPNG is helping Angore communities establish their own rugby league competition through supporting the new Angore Hayapuga Football Association to register with the Papua New Guinea Rugby Football League. In addition, EMPNG has provided Angore communities with an expanded rugby league field at Idauwi Primary School and supplied jerseys for 11 local teams.

A new staff house has been completed at the newly established Undupi Primary School in Angore. The school serves nearby communities in Kindipa and has a current enrolment of 195 students. The staff house, funded by EMPNG, is intended to make it easier for teachers to get to and from their classes, which helps support better educational outcomes in Angore.

In Hela Province, a new Community Piggery Enterprise, which includes a large piggery facility, is now in operation through funding and community training support provided by EMPNG.

The Enterprise involves a piggery for up to 200 sows and a training farm to raise piglets to six weeks of age. It includes the provision of training to local farmers in pig feeding, housing and health management, as well as guidance on developing local, regional and national markets for Highland Village pork.

Ten schools in the Upstream area, 18 primary and high schools in the Central Province and National Capital District (including six schools in LNG Plant site villages) and the Port Moresby Nature Park have received computer laboratories through the LiteHaus Digital Infrastructure Program, which receives funding from EMPNG. Each laboratory contains 15 desktop computers with software, an e-library, access to a Digital Skills Passport, a 50-inch display screen with connectivity to devices that support teaching, and 24-hour remote technical support, as well as in-person support.

LNG Plant site communities received a new pharmacy and medical storage facility from EMPNG. The facility was constructed using two refurbished shipping containers. It will be used to supply rural health centres throughout the Central Province. EMPNG also provided medical equipment for an ambulance, and first aid training for health care workers and ambulance drivers at Porebada Sub-Health Centre during 2022.

Two newly constructed community halls funded under the Community Infrastructure Trust Fund through the Mineral Resources Development Company Limited were officially opened in 2022. In March, a two-level community hall was opened in Boera Village to provide local communities with two meeting rooms, four offices, a kitchen and other facilities. In Lea Lea Village, a community hall consisting of an open meeting space, four offices and a kitchen was opened in April.

EMPNG continues to work with Buk bilong Pikinini libraries on activities such as Literacy week programs to help build numeracy and literacy skills in Papua New Guinean children. Among many activities supported during 2022, EMPNG donated a school bus to help Buk bilong Pikinini take its educational programs into Papua New Guinean communities.

EMPNG's Science Ambassador Program returned to full capacity in 2022 with 818 students from three schools in the Upstream area and six schools in the LNG Plant site villages participating during the year.



Science Ambassador, Gabriel Kila (right) conducting a practical experiment with students from Papa Junior High School as part of the Science Ambassador Program

The program encourages high school students to consider careers in science, technology, engineering and mathematics (STEM) through practical experiments and classroom lessons on topics such as rocks and geology, and the origins of oil and gas. Some 5870 students have participated in the Science Ambassador Program since its inception in Papua New Guinea.

In 2022, EMPNG commemorated its 10th year of sponsoring and working together with the PNG LNG Kumuls.

The PNG LNG Kumuls have been working with EMPNG to build rugby league capabilities for youths in local communities to help them develop lifelong skills, which are transferable to academic and career success.

During the year, EMPNG appointed PNG LNG Kumuls Centre, Justin Olam, as its new PNG LNG Community Ambassador. Justin's integrity and leadership, coupled with his commitment to education and improving lives through opportunities, mirror the values of EMPNG.



Justin Olam with members of the Koita Sisters Rugby League team during a visit to Papa Village in Central Province

Environment

Work on the Lake Kutubu Wildlife Management Area (WMA) Management Plan progressed with the first full draft of the Management Plan completed based on the collection of data about environmental, biodiversity and cultural values of the region through surveys conducted with WMA Committee members and local communities. A workshop will be held with stakeholders from the district provincial administration, relevant Papua New Guinean Government departments and civil society organisations to review the draft Plan before it is finalised and adopted for implementation.

Following an initial meeting in 2021, a second meeting for the proposed new conservation area on the Sanumahia clan lands located west of the Lake Kutubu WMA was held by members of the clan at Lorogobai'iu Village.

Office bearers were elected to coordinate community awareness and other conservation-related activities. The office bearers will eventually establish a community-based organisation for the new conservation area.

EMPNG continues to engage with Lower Kikori communities for conservation initiatives.

In 2022, an environmental lawyer was engaged to initiate the conservation deeds process. The lawyer completed the first drafts of 10 conservation deeds that were reviewed and agreed with the Kerewo and Kibiri tribes in 2021. Second drafts of these conservation deeds will be shared with the respective communities in 2023.

EMPNG is also working with the Papua New Guinea Social Research Institute to create a cultural heritage children's storybook based on oral histories collected during the community engagement and resource mapping process undertaken as part of Component 5 of EMPNG's Biodiversity Offset Program. The book is expected to be published in 2023.

Results of the biennial biodiversity monitoring survey conducted during 2021 were published in 2022. The survey, which documents trends in flora and fauna species diversity and abundance, included the collection of imagery from 80 camera traps placed in forest habitats at two permanent Biodiversity Assessment Areas at Hides Ridge and the Agogo Range near Moro.

The published report showed 35 frog species documented in the 2021 survey. There has been relatively little change detected in bat and rodent communities or the forest structure adjacent to the pipeline Right of Way (ROW) during the past seven years of survey activity, which suggests that the removal of forest for the pipeline ROW has had no detectable impact on the native rodent population.

The HGCP recorded its lowest flaring emissions since the start of production due to ongoing flare reduction initiatives. As part of these initiatives, EMPNG is replacing nine diesel generators with eight gas-powered microturbines to reduce greenhouse gas emissions in the Upstream area. During 2022, PNG LNG facilities generated 2096 kilotonnes of carbon dioxide equivalent, which was primarily from gas turbine fuel consumption at the LNG Plant and HGCP. Greenhouse gas performance continues to align with ExxonMobil's 2030 Greenhouse Gas Emission-Reduction Plans.

EMPNG is improving long-term waste management solutions at all worksites. Following successful trials, the Papua New Guinea Conservation and Environment Protection Authority has approved a new onsite treatment process for wastewater effluent from equipment washdown at the HGCP.

The new process involves pre-treatment through a carbon filtration unit and secondary treatment through the vetiver grass reed bed system at the Hides Waste Management Facility in Kopeanda. By the end of 2022, almost 5 tonnes of process wash water from the HGCP was treated through the reed bed. Verification groundwater monitoring at the Hides Waste Management Facility showed that the treated water had no impact on groundwater quality.

Waste reuse initiatives continue to prove successful. For example, during 2022, some 43 tonnes of timber was reused from EMPNG worksites for community infrastructure projects in Porebada Village near the LNG Plant site.

In the Upstream area, an opportunity identified in 2021 to reuse waste oil in onsite operations equipment resulted in 11 tonnes of waste oil and fuel being reused in 2022.

As part of EMPNG's commitment to 'Protect Tomorrow. Today.', 60 LNG Plant site volunteers planted 100 mangrove seedlings on the tidal flats surrounding the LNG Plant site perimeter to commemorate World Environment Day in June.



EMPNG and contractor volunteers plant mangroves near the LNG Plant site for World Environment Day

Social

EMPNG is maintaining its industry-leading safety performance, achieving more than nine years of work without a Lost Time Incident at the LNG Plant. More than 18.7 million hours were worked in 2022.

The Upstream area has achieved more than five years of work without a Lost Time Incident. A safety milestone was reached with the Environmental and Property Solutions Facilities team at ExxonMobil Haus achieving five years without a recordable injury.

EMPNG regularly conducts both table-top and field-based emergency drill scenarios to reduce the risk and impact of a major event. In 2022, 12 major event scenarios involving field-based deployments were conducted to provide emergency responders with the knowledge and practical experience to manage a major event. Twenty-seven medical emergency response drills were also conducted across EMPNG worksites during the year.



Fire Officer, Hisiu Sere (foreground) and Firefighter, Guba Mea undertaking firefighter training at the LNG Plant site

In June, EMPNG implemented human performance fluency training with 500 supervisors completing the training by the end of the year. The training challenged safety leaders to expand their safety awareness regarding how and why mistakes occur in the workplace. It also empowered participants to transfer this knowledge back to the general workforce.

Human performance fluency training is designed to help workers gain a stronger understanding of how different individuals interact with plant, processes and each other as part of an overall workplace system to better manage risks and keep people safe.

To help workers support each other in dealing with stress due to personal, family and broader community and global issues, in August EMPNG introduced a Mental Health First Aider training program with the St John Ambulance Service Papua New Guinea. This program supports EMPNG's *Wik bilong lukautim tingting*, the 'week for taking care of one's mental wellbeing', mental health awareness program by providing workplace Mental Health First Aiders with tools to help support colleagues who may be struggling.

EMPNG conducted specific lunch-and-learn sessions and toolbox talks to commemorate internationally-recognised days such as World Tuberculosis Day, World Malaria Day, World Diabetes Day, and World AIDS Day during the year. Workers were provided with mosquito bed nets for World Malaria Day, free diabetic screening for World Diabetes Day, and free HIV/AIDS testing and counselling for World AIDS Day.



Matilda Manesseh receiving free blood testing from Health Extension Officer, Jubilee Paru, in support of World Diabetes Day

As part of its National Content Strategy, EMPNG actively and regularly engages with community stakeholders, all levels of government and civil society organisations.

During 2022, some 12,310 engagements were conducted with communities throughout the PNG LNG area of operations. Of these, 3390 were formal engagements and 8920 were informal engagements involving 49,900 stakeholders.

In the Upstream area, engagements focused on employment and business development opportunities from EMPNG activities in Angore and along the pipeline ROW, Clan Caretaking Agreements, and community investment programs. LNG Plant site community engagements mainly focused on community development support projects, employment and business opportunities, and marine safety exclusion zones.

In addition to community engagements, 33 advocacy workshops were held with 360 representatives from national government agencies, provincial governments and co-venture partners during 2022.

Another 365 people from local schools and communities participated in site visits to the HGCP and LNG Plant during the year.

At the HGCP, tours included the launch of the annual Family Community Tour, which involved a tour of the HGCP by 27 participants from the Hides Seventh Day Adventist Youth Group, and the launch of an annual Thanksgiving Day tour involving 35 women from seven women's groups from the Upstream area. Students from EMPNG's Science Ambassador Program also visited the HGCP as part of their program in 2022. Four tours of the LNG Plant site were conducted for students from the Port Moresby Technical College, Kumul Petroleum Academy and University of Papua New Guinea. In addition to EMPNG achieving numerous production, workplace and safety milestones during the year, EMPNG celebrated the 100th year of ExxonMobil in Papua New Guinea, of which more than a decade has involved the construction and operation of PNG LNG.



National Content Advisors, Mary Daure and Debbie Maraki with Upstream Community Development Support Analyst, Marsha Ikau celebrating the 100-year anniversary of the ExxonMobil affiliate in Papua New Guinea

The solid workplace, business and community initiatives and working relationships that are now in place with EMPNG's stakeholders, along with consistent revenues generated by LNG production, provide a foundation to support the social and economic development of Papua New Guinea in the future.

2022 PERFORMANCE HIGHLIGHTS

EXECUTIVE SUMMARY

114 LOADED IN 2022  **920**

LNG CARGOES LOADED TO DATE



PGK5.8 billion

SPENT IN-COUNTRY WITH PNG BUSINESSES

SINCE THE START OF PRODUCTION

PGK633 million IN 2022

3770 TOTAL WORKERS  **OF WHICH**      **88%** ARE PAPUA NEW GUINEANS

18.7 million WORK HOURS IN 2022

100 million

WORK HOURS SINCE THE START OF PRODUCTION



12,310 ENGAGEMENTS WITH 49,900 STAKEHOLDERS

90% OF UPSTREAM OPERATIONS TEAM ARE PAPUA NEW GUINEANS 

100% OF THE PIPELINE OPERATIONS TEAM ARE PAPUA NEW GUINEANS

148,000 HOURS OF TRAINING OF PNG LNG WORKERS



LNG PLANT

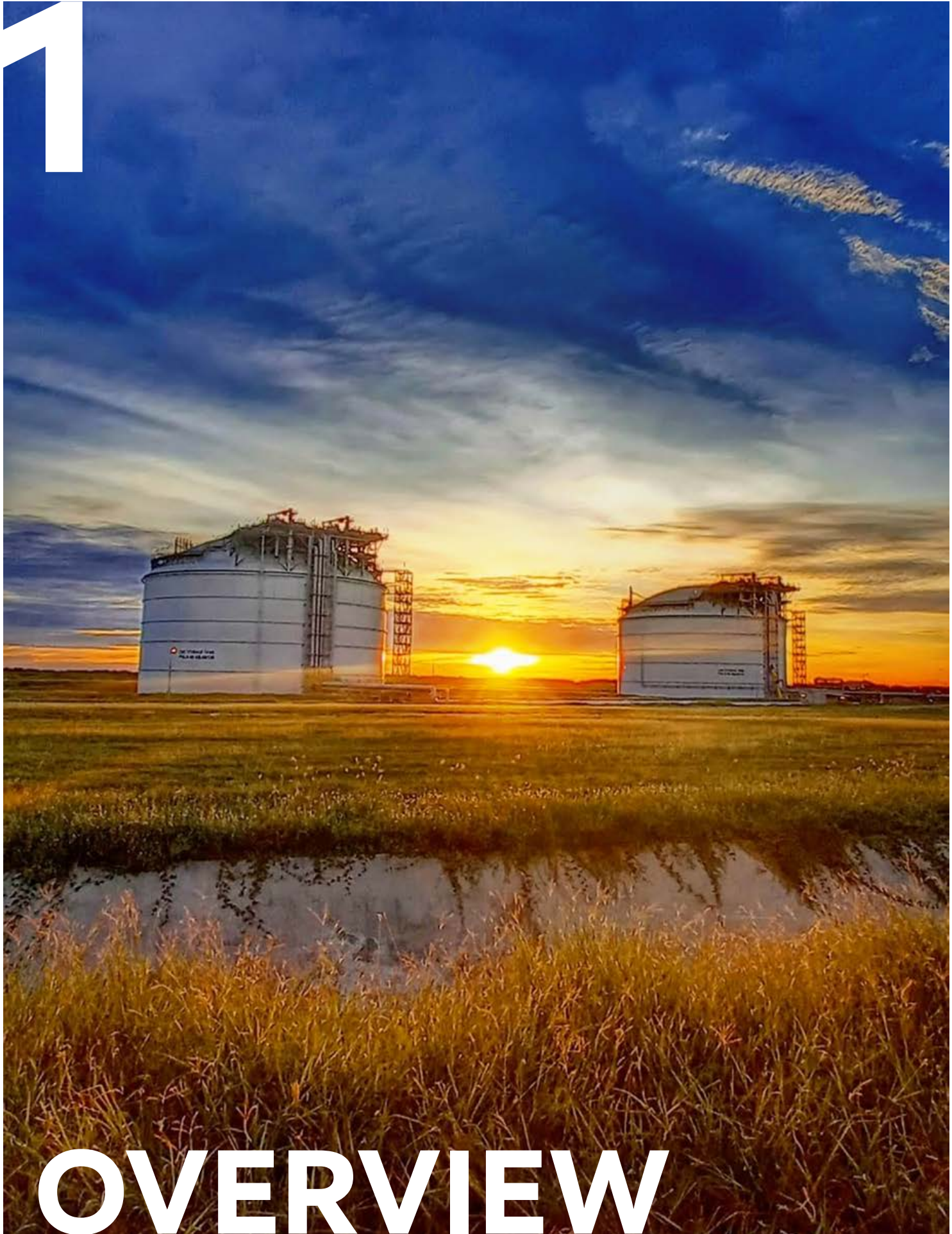
9+

UPSTREAM

5+

YEARS WITHOUT A LOST TIME INCIDENT

1



OVERVIEW

EMPNG is responsible for operating the PNG LNG production facilities and associated gas resources that are designed to consistently deliver affordable, sustainable energy to the Asia Pacific region.

ExxonMobil PNG Limited (EMPNG) manages the operation of the USD19 billion (PGK67 billion) Papua New Guinea Liquefied Natural Gas (PNG LNG) facilities that are located in Papua New Guinea's Hela, Southern Highlands, Western and Gulf provinces, as well as the Central Province and National Capital District. These facilities gather multiphase fluids from the Hides wells and transport the fluids through the Hides Spine to the Hides Gas Conditioning Plant (HGCP). At the HGCP, the fluids are stabilised and transformed into two streams – gas and condensate.

The dry gas from Hides, together with associated gas from the Kutubu and Gobe fields, travels through more than 700 kilometres of pipeline to the LNG Plant located northwest of Port Moresby in the Gulf of Papua. The dry gas is then liquefied so it can be exported via ship to customers in Asia. At the same time, gas is provided to supply energy for Port Moresby businesses and communities through the local NiuPower and Dirio Gas & Power companies. Condensate, which travels through the HGCP-Kutubu Condensate Pipeline

to the Kutubu Central Processing Facility, is transported to the Kumul Marine Terminal in the Gulf of Papua for export.

Figure 1.1 shows the location and elements of PNG LNG facilities.

More than 11 trillion cubic feet of natural gas is anticipated to be produced over the life of the PNG LNG facilities. This will provide a long-term energy supply to customers such as: China Petroleum and Chemical Corporation (Sinopec), Osaka Gas Company Limited, JERA Company Inc. and CPC Corporation in Taiwan.

This Report, and previous Environmental and Social Reports, can be accessed on the PNG LNG website. Printed copies of the full Report and translated summaries are also provided for Papua New Guinean citizens who may have limited access to the internet.



Visit the website at: www.pnglng.com

Figure 1.1 – PNG LNG facilities



1.1 Production

In 2022, PNG LNG continued to optimise production operations through the 'Big Value, Small Changes' focus that was introduced in 2021. This helped the Production team achieve even greater plant efficiencies, resulting in 8.6 million tonnes of LNG produced and 114 LNG cargoes loaded during the year. Since the start of production, more than 69 million tonnes of LNG has been produced, with 920 LNG cargoes and 86 naphtha cargoes loaded for customers in Asia.

HIGHLIGHT

EMPNG'S NEWEST NEGOTIATOR

Alma Gaso from Oro Province was promoted to the role of Negotiator with EMPNG during 2022.

Alma joined EMPNG as a Machinery Engineer in 2014 after completing her Bachelor of Engineering in Mechanical Engineering with Papua New Guinea's University of Technology.

In 2021, Alma was promoted to Planning Advisor where she coordinated the development of company plans and was responsible for the analysis and reporting of production volumes. Her new role as Negotiator involves developing and implementing commercial strategies and building relationships with market participants for commercial negotiations.

Alma said she never intended to move away from her engineering discipline but an opportunity arose to broaden her career in the Planning Advisory role. This sparked her interest in the commercial aspects of the business.

"I enjoy roles that allow me to grow and keep pushing my limits. I'm really interested in technical and commercial roles and EMPNG provides these opportunities. If you are considering where to go in your career, seize the opportunity when it arises, do the job whatever it is and your hard work will always pay off. You might not see the benefits right away but it'll happen. Be curious, be able to adapt and don't limit yourself. There are endless opportunities out there for you," Alma said.



EMPNG Negotiator, Alma Gaso

Continuous optimisation of the fractionation system, along with richer inlet feed gas, resulted in an increase of 5000 barrels of naphtha per cargo since June. Plant pressure optimisation at the HGCP resulted in an additional 8 million cubic feet of export gas in June. The Kutubu Central Processing Facility also achieved an associated daily gas export record of 171.5 million standard cubic feet per day.

In July, a new daily LNG production record of 9.4 million tonnes per year equivalent was achieved, and the highest daily level of naphtha production was also recorded at 722 cubic metres per day on average compared to the previous record of 579 cubic metres per day on average. Twelve naphtha cargoes were loaded during the year.

More than 96 percent uptime was sustained throughout the year, which included both scheduled and unscheduled maintenance. In November, the Dynamic Matrix Controller was commissioned at the HGCP and helped to further improve production efficiencies.



The Operations and Maintenance team commissions the Dynamic Matrix Controller at the HGCP

1.2 Wells

Plug and abandonment was successfully completed on the Hides D1 well during the year, while the remaining Hides wells continue to produce as planned.



Blowout preventer installation at the Hides D1 well

1.3 Hides Gas Conditioning Plant

The new Dynamic Matrix Controller was commissioned and rate reduction maintenance work was completed at the HGCP.



Removal of the HGCP monoethylene glycol regeneration package distillation column for cleaning

Major maintenance work was conducted on the monoethylene glycol regeneration package without any downtime in operations.

Other maintenance included the replacement of a compressor dry gas seal and Wells Integrity Management System testing.

1.4 LNG Plant

Level 3 servicing was completed on two gas turbines at the LNG Plant. This is typically conducted every eight years and involves a complete changeout of the gas generator and high-speed power turbine. Gas turbines drive the refrigeration compressors at the LNG Plant to compress the refrigerant gas. This gas is then cooled and condensed, and in turn is



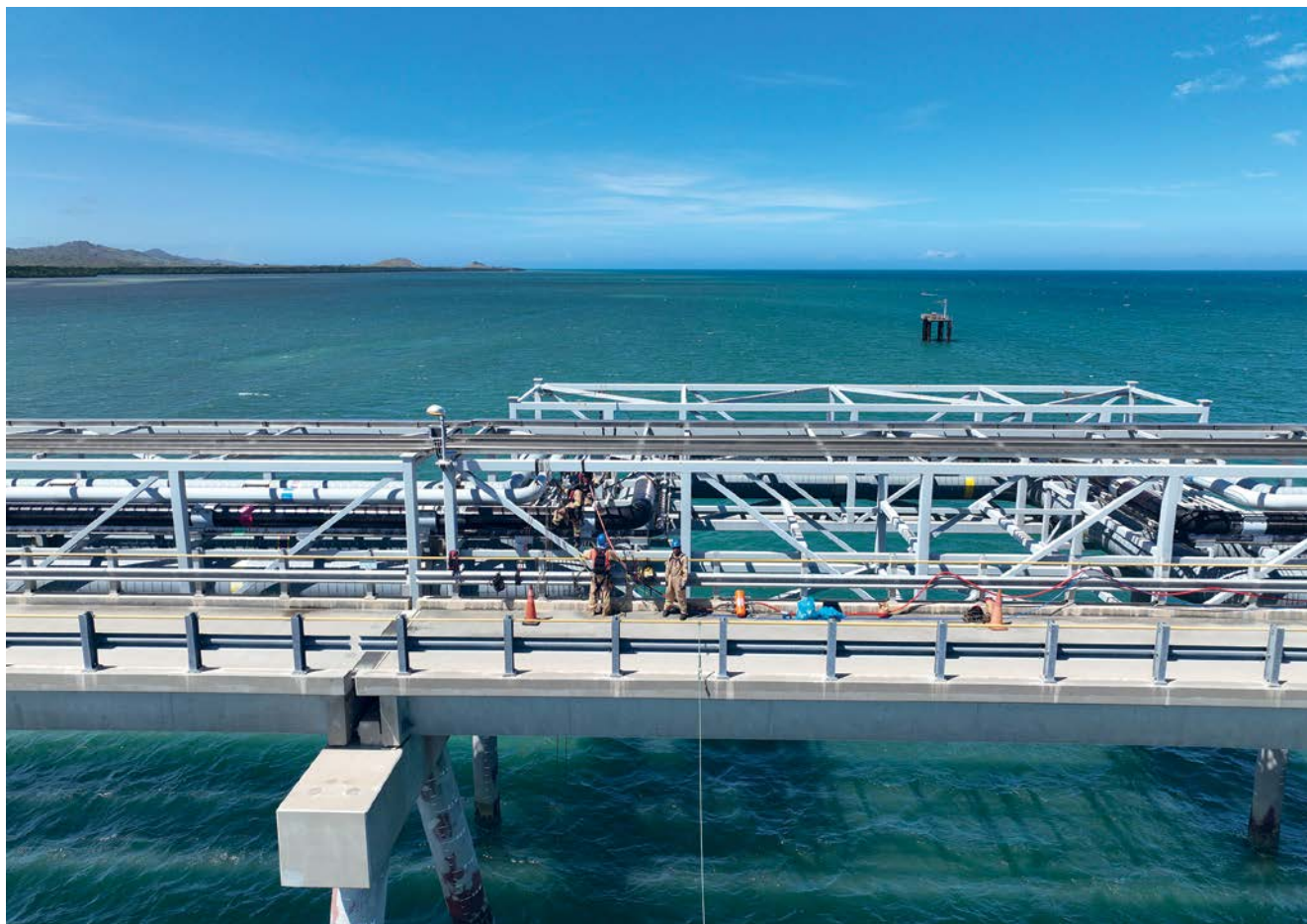
HGCP Mechanical Technician, Desmond Nombon, cleaning the monoethylene glycol regeneration package distillation column at the HGCP

used to cool/liquefy the feed gas for efficient LNG production. Other general maintenance activities were also conducted during the year.

1.5 Marine facilities and shipping

In October, EMPNG loaded and shipped the 900th LNG cargo. A major inspection of the offshore pipeline through an underwater pipeline survey as outlined in *Case Study – Inspecting the underwater pipeline* was conducted during the year.

Coating of the jetty trestle piping at the LNG Plant Marine Terminal was also completed to protect it from weathering.



Workers coating the jetty trestle piping at the LNG Plant Marine Terminal

1.6 Angore Gathering System

Following the easing of COVID-19 restrictions in the Upstream area, construction and drilling operations resumed for the Angore Gathering System. This involved Angore Wellpad C construction, mobilisation of the drilling rig and the start of pipeline Right of Way (ROW) works.

Two wells are being drilled at Angore with first gas anticipated in 2024. By the end of 2022, steady progress had been made on construction of the pipeline between the HGCP and Angore Wellpad C and spudding of one well.



Angore Wellpad C



Drilling Rig 702 at Angore Wellpad C

2022 PERFORMANCE HIGHLIGHTS

OVERVIEW

1111M
CUBIC FEET OF GAS
PRODUCED PER DAY
RECORD MONTH

722m³
PER DAY NAPHTHA
RECORD MONTH



8.6M
TONNES PER YEAR
EQUIVALENT LNG
PRODUCED IN 2022

114
LNG CARGOES
LOADED
IN 2022

12
NAPHTHA
CARGOES
IN 2022

69M
TONNES OF
LNG PRODUCED
TO DATE

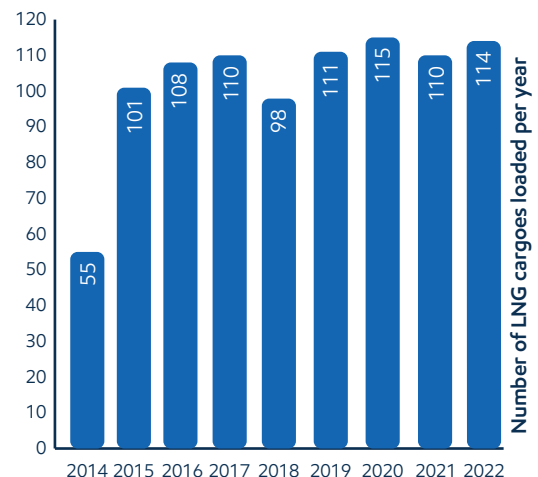
920
LNG CARGOES
LOADED
TO DATE

86
NAPHTHA
CARGOES
TO DATE



M = million

9.4M
TONNES PER
YEAR EQUIVALENT
LNG PRODUCTION
RECORD MONTH



CASE STUDY

INSPECTING THE UNDERWATER PIPELINE

In 2022, EMPNG conducted a major inspection of the offshore pipeline through an underwater pipeline survey. The survey, which takes about one month to complete, is conducted every five years along the offshore pipeline to monitor and confirm the pipeline's integrity.

A survey vessel and underwater monitoring equipment is used to examine the condition of the pipeline at the turning basin of the LNG Plant Marine Terminal at Caution Bay, the offshore section between Caution Bay and the Omati River in the Gulf Province, and the river section of the pipeline at Omati River.

The 2022 survey involved four phases. The first phase included underwater mapping of the LNG Plant Marine Terminal to determine the depth and shapes of land underwater at the turning basin, as well as the condition of the area surrounding the pipeline.

The second phase examined deep sections of the pipeline from Caution Bay to the Omati River that range from 20 to 110 metres below sea level. This phase aims to identify any free spans or other anomalies along the pipeline that need further inspection or repair.

The third phase involved shallow sections at the Omati River, where the pipeline follows the river channel until the Omati River landfall. Depths at this phase are 10 metres or less and run approximately 75 kilometres from the Omati River landfall to the open sea. For this phase, the survey records the extent and depth of the buried pipeline and checks for any exposed pipe sections.

The fourth phase involved a cathodic protection survey of the full underwater section. This survey aimed to confirm the cathodic protection system is providing sufficient protection against corrosion.

Underwater pipeline survey project lead, Lazaro Hemetsberger, said:

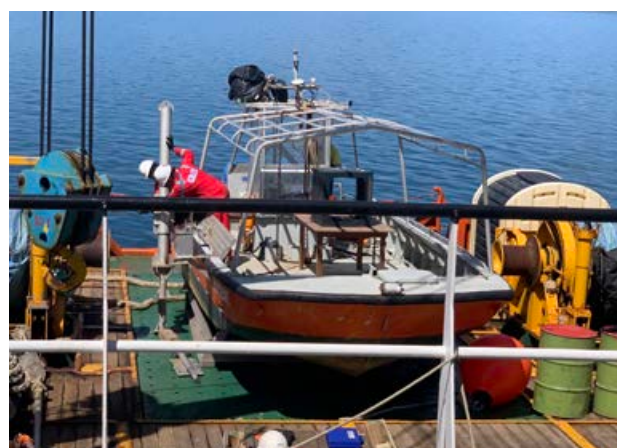
"These surveys are important as they tell us the state of the submerged pipeline and identify specific elevations, anomalies, and the presence of any scour around submerged structures, which will help in deciding if repair works need to be done."

The 2022 survey found no evidence of immediate pipeline interference or movement threats and risks.

The location of the offshore pipeline is shown in Figure 1.1.



Survey crew launch a hydrometer to measure seawater density at Caution Bay



A third-party contractor installing the side bar on the boat used for the third phase of the survey

2



ENVIRONMENTAL AND SOCIAL FRAMEWORK

EMPNG operates in accordance with PNG LNG's Production Environmental and Social Management Plan to maintain the wellbeing of workers, communities and the environment surrounding production facilities.

PNG LNG operations are conducted in accordance with Papua New Guinea's laws and regulations, which includes maintaining compliance with 1356 regulatory obligations and 2710 licences, permits, certificates, and associated conditions while also meeting PNG LNG Lender Group requirements.

2.1 ExxonMobil Standards

EMPNG also complies with ExxonMobil's Standards of Business Conduct. These Standards require the company to conduct business in a manner that is compatible with the environmental, social and economic needs of the communities where it operates. This is to protect the safety and health of employees, other workers involved in operational activities, and members of the public.

As well as the Standards of Business Conduct, EMPNG complies with the structured and disciplined Operations Integrity Management System (OIMS) risk management framework. OIMS identifies, evaluates and manages risks across all ExxonMobil exploration, construction and production activities.

2.2 Environmental and Social Management Plan

The Production Environmental and Social Management Plan (ESMP) requires EMPNG to mitigate and manage environmental, social, community health, safety and security impacts associated with production activities.

This includes committing to PNG LNG's obligations under Papua New Guinean legal and regulatory requirements.

The Production ESMP is based on lessons learned from the PNG LNG construction phase and extensive stakeholder engagement. It covers environmental and social monitoring, mitigation and management measures determined in the PNG LNG Environmental Impact Statement, OIMS requirements, International Finance Corporation Performance Standards, and other international standards such as the Equator Principles.

Three Environmental Management Plans, which cover all PNG LNG facilities, and seven Social Management Plans based on key social themes are encompassed within the Production ESMP, as shown in Figure 2.1. National content commitments are contained within each of the Social Management Plans. EMPNG is responsible for meeting all requirements defined in the ESMP.

These requirements apply during both normal operating conditions and in reasonably foreseeable abnormal operating conditions or emergency situations.

The Production ESMP is periodically reviewed in consultation with stakeholders so that it continues to meet current environmental, social and operational conditions.

The updated ESMP is published on the PNG LNG website.



Visit the website at: www.pnglng.com

Figure 2.1 – Production ESMP structure





Members of the external OIMS assessment team and the Marine team at the LNG Plant Marine Terminal

2.3 Assessment and external monitoring

Regular monitoring and evaluation is conducted to confirm the effectiveness of the Production ESMP so that:

- mitigation measures designed to manage risks and impacts are effectively implemented
- mitigation measures are achieving their intended outcomes, or are on track to achieve intended outcomes
- actual impacts are identified and compared to predicted impacts, as described in the PNG LNG Environmental Impact Statement
- compliance with applicable laws and regulations is maintained.

In addition to EMPNG's own monitoring and evaluation, the Lender Group has engaged an Independent Technical Consultant and an Independent Environmental and Social Consultant (IESC) to monitor PNG LNG's performance against ESMP commitments.

2.3.1 Assessments

EMPNG periodically conducts both internal and external OIMS assessments to confirm the effectiveness of OIMS implementation and the health of OIMS Systems. This includes verifying the effectiveness of ESMP implementation.

In November, an external OIMS assessment was conducted across EMPNG facilities by a team of ExxonMobil subject matter experts from other affiliates. The team assessed the effectiveness of OIMS Systems implementation in EMPNG and the health of the Systems in meeting described criteria.

A Controls Integrity Management System assessment was conducted in September and included testing the controls integrity of EMPNG's operations.



The external OIMS assessment team at the LNG Plant Control Room

2.3.2 External monitoring

EMPNG's operations are subject to monitoring conducted by external parties including Government agencies and regulatory authorities.

National Energy Authority representatives inspected power generation facilities at the LNG Plant site in May and at the HGCP in October.

In September, the Department of Petroleum reviewed and inspected the progress of construction activities on the

Angore pipeline. The Department also conducted a final inspection of the drilling rig at Angore during November, which is a prerequisite of rig use approval.

2.4 Management of Change

A Management of Change (MOC) procedure is followed for any temporary or permanent changes or modifications to facilities, or to critical documents that may impact the operations of facilities.

This procedure is intended to:

- manage permanent, temporary and urgent or emergency changes to integrity critical procedures, process equipment or operating conditions or critical parameters
- manage any changes or modifications to existing facilities
- control the introduction of any new chemicals to be used by and stored at EMPNG sites
- provide a thorough evaluation of proposed changes to identify potential risks and exposure to operations
- identify changes to safeguards or mitigations to address potential operations and integrity risks associated with proposed changes.

Before any change is made; safety, security, health, environmental, social management, operability, maintenance, regulatory, cost and scheduling requirements are considered. Proposed changes are also communicated to workers whose

job tasks may be impacted and who may require training before a change is implemented.

EMPNG classifies and manages changes according to impacts, probability and consequences.

PNG LNG's Production ESMP outlines the levels of MOC classifications, based on impact significance, agreed with the Lender Group. These classifications are used as the basis for determining Lender Group approval, review or notification requirements associated with the changes. Class I changes require Lender Group review and approval in writing prior to any work being conducted. Class II changes require Lender Group notification through presentations during annual monitoring visits and reporting in the annual PNG LNG Environmental and Social Report, while Class III changes don't require notification to the Lender Group.

One Class II MOC, which involved extending the pipeline ROW width along Kilometre Point 7.3 to Kilometre Point 24.6, was approved in 2020. However, the project was delayed due to COVID-19 restrictions and will be presented to the IESC in 2023. Another Class II MOC that was approved in 2021 for the treatment of wash water through the reedbed at the Hides Waste Management Facility (HWMF) in Kopeanda was presented to the IESC in 2022.

By the end of 2022, one Class II MOC was under evaluation for reprofiling and remedial works at river crossings along Kilometre Points 61.8 and 65.9. This MOC was presented to the IESC in early 2023.

2022 PERFORMANCE HIGHLIGHTS

ENVIRONMENTAL AND SOCIAL FRAMEWORK



3 ENVIRONMENTAL
MANAGEMENT PLANS



7 SOCIAL
MANAGEMENT PLANS



1356 REGULATORY
COMPLIANCE OBLIGATIONS



2710 LICENCES/PERMITS
CERTIFICATES/CONDITIONS



PART A



NATIONAL CONTENT

EMPNG's approach to national content initiatives is to create shared long-term value for its many stakeholders.

The National Content Strategy is based on a long-term, coordinated and strategic approach to developing human, social and economic capacity in Papua New Guinea. It is specifically designed to deliver tangible, positive results for people, communities and businesses. The Strategy consists of three pillars:



Workforce Development – Providing Papua New Guineans with technical and professional skills for existing and future projects, operations, and the benefit of the broader economy



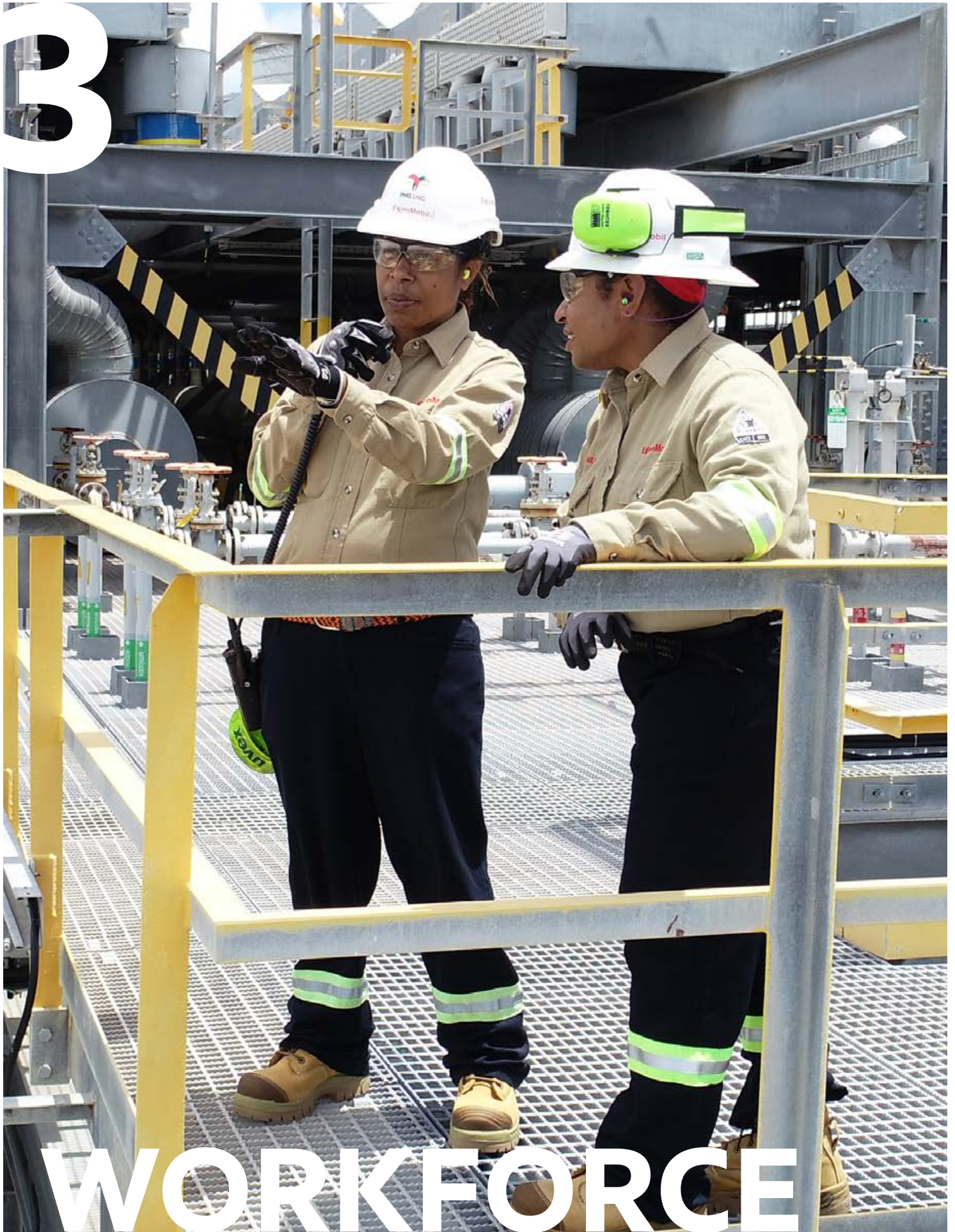
Supplier Development – Evaluating, developing, and utilising Papua New Guinean suppliers who can meet minimum requirements and are globally competitive in terms of price, quality, reliability, availability, and delivery, and form a competitive industrial base



Strategic Community Investments – Identifying and assessing opportunities to help build and sustain economic growth while improving social conditions.

These pillars provide a strong foundation for EMPNG and its stakeholders to support sustainable social and economic development for Papua New Guinea.

3



WORKFORCE

To support the ongoing career development of Papua New Guinean citizens, EMPNG provides structured training and development opportunities for its workforce.

3.1 Composition

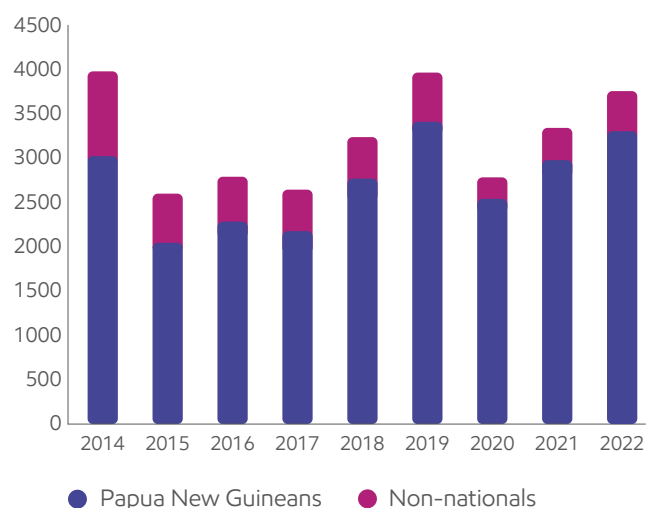
EMPNG continues to focus on national content building and enabling the full contribution of the Papua New Guinean workforce. The Upstream area has achieved a key milestone with six of the eight supervisory roles in the Upstream Operations team now held by Papua New Guinean citizens Noah Pingin, Jay Lavapo, Alex Oki, Appollonia Nabo, Vickie Watch and Gaius Kave. Papua New Guineans comprise 90 percent of the Upstream area Operations team and 100 percent of the Pipeline Operations team.

In 2022, Simon Pusal became the first Papua New Guinean citizen to be appointed as EMPNG's Operations Accounting Manager, replacing an expatriate worker. EMPNG's Accounting team is now fully managed by Papua New Guinean citizens.

By the end of the year, the PNG LNG workforce consisted of 3770 workers, as shown in Figure 3.1. This includes 3315 Papua New Guinean citizens, which is an 11 percent increase compared to 2021. This includes EMPNG employees, staff contractors and personnel from 25 third-party contractor organisations working on production-related activities for PNG LNG. Of the Papua New Guinean workforce, 19 percent are women, which is consistent with 2021. Papua New Guinean women represent more than 96 percent of all women working on PNG LNG operations.

Figure 3.1 – Production workforce

NUMBER OF WORKERS BY YEAR



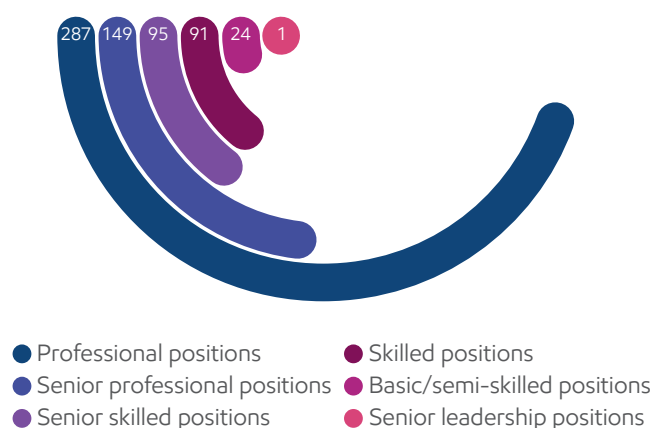
Fifty-five percent of the total PNG LNG workforce is based in the Upstream area while 25 percent is based at the LNG Plant site. The rest of the workforce is based in other locations, such as ExxonMobil Haus (the ExxonMobil Papua New Guinea headquarters) in Port Moresby.

Workers are recruited from areas near production facilities wherever possible, with 44 percent of Papua New Guinean workers of local origin proximate to PNG LNG operations, 23 percent of regional origin from provinces where PNG LNG operates, and 33 percent from other areas of Papua New Guinea.

As shown in Figure 3.2, Papua New Guinean employees and staff contractors include: 287 professionals in discipline-specific roles such as engineers, administrative professionals or accountants; 149 senior professionals such as supervisors and team leaders; 95 in senior skilled roles such as Level 3 operations and maintenance technicians; and 91 skilled workers, such as electricians and Level 1 and 2 operations and maintenance technicians. Another 24 hold basic/semi-skilled positions in roles such as drivers, security officers, radio operations, and apprentices, while one is a senior leader in a general manager-level role.

Figure 3.2 – Position types

NUMBER OF PAPUA NEW GUINEAN EMPNG EMPLOYEES AND STAFF CONTRACTORS BY POSITION TYPE



3.2 Training and development

EMPNG's workforce development approach encompasses both professional and personal development to build the skills and experience of workers, such as Kenny Hampalekie (refer to *Case Study – Kenny joins leadership team*) for their long-term careers. This is provided through in-house and external training courses, mentoring, employee networks and development forums, as well as short-term broadening assignments. For example, in May, a new third-party specialist contractor was engaged to deliver Australian Standard-certified training on working at heights including confined space entry and the use of self-contained breathing apparatus. This training aims to help workers identify and mitigate risks such as preventing dropped objects, the safe use of scaffolds, ladders and platforms, and personal fall protection when working at heights.



The first class to participate in working at heights training with the new third-party specialist contractor

CASE STUDY

KENNY JOINS LEADERSHIP TEAM

Within eight years of joining EMPNG, Production Optimisation Engineer Kenny Hampalekie from East Sepik Province has climbed the career ladder to become Logistics and Infrastructure Supervisor at the LNG Plant. He was appointed to his new supervisory role in December.

Kenny began his career with EMPNG through the Graduate Engineering Development Program after completing his Bachelor of Engineering in Mechanical Engineering degree at the Papua New Guinea University of Technology. He was initially contracted as a Facilities Surveillance Engineer at the LNG Plant responsible for the plant utilities, and in 2016 was directly hired as an EMPNG employee.

From 2018, during his role as a Planning Advisor at EMPNG's head office in Port Moresby, Kenny participated in Asia Pacific Economic Cooperation meetings in Papua New Guinea and was part of the team that organised the APEC Voices of the Future 2018 program.

In 2021, Kenny was appointed LNG Production Optimisation Engineer where he was responsible for establishing the production optimisation framework for EMPNG. In this role, he has generated significant value for PNG LNG during the past two years.

"My role has focused on maximising value through integrated optimisation across the LNG value chain. This has required the development of a framework for monitoring production performance and optimisation."

Kenny said an important aspect of his role was acting as a key liaison on production performance between the Operations, Maintenance, Marine and Engineering teams across both the LNG Plant and HGCP, and the leadership team.

"On a day-to-day basis, I liaise with operations teams on plant performance and constraints, observe trends, and monitor system operation health and reliability. I also provide daily and weekly guidance to operations teams to maximise the value delivered across both the LNG Plant and HGCP product streams."

Kenny said EMPNG's training and career development opportunities had prepared him for his first supervisory role.

"I have received both technical and soft skills training and had opportunities that have helped to nurture me for a role that requires leading from the front and managing people. This involves running the day-to-day logistics operations for the LNG Plant from camps and catering to transportation, non-process maintenance, fuel, and waste management with a team of over 200 people, including third-party contractors."

"I never imagined I would be working the logistics operations of an LNG Plant coming from an engineering background, but that is how diverse opportunities can be in EMPNG. You can chart a career path as long as you have the right attitude, are willing to learn and work hard."



LNG Plant Logistics and Infrastructure Supervisor, Kenny Hampalekie

Contractors also deliver workforce training and development programs relevant to their scopes of work. During 2022, EMPNG and its contractors delivered the equivalent of 148,000 hours of training to 9180 participants through 3790 courses. Online courses continued, and face-to-face learning was reintroduced as pandemic restrictions eased. Ninety-four percent of training participants were Papua New Guineans, of whom 23 percent were women.

3.2.1 EMPNG workforce training and development

The equivalent of 43,800 hours of training was delivered to EMPNG employees and staff contractors in 2022. More than 2840 participants completed 1900 different courses, which equates to an average of 51 hours per person during the year. Most of the content focused on safety process training.

Thirty-eight percent of course participants were from the Upstream area, and 37 percent from the LNG Plant site, with the rest from ExxonMobil Haus and elsewhere in Papua New Guinea. Eighty-two percent of course participants were Papua New Guinean, with women accounting for 33 percent. Since the start of production, almost 430,000 hours of training has been provided to EMPNG employees and staff contractors.

Operator Flange Awareness Training was among many technical training courses delivered to EMPNG workers during the year.



EMPNG Integrity Execution Supervisor, Dana Chaffey delivers Operator Flange Awareness Training to HGCP Operations Technicians Robert Rungwa (left) and Janeth Gurame (right)



Operator Flange Awareness Training at the LNG Plant site

HIGHLIGHT

STEVEN BRINGS INTERNATIONAL EXPERIENCE TO EMPNG

After many years of international opportunities, Steven Andira from Hela Province has returned home to Papua New Guinea to develop his career as a Wells Engineer with EMPNG.

Since joining EMPNG in 2021, Steven has been involved in wells integrity management in Hides, which includes the surveillance, maintenance, and execution of well intervention operations.

Steven said, "I've been involved in various projects in the Upstream area to improve production and well integrity, maintain process safety and eliminate high consequence risks. Some of the many projects I have worked on involved collaborating with multi-functional teams on major plant shutdowns for maintenance, the 2021 pipeline pigging campaign, the choke upsizing campaign on eight production wells, and a recent complex well abandonment.

"I also serve as a mentor for others in the company and deliver Wells Overview Training for our Production Operations team to enhance well integrity knowledge across Upstream work areas."

Steven's career started in 2011 after completing his Bachelor of Mechanical Engineering degree from the Papua New Guinea University of Technology.

While his first role was based in Papua New Guinea, one of Steven's earliest assignments took him far away from home to Calgary, Canada. Here he worked as a Graduate Drilling Engineer before taking on multiple onshore and offshore drilling projects in the USA, Vietnam, and Australia.

"As the first Papua New Guinean Wells Engineer to join EMPNG, I am humbled and honoured to serve my country and EMPNG in this capacity. I am thankful to EMPNG for such wonderful opportunities with this company," Steven said.



Steven Andira at Angore Wellpad C

The training was delivered by the Mechanical Maintenance team to educate Operations Technicians at the HGCP and LNG Plant site about the different types of flanges, how they work, and how to keep operations safe.

A certification course on the design and selection of equipment for hazardous areas, as well as Work Management System advanced user training was also conducted in 2022.



Participants of the Work Management System advanced user training

As well as providing courses that develop technical skills, EMPNG delivers cultural awareness training. In 2022, 44 workers and two supervisors participated in this training through site inductions and specific cultural awareness training sessions.

Engineers are integral to EMPNG's operations and maintenance programs. During 2022, they were involved in activities such as commissioning the HGCP Dynamic Matrix Controller, optimising production operations, and progressing Facility Integrity Management System programs to maintain facility integrity and reliability.

Four EMPNG engineers and five Operations Technicians participated in the Air Products' LNG Owners Seminar XIV in Florida, United States, which provided technical training on maintenance and operation of the Main Cryogenic Heat Exchanger. Another five engineers attended an Upstream Facilities Design course in Houston, United States during the year.



EMPNG engineers and Operations Technicians at the Air Products' LNG Owners Seminar XIV in Florida, United States

In addition to in-person events, virtual courses continued on topics such as fluid properties prediction, Upstream facilities surveillance, materials and corrosion, offshore structural engineering, process safety, and root cause failure analysis.

HIGHLIGHT

JONAH LANDS ROLE AS HGCP MACHINERY ENGINEER

Jonah Tokiong from East New Britain has been appointed as an HGCP Machinery Engineer after gaining experience through an internship and working as a graduate machinery engineer with EMPNG.

During 2022, in his new role, Jonah is involved in multiple major maintenance campaigns, such as work associated with the Gas Turbine Generator overhaul and the microturbines project. He attended a Hazard Identification and Operability Analysis workshop in Melbourne, Australia as the machinery point of contact for the microturbines project.

Jonah said the most exciting part of his career with EMPNG to date was the continuous exposure to technical learning opportunities presented through projects and equipment failure investigations.

"I enjoy participating in technical machinery forums locally and internationally across the organisation and sharing awareness on machinery learnings and improvements taken from being onsite," he said.

"I also enjoy leading and stewarding projects with cross-functional teams and seeing the work that we do improve aspects of equipment operations through improved reliability, availability, safety and performance."

Jonah said he was committed to further developing his engineering career with EMPNG.

"I have a strong determination to be a successful engineering professional. I like working with the team to achieve the best results," he said.

In addition to his role with EMPNG's Engineering team, Jonah is a Papua New Guinean national representative rugby union 15's player, a graduate member of the Institute of Engineers Papua New Guinea, and an Alumni Member of The Voice Inc. Clean Generation Movement.



Jonah Tokiong competing in a rugby union match against the Solomon Islands team

A virtual technical talk series, called Tech Talks, covered other engineering topics including drilling and well design, MOC knowledge sharing, process safety, and hazardous areas.

Five Papua New Guineans are expanding their career experience through overseas expatriate assignments at some ExxonMobil affiliates, which began in 2022. This includes Process Engineer, Christine Sahuburua who went to Japan; Project Engineer, Lazaro Hemetsberger who went to Australia; and Rodney Camilus, who joined the Upstream team as a Papua LNG Operations Advisor in the United States. Elmira Puy was assigned as a Differentiated Services Analyst, Information Technology and Alma Gaso took on the role of Negotiator, both of which are based in Singapore. Development Planner, Gerard Schulze, who commenced his expatriate assignment with the ExxonMobil Global Projects office in Houston, United States in 2021 remained on assignment throughout 2022.

Graduate programs

EMPNG offers development programs for graduates with engineering degrees and other professional backgrounds such as accounting and business, law and public policy, IT, human resources, journalism, logistics and science.

Graduate engineers are selected through an annual Graduate Engineering Recruitment Program that offers career opportunities in disciplines such as process surveillance, electrical power systems, instrumentation and controls, computer networks and systems, civil, geotechnical, machinery, mechanical integrity, and pipelines.

Upon selection, each engineer participates in EMPNG's Engineers in Operations program, which was introduced in 2020. This program involves engineering graduates shadowing operations and maintenance technicians at the LNG Plant site for four to six weeks to learn about operations and maintenance processes. The graduates then complete a 90-day onboarding program, which was introduced in 2022, to assist them with transitioning into their permanent assignments.

Ten engineers were recruited through the Graduate Engineering Recruitment Program during 2022 including eight new graduates and two experienced engineers.

The new engineering recruits consist of: one Integrity Engineer; one Machinery Engineer; one Measurement

Engineer; two Instrumentation and Controls Engineers; two Surveillance Engineers; and three Electrical Engineers.

Seven engineering interns were engaged through EMPNG's Intern Engineering Recruitment Program, which involves recruiting university students in their third year of study towards a bachelor's degree in Engineering for on-the-job training at PNG LNG facilities. Following their internship and completion of studies, interns have the chance to join EMPNG through the Graduate Engineering Recruitment Program.

A Graduate Management Development Program is also offered and provides recent university graduates, or soon to be graduates, with cross-functional development opportunities through exposure to different departments and disciplines in their first three years of employment.

Candidates are offered assignments and workplace mentors that help them develop their leadership capabilities and technical skills, as well as build a global network of colleagues.

The first participants of EMPNG's Graduate Management Development Program successfully completed their three-year rotation program in 2022 and have now settled into their new roles within the company. Participants included Toxen Yavetave in the role of Media and Communications Advisor, Damaris Wakip as Human Resources Advisor, Raylance Mesa as Digital Projects Analyst, Meslyne Pat as Upstream Operations Accounting Analyst and Joshua Parep, who is currently on study leave. In addition, three new graduates joined the program in 2022.



EMPNG Graduate Management Development Program participants (from back left): Damaris Wakip, Raylance Mesa, Meslyne Pat and Toxen Yavetave



EMPNG Operations Manager, Shameka Nelson, with 24 trainees from the seventh intake at the LNG Plant site



The eighth intake of the Operations and Maintenance training program

Operations and maintenance

The Operations and Maintenance training program celebrated its first decade in 2022.

Fifty-five percent of all EMPNG field operations leadership roles are now occupied by graduates of this program, of whom 14 percent are women.

EMPNG welcomed its eighth intake of operations and maintenance technician trainees in 2022. The 28 trainees, including eight women, are receiving their training through the Kumul Petroleum Academy. All 24 trainees from the seventh intake of the Operations and Maintenance training program completed their training and began working at EMPNG worksites as Junior Technicians in November.

By the end of 2022, 51 percent of technicians were based at the LNG Plant, and 34 percent at the HGCP. For the maintenance disciplines: 27 are Mechanical, 29 are Instrumentation, and 21 are Electrical Technicians, while 11 are Maintenance Planners and Schedulers. In the operations discipline there are 128 Operations Technicians and four multiskilled technicians.

To date, almost 300 Papua New Guineans have joined the Operations and Maintenance training program.

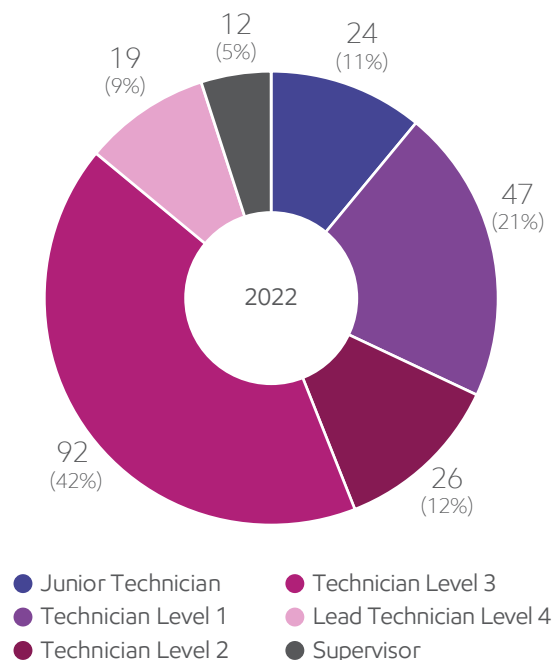
Operations and maintenance technicians are offered opportunities to participate in assignments that extend their skills outside of the operations and maintenance discipline. In 2022, seven technicians undertook broadening assignments in areas such as process safety, operations integrity management, contract administration, technical writing, and well operations.

Some workers who started their careers in the Operations and Maintenance training program have now transitioned to management, professional and/or technical roles with other departments within EMPNG. For example, former LNG Plant Operations Technician, Oripa Popat is now employed as an Industrial Hygiene Technician; former HGCP Operations Technician, Kayleen Pirina has been appointed as Information Management Lead; and former LNG Plant Operations Technician, Francis Avel, has moved to a new role as the Integrity Planning Lead.

Operations and maintenance technicians have a training progression plan, starting at Junior Technician level through to Technician Levels 1, 2 and 3. There is also the opportunity to progress to Lead Technician Level 4 and/or supervisory level and beyond. It takes approximately 11 years to progress from a Junior Technician to Lead Technician. Some 48 percent of operations and maintenance technicians progressed to the next Technician Level during 2022. Current levels of operations and maintenance technicians are shown in Figure 3.3.

Figure 3.3 – Operations and Maintenance technicians

NUMBER AND PERCENTAGE BY TECHNICIAN LEVEL



By the end of 2022, 67 of the 99 qualified Competency Assurance Standard assessors were Papua New Guinean citizens, including seven women.

Operations and maintenance technicians, at a minimum of Technician Level 3 and progressing to Lead Technician Level 4, are selected by their supervisors to complete training to become qualified as Competency Assurance Standard assessors.

In 2022, Geua Gau, from the first intake of operations and maintenance trainees, was the second Papua New Guinean woman to be appointed as an LNG Plant Marine Supervisor. After completing her Operations and Maintenance training program in 2012, Geua was a field technician with the LNG Plant and later promoted to OIMS Lead. She was one of the first female control room technicians at the LNG Plant.

For the past two years, Geua has worked as Operations Utilities Storage and Loading Lead technician prior to her new appointment as Marine Supervisor. Geua joins Nonnie Eri who was EMPNG's first female Marine Supervisor.



LNG Plant Marine Supervisor, Geua Gau

Rodney Camilus also became the first Papua New Guinean LNG Plant Operations Supervisor during 2022 and the first operations and maintenance technician to be selected for an overseas assignment. Olema Uru was the second Papua New Guinean to be appointed as an LNG Plant Operations Supervisor during 2022.



EMPNG's first Papua New Guinean LNG Plant Operations Supervisor, Rodney Camilus

Livai Kautat and Yasi Koriarn both advanced to HGCP Electrical Supervisor roles, while Jackson Michael was promoted to HGCP Mechanical Supervisor and Terry Yad became LNG Plant site Mechanical Supervisor. Owen Simon moved from the operations and maintenance discipline to become the OIMS and Safety Supervisor.

By the end of 2022, 12 graduates of the Operations and Maintenance training program were in supervisory roles, and five were in lead roles with EMPNG, with 33 percent of these positions occupied by women.

HIGHLIGHT

ZILLAR HELPS DRIVE OPERATIONS AND MAINTENANCE SUCCESS

Zillar Miro, from Madang and New Ireland provinces, is part of the team that has driven the success of the Operations and Maintenance training program over the past decade.

Zillar was initially employed as a freelance IT consultant during the PNG LNG construction phase where she applied her database management and reporting skills to support the recruitment of the first intake of operations and maintenance trainees. Her extensive experience with providing appropriate training to businesses and tertiary institutions proved valuable in ensuring that the correct training roadmap was applied to the Operations and Maintenance training program from the start. Zillar's success in this work led to full-time employment with EMPNG as a Training Supervisor in 2017.

In September 2021, Zillar was promoted to the National Content Advisor role with EMPNG. Her current role involves helping to develop the National Content Strategy, presenting EMPNG's national content initiatives during advocacy engagements, and contributing to workforce and supplier development initiatives in Papua New Guinea.

Zillar said it was great to see ongoing positive results from the training programs she helped to put in place, and to work alongside people who had previously participated in these programs.

"A highlight of my career has been seeing the technicians who started on the Operations and Maintenance training program step up into leadership roles," she said.

"A STEM-based career can take you anywhere, as long as you focus on your dream despite distractions, and only be content when you know you've done your best."



EMPNG National Content Advisor, Zillar Miro with Exxon Mobil Corporation Senior Socioeconomic Management Advisor, Lorna Carlson

3.2.2 Contractor training and development

Third-party contractors continue to demonstrate their commitment to workforce development through ongoing training and development opportunities for Papua New Guinean citizens.

In 2022, contractors provided the equivalent of 104,200 hours of training, which is a significant increase compared to 78,775 hours in 2021. This increase was primarily due to the easing of pandemic restrictions and the resulting increase in work activities across all EMPNG worksites. During the year, contractors delivered 1890 training sessions with 6340 participants. This equates to an average of 36 hours of training per person across PNG LNG's contractor workforce.

Contractors have provided the equivalent of 420,000 hours of training to 89,000 participants since the start of production.

In 2022, 63 percent of training participants were in the Upstream area, while 25 percent were at the LNG Plant, and the remaining 12 percent at contractor offices and other off-site locations. Fifty-two percent of contractor training participants were employed from local communities, 24 percent were from a province in which EMPNG operates, and the remaining 24 percent were from elsewhere in Papua New Guinea.

Contractor training delivered in 2022 primarily focused on safety, security, health and environmental topics, which comprised 77 percent of total training hours. Trade training accounted for 11 percent of training hours, while administrative, basic and induction training was 10 percent of training hours. Other training topics included technical and professional training, and leadership and management training.

Contractor CAMCO is maintaining certified and highly skilled rope access technicians to conduct specialist maintenance on the LNG Plant Marine Terminal marine loading arm.

During 2022, this contractor shared critical safeguards for marine loading arm maintenance with other contractors and EMPNG workers during the Safety, Security, Health and Environment (SSHE) Forum held in November.

Two Papua New Guinean workers received formal Industrial Rope Access Trade Association training and certification in 2022 through CAMCO's training facility in Perth, Western Australia.



Hydraulic hose inspection and changeover is integral to the maintenance of the marine loading arm and requires rope access



Contractor graduates of EMPNG's Short Service Worker Program

Twenty-three Upstream area workers from HGDC Energy Services Limited, a wholly-owned subsidiary of landowner company (Lanco) Hides Gas Development Company Limited, have graduated from EMPNG's Short Service Worker Program.

The program is provided to every new field-based worker. As part of safe onboarding, new workers wear a green construction hat and then graduate to a white construction hat once they have achieved six months of field experience.

2022 PERFORMANCE HIGHLIGHTS

WORKFORCE



3770
TOTAL WORKERS



3790
TRAINING COURSES



220 PNG
O&M TECHNICIANS



88%

PAPUA NEW GUINEANS IN
THE PNG LNG WORKFORCE

'PNG LNG workforce' includes: EMPNG employees for PNG LNG; staff contractors employed through recruitment agencies; and 'contractors', meaning other third-party contractor personnel.

PRIORITY 1

44%



PRIORITY 2

23%



PRIORITY 3

33%



PRIORITY 1 Papua New Guinean citizens of local origin proximate to PNG LNG operations

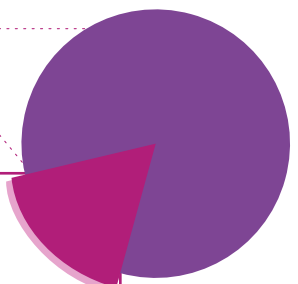
PRIORITY 2 Papua New Guinean citizens of regional origin (Southern Highlands, Hela, Western, Gulf, and Central provinces and the National Capital District)

PRIORITY 3 Papua New Guinean citizens originating from elsewhere in Papua New Guinea

TOTAL MALE WORKERS
3115
TOTAL FEMALE WORKERS
655

633

FEMALE
PAPUA NEW
GUINEAN WORKERS



148,000 HOURS OF TRAINING
DELIVERED IN 2022

CONTRACTOR HOURS
104,200
EMPNG HOURS
43,800

1900
COURSES

2840
PARTICIPANTS

51hrs/person
AVERAGE



1890
COURSES

6340
PARTICIPANTS

36hrs/person
AVERAGE

4



SUPPLIERS

In recognition of the important role that Papua New Guinean businesses perform in social and economic development, EMPNG actively supports capacity building and growth opportunities for local suppliers.

4.1 Procurement and suppliers

EMPNG supports the development of Papua New Guinean businesses so they can become self-sustaining enterprises.

Lancos continue to be engaged for road maintenance, civil and construction works, transportation of personnel, fuel distribution, security, camp maintenance and catering, vehicle maintenance, labour hire and other services.

Non-Lanco businesses provide services such as accommodation, civil works, transportation of personnel, security, catering and food supply, maintenance, surveying, inspection and testing, medical services, and waste management.

During 2022, nine Lancos and 143 non-Lanco Papua New Guinean businesses were engaged in production-related activities.

EMPNG's total in-country spend with Papua New Guinean businesses in 2022 was PGK633 million (USD180 million) compared to PGK645 million (USD183 million) in 2021. Approximately 46 percent of the in-country spend in 2022 was spent on Lanco services, which equates to PGK292 million (USD83 million) compared to PGK185 million (USD52 million) spent on Lanco services in 2021.

Since production began, EMPNG has spent PGK5.8 billion (USD1.7 billion) on Papua New Guinean services, of which PGK1.8 billion (USD538 million) was spent with Lanco businesses.

4.2 Capacity building

Through its national content commitments, EMPNG provides appropriate training and business opportunities to support the capacity development of Papua New Guinean businesses.

During 2022, EMPNG participated in the 37th Australia Papua New Guinea Business Forum and Trade Expo held in Brisbane, Australia. The Forum and Trade Expo attracted 400 government, industry and business representatives to address the topic of 'Papua New Guinea: Back to its Future – a Climate for Change'. The event aimed to further boost collaboration between Papua New Guinean and Australian businesses, government and industry partners to support economic growth for Papua New Guinea.

In July, EMPNG Chairman and Managing Director, Peter Larden, was officially announced as inaugural President of the newly established American Chamber of Commerce Coral Sea (AmCham Coral Sea), which aims to promote more business opportunities between the United States, Papua New Guinea, the Solomon Islands and Vanuatu.

As part of his role, Mr Larden presented to Papua New Guinea's future business leaders at the AmCham Coral Sea Young Leaders Event on the important role they can play in building a future that benefits all Papua New Guineans.



Participants of the AmCham Coral Sea Young Leaders Event in Port Moresby

HIGHLIGHT

OCEANEERING TAKES NATIONAL CONTENT AWARD

Oceaneering International, Inc. was recognised with an EMPNG National Content Award in 2022 for providing training opportunities for Papua New Guinean citizens, particularly women, and for engaging local suppliers wherever possible.

Oceaneering has been working on PNG LNG since 2014 providing non-destructive testing and inspection services for pressure vessels, piping, and tanks.

During the past eight years, Oceaneering has implemented many national content initiatives such as providing technical training and career opportunities in non-destructive testing for Papua New Guinean women. This includes providing designated technical and mentoring programs.

Oceaneering has also engaged with Lae University of Technology to encourage students into the non-destructive testing career discipline and consistently uses local suppliers for sourcing safety equipment such as personal protective equipment.



Oceaneering International, Inc. representative, Steven Hewling (right) receives the National Content Award from EMPNG National Content Manager, Sam Koyama

During August, a three-day exhibition and National Development Summit was held at the National Parliament House in Port Moresby for the Praivet Gavamani Konekt 2 (PGK2) program, which is an initiative of the Business Council of Papua New Guinea and EMPNG's National Content team.

Coordinated by the National Content Committee of the Business Council of Papua New Guinea and held as part of induction week for Papua New Guinea's 11th Parliament, PGK2 focused on advancing the national content agenda by bringing together the private sector, government representatives and 100 newly elected Members of Parliament. During PGK2, 20 EMPNG representatives presented overviews of PNG LNG operations and shared with participants the important contributions EMPNG is making to progress its national content commitment. EMPNG has supported PGK2 since its inception in 2021.



EMPNG representatives with newly elected Governor of East New Britain the Honourable Governor Michael Marum (centre)

EMPNG also participated in the Papua New Guinea Chamber of Mines and Petroleum's annual Community Affairs and Business Development Workshop held in August. The Workshop provided a platform for the resource industry, government, Lancos and community-based organisations to discuss initiatives and share ideas about community affairs best practice.

At EMPNG's annual SSHE Forum held in November (refer to *Case Study – A committed, connected and curious culture*), EMPNG announced that all new contracts worth PGK70 million (USD20 million) and above required a national content plan to track compliance against national content commitments.

For more than a decade, EMPNG has helped build the capacity of many Papua New Guinean businesses, including PNG LNG's two representative Lancos, by supporting the work of the Enterprise Centre.

Overseen by the Papua New Guinea Institute of Banking and Business Management, the Enterprise Centre was established with support from PNG LNG in 2010. It now provides services to mining and petroleum industry operators and their suppliers, as well as other large Papua New Guinean businesses.

HIGHLIGHT

OUTSTANDING SAFETY PERFORMER AWARDED CONTRACTOR OF THE YEAR

For the third consecutive year, Laba Security Services Limited has been awarded the Best SSHE Performance – Contractor of the Year for outstanding safety performance.

The Contractor of the Year award recognises impeccable safety performance demonstrated through the achievement of zero recordable injuries, zero below average scores on the quarterly contractor performance scorecard, zero life-saving action violations, and zero non-conformances.

During the past year, Laba Security Services Limited achieved almost 450,000 work hours with some 180 workers and zero Lost Time Incidents recorded.

Cameron Services International was also recognised for outstanding safety performance in 2022, with more than 20,000 work hours completed without a Lost Time Incident.



Program Manager, Addis Balcha receives the Best SSHE Performance – Contractor of the Year 2022 award on behalf of Laba Security Services Limited from EMPNG Third-Party Engagement Supervisor, Albert Waim

During 2022, the Enterprise Centre completed 19 business assessments for Papua New Guinean businesses, including 12 Lancos. EMPNG continues to work with the Centre to identify local companies and Lancos that qualify for business assessments.

The 2021 *Annual Local Business Development Report* and 2021 *Employment, Training and Development Report* were prepared and presented by EMPNG's National Content team to agencies such as: the Department of Petroleum; the Department of Commerce and Industry; the Department of Higher Education, Research, Science and Technology; and the Department of Labour and Industrial Relations during 2022.

CASE STUDY

A COMMITTED, CONNECTED AND CURIOUS CULTURE

To align with EMPNG's National Content Strategy, the annual Contractor Safety Leadership Workshop and annual Contractor National Content Awards were combined into one integrated annual SSHE Forum in 2022. The forum, which was held in November, was attended by more than 220 representatives from EMPNG's third-party contractors and focused on the theme of 'Committed. Connected. Curious'. This built on the 2021 theme of 'Connecting the DOTS for a Safe Future'.

Committed: The committed element represents a commitment from EMPNG and its contractors to workers, colleagues and the community to strive to conduct operations in a way that keeps people safe and healthy. It involves building a workplace culture where everyone works together to promote safety.

Connected: The connected element reminds workers that nothing occurs in a silo, especially operations integrity.

It demonstrates that EMPNG's connectedness between systems and people directly impacts the integrity of PNG LNG operations.

Curious: The curious element highlights that genuine and honest curiosity builds a learning culture that helps work teams to improve every day. EMPNG's SSHE tools are complimented by worker curiosity, which increases effectiveness through workers questioning all aspects of how the tools are implemented in the workplace.

In addition to empowering contractors to foster a committed, connected and curious culture across all worksites, the forum involved contractors sharing safety, health and environmental best practice examples and reminded contractors about the importance of EMPNG's safety mission of 'Nobody Gets Hurt'.



More than 220 contractors attended the first integrated SSHE Forum in November

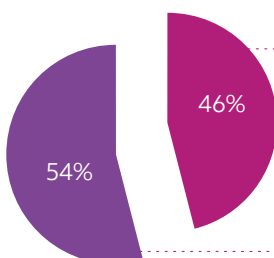
2022 PERFORMANCE HIGHLIGHTS

SUPPLIERS



PGK633M

SPENT IN-COUNTRY WITH
PAPUA NEW GUINEAN BUSINESSES
IN 2022



LANCOS

PGK292M IN 2022
PGK1.8B SINCE
START OF PRODUCTION

NON-LANCOS

PGK341M IN 2022
PGK4B SINCE START OF PRODUCTION



PGK5.8B

SPENT IN-COUNTRY WITH
PAPUA NEW GUINEAN BUSINESSES
SINCE THE START OF PRODUCTION



152

LOCAL BUSINESSES
WORKING ON PNG LNG

LANCOS

143

NON-LANCO PNG BUSINESSES

9

5



To help build resilient and empowered communities, EMPNG works together with local communities, government and civil society organisations on inclusive and long-term community-based initiatives.

5.1 Strategic community investment

Through its strategic community investment programs, EMPNG aims to encourage long-term, positive local economic and social development. These programs cover education, health, livelihood support, law and justice, environment awareness, key infrastructure improvements and community-based initiatives.

Each program is conducted in accordance with its relevant geographic area:

- local area programs in communities impacted by PNG LNG
- impacted provinces – programs that support provincial level initiatives, including activities aligned with provincial and local-level governments and development partners
- national programs involving broader scale capacity building projects and support projects at provincial and local levels.

In 2022, EMPNG invested PGK24.7 million (USD7 million) in community programs through sponsorships, community contributions, in-kind support and local projects. An additional PGK8.4 million (USD2.4 million) was invested in community-based infrastructure through infrastructure tax credit projects.

5.1.1 Local area programs

To support community resilience, local area programs are conducted in collaboration with community members as well as provincial and local-level governments. This involves the delivery of training and business development opportunities for women, enhancing the quality of education for school students, and supporting community-based health and wellbeing initiatives.

Upstream area and pipeline Right of Way

Construction of a new community resource centre, store building, market building, wash bay facilities, and multi-purpose basketball and volleyball court was completed near the HGCP in 2022.

The facilities, worth PGK4.6 million (USD1.3 million), were funded by EMPNG and constructed by Lanco Hides Gas Development Company Limited. They will serve as a multi-purpose venue for community meetings, markets, sporting events and social gatherings for Hides communities.

During the year, EMPNG donated tools to the Hope Institute in Tari, Hela Province. The Hope Institute provides education and training to Papua New Guinean youths who don't have access to high school or tertiary education. The donated tools will be used to help develop the technical trade skills of Hope Institute students.



EMPNG's donation of mechanical tools being presented to Hope Institute Chief Executive Officer, Henry Michael Rabuku (second from right)



Hope Institute students gather for the donation of mechanical tools by EMPNG

Ten schools in the Upstream area have received computer laboratories through the LiteHaus Digital Infrastructure Program, which receives funding support from EMPNG. Each laboratory contains 15 desktop computers with software, an e-library, access to a Digital Skills Passport, a 50-inch display screen with connectivity to devices that support teaching, and 24-hour remote technical support, as well as in-person support.



The new community resource centre for Hides

To mitigate the spread of COVID-19 and improve community health standards, EMPNG has installed handwash stations and distributed health care items, such as face masks, to eight primary schools in Hides and Komo. Schools that have benefited from this initiative are Para, Yuni, St Pauls Komo, Mananda, Komo Seventh Day Adventist, Idauwi, Undupi and Tukupawi primary schools.



A newly installed handwash station at Mananda Primary School

HIGHLIGHT

NEW PIGGERY FOR HELA

A new Hela Community Piggery Enterprise, which includes a large piggery facility, is now in operation through funding and community training support provided by EMPNG.

The Enterprise involves a piggery for up to 200 sows and a training farm to raise piglets to six weeks of age. It includes the provision of training to local farmers in pig feeding, housing and health management, as well as guidance on developing local, regional and national markets for Highland Village pork.

The Hela Community Piggery Enterprise is intended to improve the supply of protein and overall food security in Hela Province, expand enterprise opportunities for local communities and help grow the domestic pork industry. It also provides a model for long-term agricultural development in Papua New Guinea. The piggery is managed by 180 local farmers who were selected from 19,000 applicants.

In October, work started on a new Komo Rural Local-Level Government chamber building funded by EMPNG. The building is being constructed by Lancos Hides Energy Services Limited, Komo Airfield Development Company and Hides Management Services. When completed, it will provide a meeting and conference room, as well as an administrative hub for 24 ward counsellors of the Komo Rural Local-Level Government.

Eighteen *haus wins* were constructed across the Upstream area in 2022 with funding from EMPNG to provide community meeting places and easier access to clean water for those working and living in surrounding communities. Each of the *haus wins* consists of two large rainwater tanks and a shaded structure that provides a space for community meetings and social gatherings.



One of the new *haus wins* constructed in Angore

Following the success of the rugby league competition in Komo, EMPNG has helped Angore communities establish their own rugby league competition through supporting the new Angore Hayapuga Football Association with registering for the Papua New Guinea Rugby Football League. In addition, EMPNG has provided Angore communities with their own rugby league field at Idauwi Primary School and supplied jerseys for 11 local teams.



EMPNG Upstream Asset Manager, Wade Floyd (centre front) with the Idauwi Bulldogs rugby league team in their new jerseys

A new staff house was completed at the newly established Undupi Primary School in Angore during 2022. The school serves nearby communities in Kindipa and has a current enrolment of 195 students.



The new staff house at Undupi Primary School in Angore

The staff house, funded by EMPNG, will make it easier for teachers to get to and from their classes, which helps support better educational outcomes in Angore.

Homa Paua Primary School received a new double classroom and stationery supplies during the year. The school serves the Homa and Paua communities and has a current enrolment of 317 students. It lost three double classrooms during the 2018 Papua New Guinean earthquake, so the new EMPNG-funded double classroom will help the school return to normal operations.



Celebrating the opening of the new classroom at Homa Paua Primary School

Throughout 2022, EMPNG engaged with international organisations such as the Australian Department of Foreign Affairs and Trade, the United Nations (including their Papua New Guinea Highlands Joint Programme), and the United States Agency for International Development to share knowledge and encourage donor investment for Hela Province.

LNG Plant site

Building on the success of LiteHaus International's Digital Infrastructure Program in the Hela Province, EMPNG is providing funding to extend the program into the Central Province and National Capital District. In 2022, EMPNG funded the installation of 18 computer laboratories in primary and high schools, including six schools in the LNG Plant site villages, as well as a computer laboratory at the Port Moresby Nature Park.



Computer laboratory installation at Papa Junior High School as part of the Digital Infrastructure Program

To help empower women in LNG Plant site communities, EMPNG provided funding to the Helaro Hope Association in support of their World Micro, Small and Medium Enterprises Day event in June. The event is intended to recognise and support women in small and medium enterprise, and give local business women and stall holders the opportunity to share knowledge.



Members of the Helaro Hope Association and EMPNG representatives at the World Micro, Small and Medium Enterprises Day event



The new Lea Lea Community Hall

In October, a comprehensive community awareness program was conducted with EMPNG and Central Provincial Fisheries representatives. The awareness program involved providing local communities with information about marine exclusion zones. In November, a feasibility study was conducted to support a long-term fisheries program for LNG Plant site villages.

EMPNG continues to donate awards for school graduation ceremonies in LNG Plant site villages. In 2022, EMPNG provided Dux awards to all top performing students at each LNG Plant site village school. EMPNG also provided Dux awards to Hagara and Baruni primary schools as part of its broader educational support activities.

The Hiri West Netball Association received sporting equipment and merchandise from EMPNG during the year.



Hiri West Netball Team uniform presentation

Community Infrastructure Trust Fund projects

Two newly constructed community halls funded under the Community Infrastructure Trust Fund through the Mineral Resources Development Company Limited (MRDC) were officially opened in 2022.

In March, a two-level community hall was opened in Boera Village to provide local communities with two meeting rooms, four offices, a kitchen and other facilities.



The new community hall at Boera Village

In Lea Lea Village, a community hall consisting of an open meeting space, four offices and a kitchen was opened in April.

5.1.2 Provincial programs

EMPNG continues to support Buk bilong Pikinini with building literacy and numeracy skills in children. During 2022, Motu Koitabu Village children learned to count to 10 in Motu through the donation of numeracy books.

In September, EMPNG volunteers supported Buk bilong Pikinini's Literacy Week activities by helping students identify different animals and traditional symbols used on Papua New Guinea's currency, as well as understand the value of different notes and coins.

EMPNG volunteers also assisted students from Buk bilong Pikinini's Six Mile Library Learning Centre with hosting a market day where children dressed in traditional costumes to represent the different regions of Papua New Guinea. Students had the opportunity to exchange play money for food and craft items at market stalls housed in mini traditionally built kunai thatched huts and learned to withdraw money from a pretend automatic teller machine.



EMPNG Project Engineer, Denise Yakipu, helps children purchase from one of the market stalls at Buk bilong Pikinini's market day

During Literacy Week, Buk bilong Pikinini released the 13th instalment in its *When I Grow Up* book series, which aims to inspire Papua new Guinean children to pursue careers in science, technology, engineering and mathematics (STEM). This particular book, titled *When I Grow Up I want to be an Engineer*, features six-year-old Dorcas Kilalema with her EMPNG engineering role models and was written about Dorcas' visit to the Kumul Petroleum Academy in 2021. To celebrate the book release, Dorcas was invited to return

to the Kumul Petroleum Academy with her fellow Buk bilong Pikinini students for a tour of the facility and a book reading. As part of Literacy Week activities, EMPNG donated a school bus to help Buk bilong Pikinini bring its educational programs into Papua New Guinean communities.



Buk bilong Pikinini students reading *When I Grow Up I want to be an Engineer* onboard their new school bus

EMPNG has consistently supported the work of Buk bilong Pikinini since 2011 through providing funding for educational toys, helping launch the Buk bilong Pikinini digital app, and supporting teacher training and annual Literacy Week activities.



Former EMPNG Media and Communications Manager, Susil Nelson-Kongoi; Buk bilong Pikinini Executive Officer, Leanne Resson; Buk bilong Pikinini Founder and Chair, Anne-Sophie Hermann; EMPNG Operations Manager, Shameka Nelson; and EMPNG Planning and Contributions Supervisor, Belinda Gurra with Buk bilong Pikinini students and their new school bus

HIGHLIGHT**NEW MEDICAL FACILITY FOR RURAL COMMUNITIES**

A new pharmacy and medical storage facility has been provided by EMPNG for LNG Plant site communities.

The facility was constructed using two refurbished shipping containers. It will be used to supply rural health centres throughout the Central Province.

EMPNG also provided medical equipment for an ambulance, and first aid training for healthcare workers and ambulance drivers at Porebada Sub-Health Centre during 2022.



The new pharmacy and medical storage facility for Central Province rural communities

5.1.3 National programs

EMPNG donated PGK73,000 (USD20,700) for the Beyond the Textbook Initiative delivered to 350 students from the University of Papua New Guinea's School of Business and Public Policy during 2022.

The Initiative involved a one-week workshop to empower students to look beyond formal education and aim to build a positive and entrepreneurial mindset, develop life skills, and develop civic duty and citizenship through community outreach.

Students learned the fundamentals of how to set up a business, develop a financial plan, discover marketing and sales opportunities, and understand the structure of a business plan and the legal obligations of running a business.

As part of the Beyond the Textbook initiative, EMPNG sponsored a business plan competition for aspiring entrepreneurs. The competition involved University of Papua New Guinea students researching, developing and presenting business plans to a panel of judges from accredited Port Moresby organisations.



Participants in the business plan competition held at the University of Papua New Guinea campus

In September, EMPNG workers joined local communities to celebrate Papua New Guinea's 47th Independence Day with live music, traditional face painting, and cultural performances across all Upstream worksites and at the LNG Plant site. At ExxonMobil Haus, workers were involved in three days of cultural sharing in the lead-up to and during Independence Day. This included sharing of artefacts, pictures and stories from Papua New Guinea's Momase, New Guinea Islands, Southern and Highlands regions.



Dancers from the Autonomous Region of Bougainville perform a traditional bamboo dance – one of three performances held at the LNG Plant site to celebrate Independence Day



Students celebrating the Beyond the Textbook Initiative in March

EMPNG Operations Accounting Analyst, Joanna Sirias was among 60 participants involved in the 2022 National Youth Mock Parliament held over one week at the National Parliament House in Port Moresby in November.



EMPNG Operations Accounting Analyst, Joanna Sirias, at the National Youth Mock Parliament

The National Youth Mock Parliament covered topics including gender-based violence, adolescence, reproductive health, and anti-corruption issues that impact Papua New Guinean youth. It included a re-enactment of a parliament session to help participants better understand the nation's parliamentary processes. The program was facilitated by the United Nations Population Fund and United Nations Development Fund together with the National Youth Development Authority and European Union.

Thirty Papua New Guinean students have received scholarships funded by EMPNG as part of the 2022 Business and Professional Women's Association PNG LNG In-Country Scholarships Program for Higher Education in Papua New Guinea. The scholarships cover student fees and materials for high school and tertiary education. Since EMPNG began working with the Business and Professional Women's Association in 2019, there have been 120 students funded through this program.

EMPNG workers participated in the annual Bel Isi PNG End of Violence Against Women Walk in November. PNG LNG Kumuls players also joined the PNG Tribal Foundation and representatives from the Royal Papua New Guinean Constabulary Family and Sexual Violence Unit at an educational session at EMPNG's Port Moresby office during the year to raise awareness about gender-based violence in the community.



EMPNG participants at the annual Bel Isi PNG End of Violence Against Women Walk

In 2022, EMPNG commemorated its 10th year of sponsoring and working together with the PNG LNG Kumuls.

The PNG LNG Kumuls have been working with EMPNG to build rugby league capabilities for youths in local communities to help them develop lifelong skills, which are transferable to academic and career success.

During the year, EMPNG appointed PNG LNG Kumuls Centre, Justin Olam, as its new PNG LNG Community Ambassador. Justin's integrity and leadership, coupled with his commitment to education and improving lives through opportunities, mirror the values of EMPNG.



Justin Olam with community members during a visit to Papa Village in Central Province

As PNG LNG Community Ambassador, Justin visited two communities throughout 2022 and made several visits to each PNG LNG worksite.

5.2 Volunteering

More than 140 EMPNG workers contributed 360 volunteer hours during 2022.

As part of EMPNG's commitment to 'Protect Tomorrow. Today.', 60 LNG Plant site volunteers planted 100 mangrove seedlings on the tidal flats surrounding the LNG Plant site perimeter to commemorate World Environment Day in June.



A team of EMPNG and contractor volunteers plant mangrove seedlings in support of World Environment Day

EMPNG workers, Kalyna Taule and Tau Morove volunteered their time to speak with Buk bilong Pikinini students at their Six Mile Library Learning Centre for World Environment Day and World Ocean Day.



EMPNG Biodiversity Advisor, Kalyna Taule, speaking to Buk bilong Pikinini students for World Environment Day



EMPNG volunteer, Tau Morove, speaks to Buk bilong Pikinini students about protecting Papua New Guinea's oceans in support of World Ocean Day

During 2022, 16 EMPNG volunteers who were previously part of the Operations and Maintenance training program, Graduate Management Development Program, or Graduate Engineering Recruitment Program shared their experience at the Secondary School Career Expo at Port Moresby National

High School. The Expo, which was held over four days, aimed to inspire the next generation of Papua New Guineans to consider a career in STEM. It was attended by various secondary schools in the National Capital District. Topics of discussions included the extracting, processing, and shipping of LNG, as well as pathways available to students to realise future career opportunities with EMPNG.



Operations Technician, Samuel Kavop speaks with students from Caritas Secondary School at the Secondary School Career Expo



Facilities and Process Surveillance Engineer, Elijah Lavai (second from right) and Operations Technician, Ryan Tagai (right) speaking with students from Jubilee Catholic Secondary School at the Secondary School Career Expo

Science Ambassador Program

EMPNG continues to support the ExxonMobil Science Ambassador Program, which was introduced to Papua New Guinea in 2013 and encourages high school students to consider STEM careers through interactive educational activities. The program involves EMPNG volunteers providing lessons to school students using practical experiments that support classroom theory on topics such as rocks and geology, and the origins of oil and gas.



Redscar High School students observe an experiment conducted by Science Ambassador, Samuel Kavop

Following the easing of COVID-19 restrictions, the program returned to full capacity in 2022 with 818 students participating during the year compared to only 50 in 2021. Classroom lessons on the origins of oil and gas were held with 585 students from six schools near the LNG Plant site, while another 97 students attended three-day coding and droning workshops. PNG Flying Labs, with support from 10 EMPNG volunteers, delivered the coding and droning workshops.

Through these workshops, students learned basic coding skills and drone piloting. For example, students used coding to transform simple circles into an animated coronavirus and white blood cells computer game, and simple squares into robots for a chatbot program. They also instructed a chatbot program to speak in Motu and Koitabu languages.

In the Upstream area, 136 students from three schools participated in the Science Ambassador Program. Lessons for Upstream area students were hosted at the HGCP where they also participated in site tours. These tours provided an opportunity for the students to learn outside of the classroom, and aligned with the 2022 International Literacy Day theme of 'Transforming Literacy Learning Spaces'.



Komo Catholic High School students and their teachers undertake an HGCP site tour as part of the Science Ambassador Program

Some 5870 students have participated in the Science Ambassador Program since its inception in Papua New Guinea.

2022 PERFORMANCE HIGHLIGHTS

COMMUNITY



PGK24.7M

OF CONTRIBUTIONS, SPONSORSHIPS, IN-KIND SUPPORT AND COMMUNITY PROJECTS IN 2022



PGK8.4M

ON INFRASTRUCTURE TAX CREDIT PROJECTS IN 2022



140

VOLUNTEERS

SPENT 360 HOURS IN 2022 ON VOLUNTEER PROJECTS



28

COMPUTER LABS INSTALLED

IN PRIMARY SCHOOLS ACROSS HELA AND CENTRAL PROVINCES



818

STUDENT PARTICIPANTS

IN THE EXXONMOBIL SCIENCE AMBASSADOR PROGRAM



30

SCHOLARSHIPS AWARDED

AS PART OF THE PNG LNG IN-COUNTRY SCHOLARSHIPS PROGRAM



PART B



ENVIRONMENT

EMPNG aims to preserve the unique biodiversity values of Papua New Guinea, while mitigating environmental impacts associated with its production activities.

To achieve this, EMPNG operates in accordance with the Biodiversity Strategy and three Environmental Management Plans.

The Biodiversity Strategy outlines how potential impacts on biodiversity will be assessed and managed in the long-term, and how EMPNG will offset residual impacts associated with the footprint of PNG LNG with equivalent biodiversity gains.

The Environmental Management Plans outline EMPNG's approach to managing air, noise, water and waste impacts, as well as the company's commitment to preserving cultural heritage, managing invasive plant and pest species, controlling access to sensitive areas and reinstating native vegetation.

6



Through commitments outlined in the Biodiversity Strategy, EMPNG works with its stakeholders to preserve Papua New Guinea's unique biodiversity.

The Biodiversity Strategy consists of a:

- Biodiversity Offset Program
- Biodiversity Implementation and Monitoring Program with four Programmed Monitoring Activities (PMAs) that aim to verify achievement of the Strategy's objectives.

6.1 Biodiversity Offset Program

Biodiversity offset activities are conducted in accordance with the Biodiversity Offset Program, which consists of five Components as shown in Figure 6.1.

Components 1, 2 and 3 provide the foundation for sustained conservation outcomes through capacity building at both national and regional levels, so they are collectively termed 'enabling activities'. Components 4 and 5 aim to achieve 'conservation outcomes on the ground' by enhancing the protection of existing conservation areas or establishing new protected areas.

Enabling activities

Component 1 was completed in 2017 when the report, *Protected Area Planning for the Kikori River Basin*, developed with the Wildlife Conservation Society, was finalised.

Component 2 intends to support the Papua New Guinea Conservation and Environment Protection Authority with implementing the National Biodiversity Strategy and Action Plan. It has involved ongoing engagement with conservation representatives from the Papua New Guinean Government, local communities, civil society organisations and academia. In 2022, a dialogue was established between the United States Agency for International Development *Lukautim Graun* Program, the Papua New Guinean Government and EMPNG for potential partnerships in conservation-related activities. *Lukautim graun* means 'protect the environment' in Tok Pisin. The program is implemented by Cardno Emerging Markets USA Limited with a consortium of four partners at the national, regional, and local levels.

The four partners are: The Nature Conservancy, the Wildlife Conservation Society, The Woodland Park Zoo's PNG Tree Kangaroo Conservation Program, and CARE International.

Component 3 aims to build the technical capacity of conservation professionals and enhance community conservation capacity. EMPNG is working with the New Guinea Binatang Research Centre for the ongoing delivery of the Enhancing Conservation Capacity Program. This involves training students towards their Master's and PhD degrees and providing short training courses for community conservation practitioners and biologists.

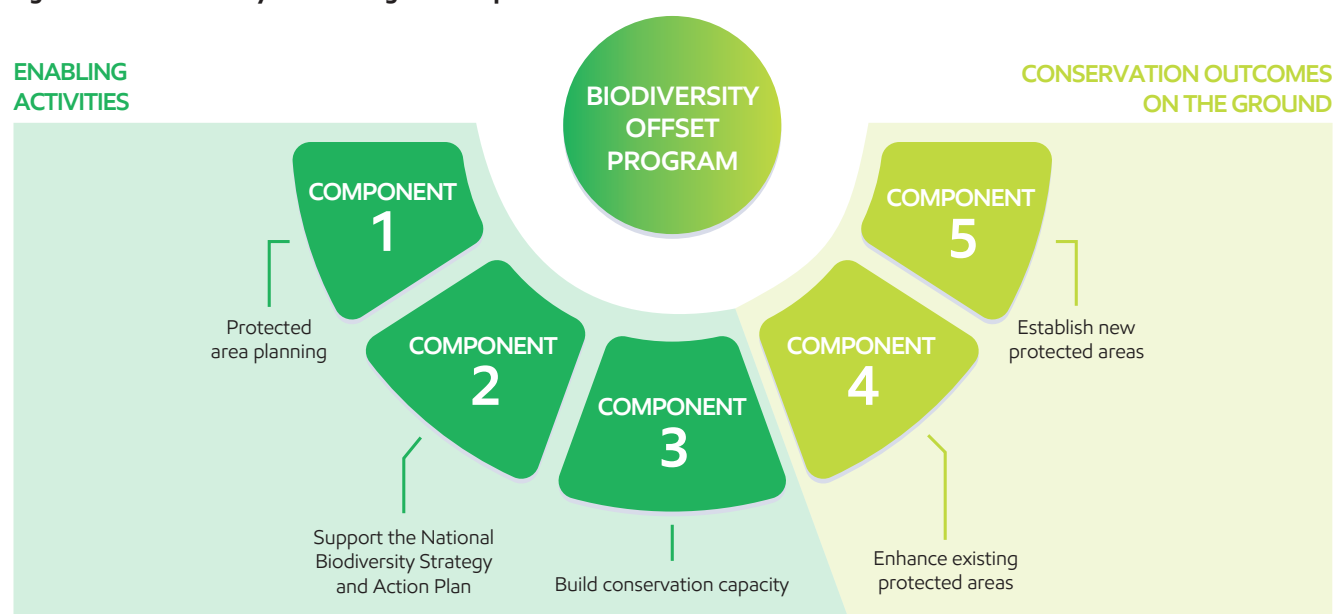
Conservation outcomes on the ground

EMPNG aims to enhance the management effectiveness of the Lake Kutubu Wildlife Management Area (WMA), which is managed by the Lake Kutubu WMA Committee.

In 2022, the WMA Committee held two management meetings to plan and monitor WMA activities. Work on the Lake Kutubu WMA Management Plan, for the enhancement of the WMA, progressed with the collection of data about environmental, biodiversity and cultural values of the region through surveys with WMA Committee members and local communities. Data from these surveys was used to complete a first full draft of the Management Plan. A workshop will be held with stakeholders from the district provincial administration, relevant Papua New Guinean Government departments and civil society organisations to review the draft Plan before it is finalised and adopted for implementation.

Following an initial meeting in 2021, a second meeting for the proposed new conservation area on the Sanumahia clan lands located west of the Lake Kutubu WMA was held by members of the clan at Lorogobai'iu Village. Office bearers were elected to coordinate community awareness and other conservation-related activities. The office bearers will eventually establish a community-based organisation for the new conservation area.

Figure 6.1 – Biodiversity Offset Program Components



HIGHLIGHT**BUILDING CONSERVATION CAPACITY**

As part of the Enhancing Conservation Capacity Program, and through funding provided by EMPNG, the New Guinea Binatang Research Centre and its partner universities are training two students for their Master's degrees at the Papua New Guinea University of Technology, and two PhD students at the University of South Bohemia and the Biology Centre of the Czech Academy of Science, Czech Republic. The PhD student program continues until 2026.

In addition to the university-based programs, the New Guinea Binatang Research Centre offers a Conservation Rangers Training course in both terrestrial and mangrove/marine ecosystems for community-based conservation practitioners. EMPNG sponsored five Lower Kikori conservation champions to attend the Conservation Rangers Training course in 2022.

The New Guinea Binatang Research Centre is recognised as a specialist biological research and conservation organisation in Papua New Guinea. The Centre trains local citizens in biology at all levels, from field technicians through to paraecologists and post graduate students. It also plays an important role in advancing biodiversity research in Papua New Guinea and develops educational and nature conservation programs that target community-based audiences.

The Centre has a long association working with EMPNG, and its researchers currently conduct regular weeds and regeneration monitoring for EMPNG in the Upstream area.



Conservation Rangers Training at the Baitabag conservation area, led by Botanists Jonah Philip, Brus Isua and Kenneth Molem

Eight youths from Tugiri Village held a theatre performance at Moro market to raise community awareness about the 2022 World Environment Day theme 'Only One Earth'. As part of their performance, the youths sang songs in Tok Pisin about protecting planet earth.

To preserve fish and other fauna in and around Lake Kutubu, the WMA Committee has established 'No Go Fishing' zones with local communities. In some areas this has been challenging because communities rely on fish as their main source of protein, as well as income gained from the sale of invasive fish species such as Tilapia.

EMPNG continues to engage with Lower Kikori communities for conservation initiatives.

In 2022, an environmental lawyer was engaged to initiate the conservation deeds process. The lawyer completed the first drafts of 10 conservation deeds that were reviewed and agreed with the Kerewo and Kibiri tribes in 2021. The second drafts of these conservation deeds will be shared with the respective communities in 2023.

6.2 Biodiversity Implementation and Monitoring Program

The four PMAs in the Biodiversity Implementation and Monitoring Program are:

- **PMA1 – Remote Sensing of Broadscale Land Cover.** This uses remote sensing imagery to determine the extent of broadscale changes to land cover as a result of natural or anthropogenic processes, which includes direct and indirect residual impacts from PNG LNG.
- **PMA2 – Condition Surveys of Focal Habitats and Significant Ecological Features** involves collecting and monitoring data through field surveys. It assesses the condition of focal habitats and significant ecological features that were avoided during construction.
- **PMA3 – Biodiversity Surveys** involve field surveys to document trends in flora and fauna species diversity and abundance through gathering data to confirm the intactness of the Upstream area and retention of long-term biodiversity values.
- **PMA4 – Efficacy of Biodiversity Offsets** monitors the progress of each Biodiversity Offset Program component. This helps EMPNG evaluate whether Objective 4 of the Biodiversity Strategy, to identify, measure and offset significant residual impacts, is being achieved.

PMA1 – Remote Sensing of Broadscale Land Cover

EMPNG engages a specialist contractor to gather satellite imagery and deploy remote sensing tools to monitor broadscale land cover changes in the PNG LNG Upstream area. Ground-truthing is used to verify results of the broadscale monitoring and determine if any changes are directly related to PNG LNG construction activities.

In 2022, remote sensing focused on the Lake Kutubu WMA to identify any landscape changes within the boundaries of the WMA since it was established in 2014, to enable measurements against the no net loss target.

Results of this analysis, which will be available in 2023, will help EMPNG account for biodiversity offsets in this area.

PMA2 – Condition Surveys of Focal Habitats and Significant Ecological Features

Twenty sites that were surveyed in 2021 were reassessed during 2022 to determine whether there were any changes to focal habitats or ecological features. The 2022 assessment found that all 20 focal habitats and sensitive ecological features remained intact.

Due to their proximity to PNG LNG infrastructure and the pipeline ROW, these sites will be assessed again in 2023.



Conservation Rangers Training participants ready for their night session of surveying frogs

PMA3 – Biodiversity Surveys

Results of the last biennial PMA3 monitoring survey conducted during 2021 were published in 2022. The survey included the collection of imagery from 80 camera traps placed in forest habitats at two permanent Biodiversity Assessment Areas located on Hides Ridge and the Agogo Range near Moro. The published report showed that 35 frog species were documented in the 2021 survey. However, five species that were detected in the 2015 and 2017 surveys have not been seen in either subsequent survey. This is not unexpected because these particular species are rare, and night surveys were not conducted in 2021. Frog species diversity remains lower at higher elevations, which is typical across New Guinea. No new frog species were identified during the 2021 survey, which concluded that the Biodiversity Assessment Areas continue to support a high diversity of frogs with no evidence of shifts in diversity and no major decline or losses observed. Night monitoring will be reinstated in future surveys when external environmental conditions permit.

Terrestrial mammals and birds are monitored because they are a good indicator of the health of the local ecosystem due to their sensitivity to forest disturbances and invasive species. Since the start of biodiversity monitoring, more than 100 vertebrate species have been documented in more than 17,800 photographic events over the equivalent of 23,100 sampling days.

Two possum species – the masked ring-tailed possum (*Pseudochirulus larvatus*) and Torresian striped possum (*Dactylopsila trivirgata*) – previously recorded in Papua New

Guinea, were detected for the first time in the Biodiversity Assessment Areas during the 2021 survey.

There has been relatively little change detected in the rodent community or forest structure adjacent to the pipeline ROW during the past seven years of survey activity. There was also no shift in native rodent diversity with increasing distance from the pipeline ROW, which suggests that the removal of forest for the pipeline ROW has had no detectable impact on the native rodent population. Evidence of hunting by local communities was found in both Biodiversity Assessment Areas, which is expected as hunting is a traditional activity in the areas.

Twenty-one already documented bat species were detected during the 2021 survey and local bat communities have not changed significantly since the monitoring surveys began. Some bat species have responded positively to opening of the canopy along the pipeline ROW and access road.

PMA4 – Efficacy of Biodiversity Offsets

All Biodiversity Offset Program Components and monitoring activities are tracked according to key performance indicators listed in the Biodiversity Implementation and Monitoring Program, which was revised in 2022 and published on PNG LNG.com.

The revision includes mostly structural updates to enhance readability and reflect changes made in the PMA protocols, particularly the PMA4 Protocol, which was updated in 2020 to upgrade key performance indicators. The Biodiversity Implementation and Monitoring Program was reviewed by the IESC in 2021. There are no new commitments in the revision.

2022 PERFORMANCE HIGHLIGHTS

BIODIVERSITY



20
SITES

SURVEYED FOR CONDITION OF
FOCAL HABITAT AND SENSITIVE
ECOLOGICAL FEATURES



2
MEETINGS

OF THE LAKE KUTUBU
WILDLIFE MANAGEMENT
AREA COMMITTEE

SINCE THE START OF PMA3 MONITORING SURVEYS:



17,800
PHOTOGRAPHS



23,100
SAMPLING DAYS



100+
DOCUMENTED VERTEBRATES



EMPNG is maintaining its commitment to continuous improvement in environmental management across all facilities throughout the production phase.

7.1 Air

Stack testing is conducted every three years on a representative selection of air emissions sources, such as compressors, incinerators, power generators, heaters and furnaces, to confirm that emissions meet Environment Management Plan criteria. Vehicles and heavy machinery are not included in the stack test program but are operated and maintained in accordance with manufacturer specifications.

In 2022, verification testing was conducted on two gas turbine generator stacks at the HGCP that failed to meet applicable emissions criteria during the scheduled testing program in 2021. Following maintenance and recalibration, verification testing confirmed that the emissions criteria had been met.

One HGCP stack that was not tested in 2021, because it was out of service at the time of testing, was also tested in 2022 and met emissions criteria.

In 2022, EMPNG is implementing measures to reduce flaring, which resulted in a reduction of greenhouse gas emissions across worksites. At the LNG Plant, a molecular nitrogen analyser was installed on the boil-off gas return line from LNG cargo ships to reduce flaring during loading and the acid gas removal unit system was optimised. Work on the Pre-FEED (Front End Engineering and Design) also began for energy storage systems at both the LNG Plant and HGCP to reduce fuel gas consumption.

The HGCP recorded its lowest flaring emissions since the start of production due to ongoing flare optimisation initiatives. As part of emission reduction initiatives, EMPNG is replacing nine diesel generators with eight gas-powered microturbines, which will also reduce greenhouse gas emissions from the Upstream area facilities.

Gross flaring volumes in 2022 were similar to 2021 at 1518 million standard cubic feet due to two unplanned events at the LNG Plant. The first unplanned flaring event occurred in September, when an inlet shutdown valve was automatically tripped. A column pump seals failure at Train 1 in November, caused the second unplanned flaring event. Both issues were resolved and normal flaring operations continued.

Total greenhouse gas emissions (Scope 1 and Scope 2) are calculated and reported annually. During 2022, PNG LNG facilities generated 2096 kilotonnes of carbon dioxide equivalent. Most greenhouse gas emissions were generated from gas turbine fuel consumption at the LNG Plant and HGCP. Greenhouse gas performance continues to align with ExxonMobil's 2030 Greenhouse Gas Emission-Reduction Plans.

7.2 Noise

EMPNG continued to record no noise-related incidents or near misses at any PNG LNG facilities during 2022.

As required by the Environmental Management Plans, biannual noise monitoring continued in the Upstream area

and LNG Plant site during both daylight and evening hours. All monitoring events showed noise levels remained within Environment Permit criteria.

7.3 Water

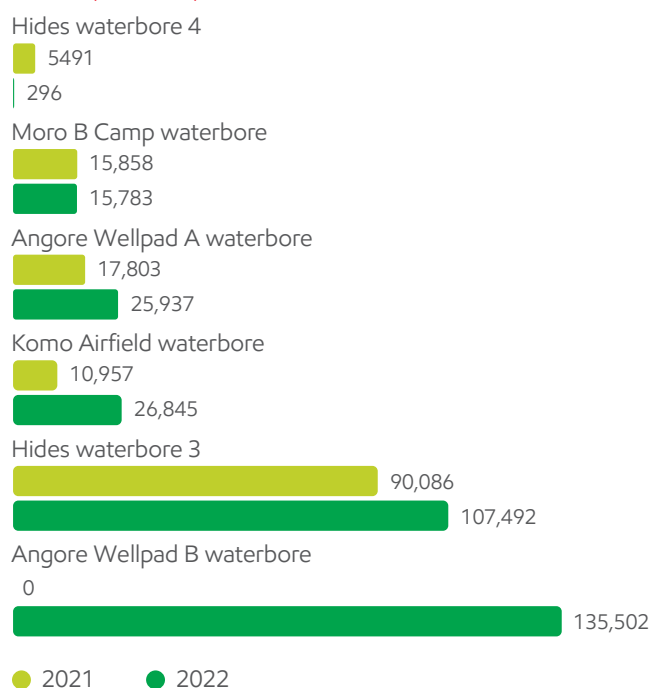
Ongoing monitoring of the amount of water extracted from groundwater, seawater and surface streams is conducted so that water used for production activities remains within permitted extraction volumes. Discharges to water, surface water quality and groundwater quality are also monitored to verify conformance with criteria that is specified in the relevant Environmental Management Plan and Environment Permit.

7.3.1 Consumption

EMPNG uses water for production process operations, worker camps, maintenance activities, dust suppression, safety showers and firewater systems. For Upstream area operations, freshwater is extracted from approved groundwater sources, along with a permitted volume of surface water. Desalinated seawater is used for LNG Plant production activities. Freshwater volumes taken from each groundwater extraction source in the Upstream area during 2022 are shown in Figure 7.1.

Figure 7.1 – Groundwater extraction

VOLUME (KILOLITRES) BY EXTRACTION SOURCE



The total volume of groundwater extracted for use in the Upstream area in 2022 was 311,855 kilolitres. This is an increase of 171,660 kilolitres compared to 2021 mainly due to abstraction from the Angore Wellpad B waterbore, which commenced in July to support drilling works at Angore Wellpad C. Groundwater continues to be used to support Komo Airfield operations and pipeline ROW works at Moro B.

Increased project and operational activities resulted in 4396 kilolitres of water extracted from surface streams in 2022, compared to 429 kilolitres of surface water extracted in 2021. Seawater extraction for the desalination plant at the LNG Plant site was 558,000 kilolitres in 2022, which is consistent with previous years. Extracted seawater was used to generate 83,450 kilolitres of treated water for production use during the year.

7.3.2 Monitoring

Wastewater quality in retention systems and treatment plants is regularly tested to guide operational maintenance needs in case corrective adjustments are required.

When variations or exceedances are detected, non-conformances are raised. This enables the identification and tracking of any issues through to resolution, which helps operators maintain optimum levels within the relevant system.

During 2022, EMPNG recorded eight water quality-related Severity Level I non-conformances.

One of the non-conformances raised in 2022 regarded an exceedance of ammonia-nitrogen discharge levels at the HGCP wastewater treatment plant caused by a faulty mixed liquor suspended solids meter. Immediate corrective actions were implemented with subsequent monitoring of the wastewater treatment plant showing discharge levels to be within Environment Permit criteria. Compliance and verification monitoring in the receiving environment at the HGCP stormwater pond downstream of the wastewater treatment plant showed all results to be within Environment Permit criteria.

One non-conformance was recorded for a chemical oxygen demand exceedance at the HGCP retention pond. This was caused by a monoethylene glycol spill due to a blockage within the monoethylene glycol regeneration unit that seeped through the soil and washed into the retention pond through an open drainage system during high rainfall. Corrective measures included shutdown of the unit so that the blockage could be cleared. Subsequent monitoring found results to be within discharge guidelines. Compliance and verification monitoring in the receiving environment at the Akara Creek downstream of the retention pond showed all results to be within Environment Permit criteria.

The newly installed wastewater treatment plant at the Angore Wellpad C Camp showed no discharge criteria exceedances following its 90-day stabilisation period, which was completed in early October. Weekly monitoring continues to show the plant to be operating within criteria, with the exception of some low-level exceedances, which were recorded as three non-conformances. The first was for elevated oil and grease levels due to significantly increased food preparation to accommodate an increased number of onsite workers, which overwhelmed the small grease trap. A larger grease trap was installed as part of corrective actions. Chemical oxygen demand, turbidity and faecal coliform exceedances were also recorded, resulting

in a second non-conformance. These exceedances were due to sludge build-up inside the sequencing batch reactor tank. Immediate corrective action was taken to remove the sludge and increase the frequency of ongoing sludge removal from weekly to twice weekly. A third non-conformance was recorded for an ammonia-nitrogen exceedance. Corrective actions included increasing aluminium sulphate dose rates, lowering dissolved oxygen concentrations and maintaining mixed liquor suspended solids concentrations. Subsequent monitoring found results to be within discharge guidelines.

Compliance and verification monitoring in the receiving environment at Kaloma Creek downstream of the wastewater treatment plant showed all results to be within Environment Permit criteria.

Water quality monitoring at the LNG Plant site during the year recorded three non-conformances at the wastewater treatment plant. The first non-conformance was for an oil and grease exceedance due to the incorrect disposal of waste oil from the Camp kitchen. A stand-down meeting with kitchen workers and the Waste Management team was conducted to reiterate the waste management process. The second non-conformance was recorded for total suspended solids and turbidity exceedances due to samples being taken without allowing the suspended solids to settle after completion of cleaning. The wastewater treatment plant operator was reminded about the cleaning process and to confirm the sampling schedule accounted for the cleaning frequency. The third non-conformance regarded total suspended solids and turbidity exceedances due to heavy rainfall that had overwhelmed the system. Subsequent monitoring found all results to be within Environment Permit criteria. Compliance and verification monitoring in the downstream receiving environment at Vaihua Creek also showed all results to be within Environment Permit criteria.

EMPNG conducts groundwater monitoring every six months. Monitoring of groundwater at the LNG Plant site showed fluctuations of dissolved manganese, magnesium and sodium at two monitoring wells. A third-party expert review attributed these fluctuations to the ingress of saline water due to the close proximity of the two wells to the shoreline. All other groundwater wells within the LNG Plant site and around the operational landfill area were within Environment Permit criteria. Groundwater monitoring at the HGCP site continues to show results are within Environment Permit criteria and reflective of background levels.

At the HWMF, groundwater monitoring results have either remained within Environment Permit criteria or reflected naturally occurring fluctuations, which were confirmed through an assessment conducted by a third-party specialist consultant in 2021. Monitoring frequencies for three new monitoring wells installed in 2021 were increased from six-monthly to quarterly to build adequate baseline data as part of post-installation monitoring.



Groundwater sampling at the HWMF

7.4 Materials management

As part of its commitment to responsible resource use, EMPNG regularly reviews how it sources raw materials for production-related activities.

In 2022, EMPNG purchased and used approximately 251,550 cubic metres of aggregate, 1380 cubic metres of road base, 60 cubic metres of rock, 860 cubic metres of sand and 130 cubic metres of concrete. There was an increase in the use of aggregate, sand and concrete to support construction works for the Angore Gathering System and maintenance activities at the HGCP and in the Hides area.

Raw materials were also used for ongoing earthquake recovery works and pipeline activities, such as road pavement repairs and drainage improvements, along the pipeline ROW. Approved quarries operated by Lancos under their own environment permits provided the raw materials for Upstream area worksites.

In addition to the raw materials usage for Upstream area activities, sand was sourced for LNG Plant camp maintenance during the year.

7.5 Waste management

EMPNG continues to improve long-term waste management solutions at all worksites.

Approved third-party facilities are used to recycle operational waste and reduce the amount of non-restricted waste sent to landfill, while reuse initiatives are implemented wherever practicable. For example, during 2022, some 43 tonnes of timber was reused from EMPNG worksites for community infrastructure projects in Porebada Village near the LNG Plant site. In the Upstream area, an opportunity identified in 2021 to reuse waste oil in onsite operations equipment resulted in 11 tonnes of waste oil and fuel being reused in 2022. The remaining 47 tonnes of waste oil from the Upstream area was recycled at the Total Waste Management facility at Roku for further offsite disposal.

More than 13 tonnes of spent batteries and 183 tonnes of scrap metal were sent to local Papua New Guinean businesses for recycling, while the Total Waste Management facility at Roku recycled 16 tonnes of light plastics during the year.

HIGHLIGHT

CLEANING UP THE WELLPAD

EMPNG volunteers regularly conduct clean up days at PNG LNG facilities and in local communities.

During 2022, a team of 20 EMPNG volunteers participated in a Wellpad Clean Up Day in the Upstream area.

Rubbish was collected along the Hides Spine access road and in the vicinity near the wellpads by volunteers from the Community Affairs, Security, Operations, Maintenance, Logistics and Environment teams.



EMPNG volunteers participate in Wellpad Clean Up Day

Following successful trials that commenced in 2021, the Papua New Guinea Conservation and Environment Protection Authority approved a new onsite treatment process for wastewater effluent from equipment washdown at the HGCP in 2022. The new process involves pre-treatment through a carbon filtration unit and secondary treatment through the vetiver grass reed bed system at the HWMF in Kopeanda. By the end of 2022, 5 tonnes of process wash water from the HGCP was treated through the reed bed. Verification groundwater monitoring at the HWMF showed that the treated water had no impact on groundwater quality.

Approximately 14 tonnes of operational waste from the Upstream area, 290 tonnes of LNG Plant site waste and 21 tonnes of ExxonMobil Haus waste was sent to Total Waste Management's Roku facility for incineration during 2022. Some 137 tonnes of amine wash water and activated carbon from the LNG Plant was disposed at an EMPNG approved facility in Australia during the year.

The medical waste incinerator at the HWMF was used to dispose 11 tonnes of medical waste from the HGCP, Komo and Angore during the year.

Increased construction activity in Angore resulted in an increase of Upstream area landfill waste in 2022 compared to the previous year. Approximately 5100 tonnes of non-restricted waste was sent to the HWMF landfill in 2022 compared to 2500 tonnes in 2021. The HWMF landfill has now reached half of its capacity. The construction-phase non-restricted waste landfill Cell C that was reinstated at the LNG Plant site in 2021 was commissioned and used in 2022,

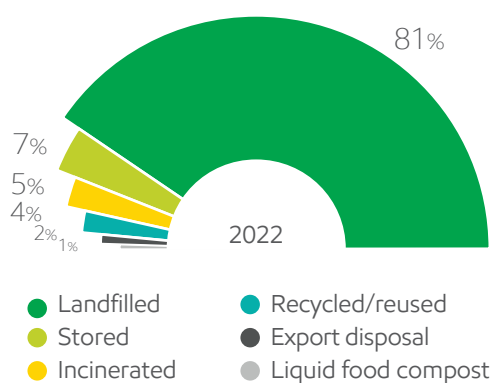
with 630 tonnes of LNG Plant waste, including 280 tonnes of waste held in storage during the previous year, sent to this landfill. This includes 200 tonnes of inert spent molsieve waste, which was used as landfill day cover. Approximately 13 tonnes of waste from ExxonMobil Haus was also sent to landfill at the LNG Plant site. Landfill Cell C has 13,000 cubic metres of remaining capacity.

Liquid food composters continue to process food waste generated at the HGCP and LNG Plant. They are fully enclosed automatic commercial bio-digesters that compost solid and liquid food waste within 24 hours and turn it into greywater that can be safely released into the wastewater system for further treatment and disposal. In 2022, the HGCP liquid food composter processed 29 tonnes of food waste, and the LNG Plant composter processed more than 45 tonnes.

Waste produced in 2022 predominantly consisted of camp waste, general office waste, sanitary wastewater and sludge, along with general office waste. Most non-restricted waste was disposed in landfill, as shown in Figure 7.2.

Figure 7.2 – Waste disposal

PERCENTAGE BY DISPOSAL METHOD



7.6 Spill prevention and response

As part of EMPNG's spill prevention and response process, every spill is monitored and recorded no matter how small the volume involved to prevent the potential for significant spill events. Near misses are also monitored. These are incidents where hydrocarbons or chemicals are released from its primary containment, such as a tank or pipe or compartment that is intended to store it, but are fully contained in a secondary containment or on an impermeable surface, so the substances do not penetrate the ground or reach water. Nineteen near misses were recorded in 2022.

There were 41 Severity Level <0 spill incidents recorded during the year, which consisted of two wastewater spills, three chemical spills, 35 hydrocarbon spills to ground and one seepage of mud product. All spills that occurred during the year were contained within worksite boundaries.

There was an eight percent increase in the number of spills in 2022 compared to the previous year due to increased work activities following the easing of pandemic restrictions.

EMPNG and its contractors aim to reduce spill events and, if a spill occurs, it is responded to quickly and appropriately to minimise environmental impact.

Of the two wastewater spills, one involved 900 litres of filtered waste wash water that leaked from a tote drain valve. The second wastewater spill involved 750 litres of raw sewerage that leaked from a camp lift station and filled a hole dug for pressure testing of the sewerage line.

Two monoethylene glycol chemical spills of less than 4 litres were recorded due to a line blockage and following repositioning of a reflex tube.

Another chemical spill of approximately 5 litres, a mixture of rainwater and corrosion inhibitor, was recorded from a bundled pallet while being moved by a forklift.

One spill was recorded for drilling mud seepage to the surface during horizontal directional drilling activities in Angore.

Hydraulic fluid spills accounted for 28 of the 35 hydrocarbon spills. Of these, 24 were 1 litre or less and the remaining four spills were 10 litres or less. Other hydrocarbon spills consisted of four diesel spills of less than 1 litre, one 15 millilitre gear oil spill in a Moro workshop, and a 20 litre engine oil spill caused by a minor accident when an 80 tonne crane was being moved from a maintenance laydown yard. One 580 litre diesel spill occurred at a Kopi generator due to defective fuel and water separator glass housing, which caused diesel to spill onto the generator enclosure bund. Diesel captured in the bund leaked onto the ground due to a cracked enclosure within the metal bund.

EMPNG and its contractors maintain regular spill prevention toolbox talks with contractor work teams to prevent spills and near-misses, and to share any lessons learned.

Workforce training also continues to be conducted about the types of oil spill response equipment and the appropriate application of each type of equipment on land or water. Each training session includes an overview of response equipment, and response strategies, methods and practices. Participants include emergency response workers, operations and maintenance teams, and engineers.

7.7 Reinstatement, erosion and sediment control

Sediment and erosion control was a focus in 2022 as more worksites opened following the easing of pandemic restrictions.

At the Angore Wellpad C drilling site, the spoil fill area was shaped to allow drainage and lined with jute matting to capture seeds.

In some areas native trees were planted to support reinstatement works. For example, at a water retention wall at the bottom of a spoil fill area, native plants are providing further filtration before the water slowly drains into a nearby stream.



Native vegetation growing through jute matting at the Angore Wellpad C spoil fill area

EMPNG is providing long-term support for communities and the Papua New Guinean Government with complex projects to rebuild and repair roads, bridges and other critical infrastructure damaged in the 2018 earthquake. Most of the earthquake recovery works have been in steep and challenging terrain along the pipeline ROW.



Earthquake recovery works in the Upstream area

At Kilometre Point 64.5, steep gradient works were safely completed in 2022. Works were also completed at Kilometre Points 81 and 82 during the year.

A combination of micropiles, grouting and berm sloping was used to manage water runoff and stabilise the slope. Work also began on repairs at Kilometre Points 86 and 61 during the year.



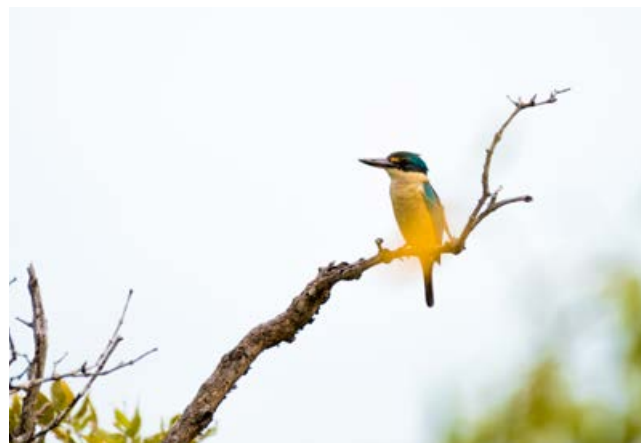
Installation of micropiles

7.8 Ecology

To avoid impacts to specific features of ecological importance in and around PNG LNG facilities, EMPNG implements processes and procedures that include prohibiting workers from disturbing or harassing wildlife, hunting fauna, possessing hunting and fishing equipment, gathering plants or bush foods, collecting firewood, possessing wildlife products and disturbing migratory species habitats.

During the construction phase, an environmental pre-construction survey program identified ecological sensitivities within and in the immediate vicinity of PNG LNG facilities.

Site-specific mitigation and management measures were implemented to avoid and otherwise mitigate potential impacts to these ecologies where possible. These measures have included regular inspections to check the condition of sensitive ecological features and assess the significance of any change to the condition of the ecological sensitivity. In 2022, wildlife monitoring encompassed species such as birds, wallabies and reptiles.



Sacred kingfisher (*Todiramphus sanctus*)

During the year, there were 25 venomous snakes including the Papuan Taipan, 125 mildly venomous snakes and 76 non-venomous snakes caught and safely relocated from PNG LNG worksites.



Australian barn-owl (*Tyto delicatula*)



Pacific black duck (*Anas superciliosa*)

7.9 Invasive species, pests and plant pathogens

Control measures are implemented to prevent invasive weeds, pests and plant pathogens from entering or establishing within and around production facilities. EMPNG also aims to contain invasive species that were already present prior to PNG LNG construction in an effort to preserve Papua New Guinea's unique native ecosystems.

In September, the New Guinea Binatang Research Centre completed the annual invasive weeds monitoring survey.

A total of 733 transects, each measuring 100 metres, were surveyed. Data collected from the survey showed that, generally, Priority 1 weed species diversity increased in the lowlands but decreased in the foothills and the low montane compared to 2021. The survey also showed a general decline in the abundance of three of the top five Priority 1 weed species compared to those observed in 2021.

Weed diversity in the lowlands remains consistent with sites outside of the PNG LNG footprint in Papua New Guinea. Priority 1 weeds, especially *Piper aduncum*, were already well established in the area prior to PNG LNG construction.

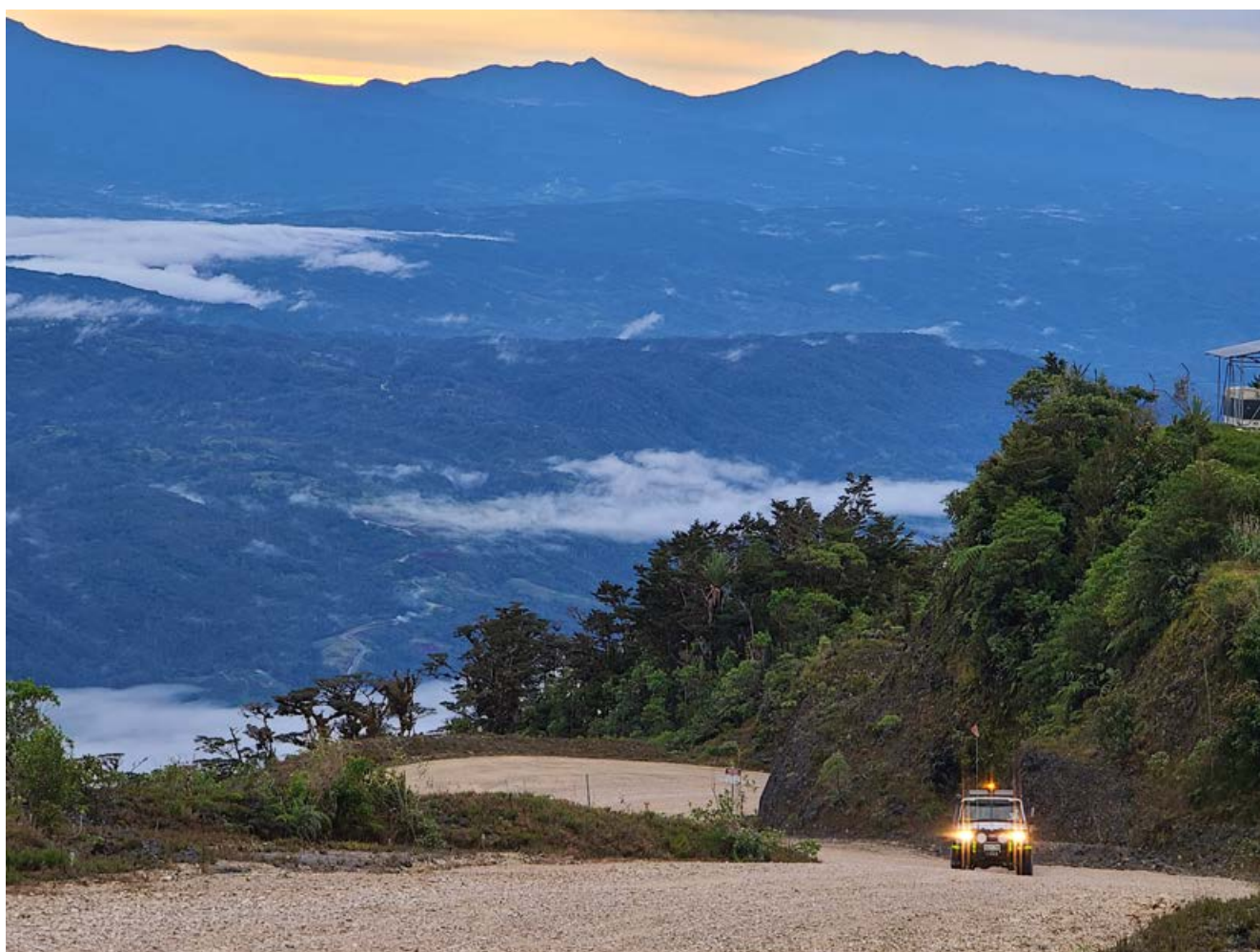
The Priority 1 species, *Piper aduncum*, continues to be an important species adopted by communities around PNG LNG facilities. There has been no significant increase in the density of this weed species since 2021.

To support the survey results, and to further understand the potential impact to Priority 1 abundance, the survey team established 10 pairs of experimental plots of *Piper aduncum* during the year. Each pair comprises a 'control' and 'experimental' plot to determine any ecological impacts of the invasive weed on native flora and the local ecosystem. The experimental effort is ongoing.

In addition to monitoring surveys, EMPNG continues to educate the workforce and local communities about invasive weed and pest species. This includes educating workers and communities about cane toad management.



New Guinea Binatang Research Centre Botanists Jonah Philip, Kenneth Molem and Gabriel Petuel conduct the annual weeds monitoring survey on the pipeline ROW near Aiyo-Mano Village, south of Moro



Access road to Hides Wellpad E

Production workers and contractors are also prohibited from bringing horticultural and agricultural plants onto EMPNG worksites, particularly in the Hides and Homa – Benaria Ridge regions, which are considered high biodiversity value areas and must remain largely undisturbed.

7.10 Regeneration monitoring

Vegetation management awareness is provided for workers and communities at all EMPNG worksites. Six in-person meetings were conducted at the HGCP Main Camp and Moro B Camp during the year to keep workers updated about vegetation management requirements in the Upstream area.

A biennial survey to monitor the regeneration of plant species following temporary disturbance from construction activities was conducted in 2021, with the next survey scheduled for 2023.

Mangrove monitoring at the LNG Plant Caution Bay landfill site continues to show good regeneration progress.

Appropriate control measures are being maintained to prevent vehicular access to, and harvesting of, the mangroves while promoting the importance of protecting the mangroves with local communities.



Mangrove regeneration at the LNG Plant Caution Bay landfill site

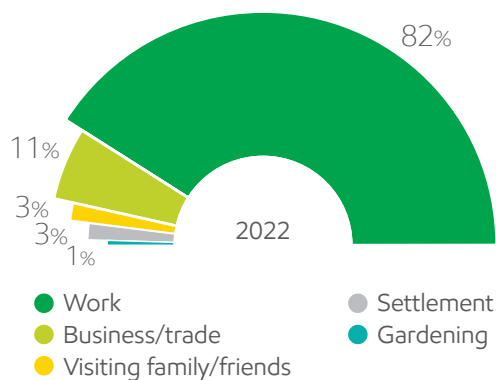
7.11 Access control

EMPNG collects data about the type and number of vehicles that use EMPNG-controlled roads, and the purpose for the road use. This data is collected at manned security checkpoints.

Although data sets for Kopi, Gobe and Kaiaam were not complete for the twelve-month period, the data collected shows that work was the primary reason for road access, as presented in Figure 7.3.

Figure 7.3 – Purpose of access

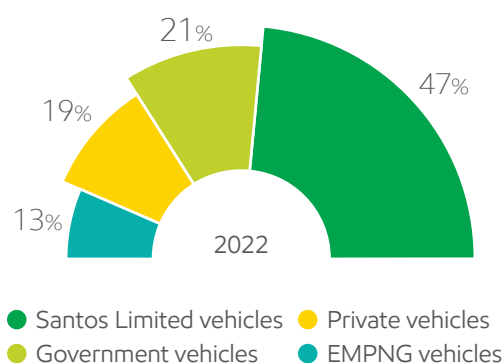
PERCENTAGE OF TRAFFIC USING EMPNG-CONTROLLED ROADS BY PURPOSE



This included EMPNG, Santos Limited, government and community-based work. The types of vehicles that use EMPNG-monitored roads are shown in Figure 7.4.

Figure 7.4 – Vehicle types

PERCENTAGE USING EMPNG ACCESS POINTS



7.12 Quarantine management

For all freight imported into Papua New Guinea, EMPNG and its contractors comply with National Agriculture Quarantine and Inspection Authority requirements.

In 2022, EMPNG received 1140 shipments, which was an increase compared to 2021 due to work resuming in Angore. Forty-three of the shipments received in 2022 were inspected with three requiring re-fumigation to comply with the Authority's standards. Re-fumigations were managed by the vendors at the place of origin. A revision and update of 2021 quarantine data was conducted during the year.

Since the start of production, a total 8919 shipments have been received, with 1119 inspected by the National Agriculture Quarantine and Inspection Authority and, of those, 144 requiring re-fumigation. There has been a general downward trend in the number of shipments requiring re-fumigation since production began.

7.13 Cultural heritage

Papua New Guinea maintains its cultural identity, traditional knowledge and oral histories through the use of, and relationships with, land and natural resources. Caves, trees, waterholes and many other environmental and habitat features that are intertwined with biodiversity are often used to express cultural heritage. As part of its commitment to preserving Papua New Guinea's unique biodiversity, EMPNG aims to preserve the culture and history of environments located near EMPNG's production facilities.

During 2022, EMPNG worked with the Papua New Guinea Social Research Institute to create a cultural heritage children's storybook based on oral histories collected during the community engagement and resource mapping process undertaken as part of Component 5 of EMPNG's Biodiversity Offset Program. The book is expected to be published in 2023.

To identify potential cultural heritage sites that may require preservation or mitigation measures, pre-construction surveys are conducted prior to construction activities.

As part of ongoing earthquake recovery works in the Upstream area, pre-construction surveys were conducted along the pipeline ROW in September. The surveys identified 15 archaeological sites and eight cultural heritage sites. These sites included ancestral sacred sites, settlement sites, burial sites and ceremonial sites, such as a spiritual site where feasts were conducted to keep a balance between the physical and spiritual world.

Cultural heritage induction and awareness sessions have been conducted since the start of PNG LNG construction. During 2022, these sessions helped raise awareness with 500 workers from the Seismic Projects team.

2022 PERFORMANCE HIGHLIGHTS

ENVIRONMENT MANAGEMENT


100% NOISE
WITHIN CRITERIA


1140
FREIGHT SHIPMENTS


733 TRANSECTS
SURVEYED FOR WEEDS


311,855kL
GROUNDWATER EXTRACTED

558,000kL
SEAWATER
EXTRACTED

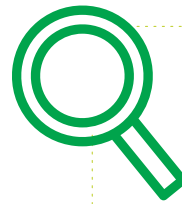
83,450kL
TREATED WATER
PRODUCED
ENVIRONMENTAL
INCIDENTS
0 SEVERITY LEVEL 0, 1, 2 AND
3 INCIDENTS

41 SEVERITY LEVEL <0 INCIDENTS

19 NEAR MISSES

ENVIRONMENTAL INCIDENTS

Incidents are classified by Severity Levels of <0, 0, 1, 2, or 3. Severity Level <0 has no significant impact, while Severity Level 2 or 3 require notification to the Lender Group's IESC, or relevant government authority.

ENVIRONMENTAL
NON-CONFORMANCES
AND FIELD OBSERVATIONS
0 SEVERITY LEVEL II AND III
NON-CONFORMANCES

8 SEVERITY LEVEL I
NON-CONFORMANCES

87 NEEDS IMPROVEMENT
FIELD OBSERVATIONS

25 POSITIVE FIELD
OBSERVATIONS

ENVIRONMENTAL NON-CONFORMANCES

Non-conformances are situations that do not meet ESMP requirements and are classified according to three Severity Levels. Severity Level I involves no damage or reasonable expectation of damage progressing through to Severity Level III, typically including observed significant damage or a reasonable expectation of significant damage.



PART C



SOCIAL

To develop and implement initiatives that aim to return the value derived from LNG production back to local communities, EMPNG actively engages with stakeholders on an ongoing basis.

EMPNG supports the welfare of workers and communities in and around its production facilities through implementing Social Management Plans that encompass health, safety, security, emergency preparedness, labour and working conditions, land access, resettlement and livelihood restoration.

8



WORKER WELFARE

Through procedures that protect the safety, health and wellbeing of workers, and encourage fair and equitable labour practices, EMPNG actively promotes a safe and healthy workplace.

8.1 Safety

In 2022, EMPNG continued its industry-leading safety performance, achieving nine years of work without a Lost Time Incident at the LNG Plant.



The LNG Plant site Warehouse team celebrates nine years of work without a Lost Time Incident

The Upstream area has achieved five years of work without a Lost Time Incident.

A safety milestone was reached with the Environmental and Property Solutions Facilities team at ExxonMobil Haus achieving five years without a recordable injury.

More than 100 million hours have been worked since the start of production, as shown in Figure 8.1, with 18.7 million of these hours worked during 2022.

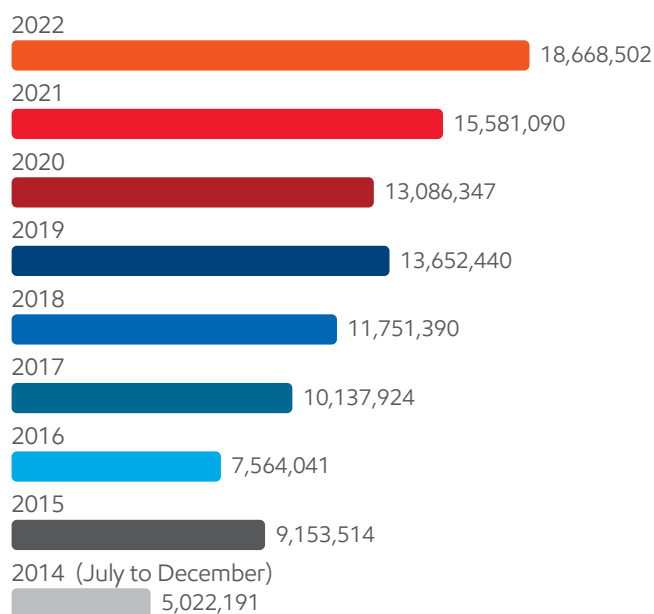
EMPNG's 'Nobody Gets Hurt' objective continued to be reinforced throughout the year, along with the other supporting safety focus areas of 'Do It Right, Every Time', 'Focus Despite Distractions', and 'I've Got Your Back'.

Core safety programs and processes

OIMS is the system used to define EMPNG's core safety programs and processes, which are based on both leading and lagging indicators that determine the health of safety systems.

Figure 8.1 – Production work hours

NUMBER REPORTED BY PERIOD FOR THE TOTAL PNG LNG WORKFORCE



Leading indicators measure the effectiveness of EMPNG's safety programs while lagging indicators record actual incidents, consequences and overall safety performance. During 2022, EMPNG's performance across all key leading safety indicators, as shown in Figure 8.2, improved with a yearly total of 16,666 'Nobody Gets Hurt' cards submitted, including 14,898 Observations and Interactions, 1768 Hazard Identifications and 190 Near Miss Reports.

EMPNG continued to deliver safety toolbox talks and shared worksite learnings on preventing high severity near misses, particularly with regard to dropped and falling objects, and energy isolation.

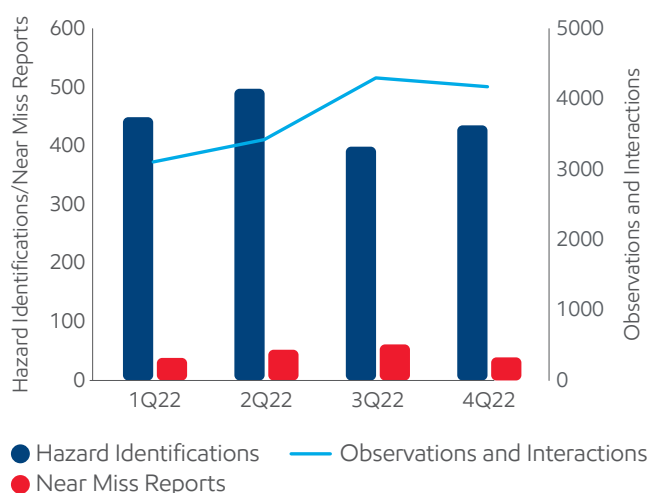
Key lagging indicators for EMPNG are Lost Time Incident Rate, Total Recordable Incident Rate and the number of Tier 1 and Tier 2 process safety events as defined by IPIECA, the global oil and gas industry association.



The Environmental and Property Solutions Facilities team celebrates five years without a recordable injury

Figure 8.2 – Core safety processes

NUMBER REPORTED BY QUARTER



In 2022, EMPNG recorded four Tier 2 process safety events, with all of these being loss of primary containment. Three of the events occurred at the LNG Plant. Of these, two related to a seal failure on one of the pumps and a compressor supply line, while one event was the result of a faulty drain line valve. The fourth loss of containment event occurred at the HGCP through a small stress crack on the flowline's low point bleed. All affected equipment was safely isolated and repaired.

Continuous learning and process improvements that were identified as a result of these events are being implemented across both worksites.

EMPNG had a Total Recordable Incident Rate of 0.09 for 2022, compared to 0.08 in 2021, due to increased work activity. During 2022, one Lost Time Incident occurred at an offsite laydown yard, raising the Lost Time Incident Rate from 0.00 in 2021 to 0.01 in 2022. This was the first Lost Time Incident to occur at any PNG LNG worksite in the past four years.

Safety initiatives

In 2022, a management guide and reporting tool was developed, as well as a tracking mechanism, to improve the implementation of the Last Minute Risk Assessment safety tool in the field.

In June, EMPNG implemented human performance fluency training with 500 supervisors completing the training by the end of the year.

The training challenged safety leaders to expand their safety awareness with regard to how and why mistakes occur in the workplace. The training also empowered participants to transfer this knowledge back to the general workforce. Human performance fluency training is designed to help workers gain a stronger understanding of how different individuals interact with plant, processes and each other as part of an overall workplace system to better manage risks and keep people safe.

Thirteen Upstream area workers and 14 LNG Plant site workers were recognised as Safety and Fair Play Champions during 2022. This program aims to recognise and encourage safe behaviour as part of a journey to building a safety culture. Workers were selected by their supervisors throughout the year for exhibiting safe workplace behaviours and influencing others with 'Nobody Gets Hurt' objectives.



LNG Plant Asset Manager, Justin Cloutier recognises LNG Plant Marine Terminal Loading Master, Kingsley Baim as a Safety Champion for proactive reporting of a third-party vessel within the 500-metre exclusion zone

A weekly safety trivia competition was held with Upstream area workers in 2022 to increase awareness of safety topics. EMPNG also reinvigorated other safety programs in response to the easing of COVID-related restrictions. This included the monthly safety award and fair play system, increasing the frequency of safety committee meetings, introducing a bi-weekly hazard hunt to raise more awareness about the need for hazard identification in the workplace, and introducing the *Daily Mail* newsletter to provide daily insights about SSHE and permitted work activities for the day.



The Upstream area Maintenance team completes human performance fluency training

8.2 Health

EMPNG provides high quality medical, public health and industrial hygiene programs at all worksites to maintain the health and wellbeing of its workforce.

During 2022, medical activities focused on supporting the physical and emotional wellbeing of workers as COVID-19 restrictions eased and construction activities ramped up in Angore.

Medical

Some 18,870 patient consultations were conducted across camp clinics during the year, including two new clinics established at Hides Wellpad D and Angore Wellpad C. Approximately 35 percent of consultations were at the LNG Plant site clinic and 65 percent at Upstream area clinics.

Workplace screening for COVID-19 continued in 2022, with more than 13,000 test samples collected across worksites throughout the year. Screening was primarily conducted for workers who were feeling unwell with respiratory symptoms or needed medical clearance to travel.

In addition to COVID-19 testing, clinicians conducted 1500 tuberculosis screening tests during 2022 as part of EMPNG's tuberculosis awareness and prevention program. Four active community-acquired tuberculosis cases were identified and referred for further treatment. There was no workplace transmission of tuberculosis in 2022.

EMPNG's Culture of Health program continued, with 1580 workers receiving biometric testing to identify any underlying health issues. Biometric testing involves blood pressure, weight and blood sugar screening. Vision testing was also provided, with 110 workers receiving eye tests during the year.



EMPNG Land Advisor, Piape Andiki, receiving biometric screening at ExxonMobil Haus from International SOS National Country Medical Director, Dr. Roger Casupang

Workers at all sites are encouraged to participate in the Culture of Health program, which includes physical activities. As part of this program, workers at the HGCP and LNG Plant site undertake perimeter walks of the facilities. A weekly Walk and Talk event was conducted at the LNG Plant and a 'Walk around the World' competition was held to challenge workers to log 280,000 steps in eight weeks. Park benches have also been installed at the LNG Plant camp to encourage workers to sit and talk.



Some of the new park benches prior to installation at the LNG Plant site



LNG Plant site workers walk the worksite perimeter as part of the Culture of Health program

Regular emergency response drills are conducted at EMPNG site clinics so that medical teams can optimise their response to a medical emergency. During the year, 27 medical emergency response drills were conducted across EMPNG worksites. The drills included exercises on transferring and stabilising patients before medical evacuation.

Twenty-one medical evacuations from worksites were conducted in 2022. All evacuations were for personal medical conditions, with none relating to workplace activities.

Public health

In November, EMPNG removed the mandatory malaria chemoprophylaxis requirement for non-immune HGCP and Angore workers. This follows the removal of malaria chemoprophylaxis requirements at the LNG Plant in 2021 due to a health risk review regarding the prevalence of malaria. Only 49 community acquired semi-immune malaria cases were recorded in 2022, and all of these were successfully treated at site clinics.

More than 500 health toolbox talks were delivered across worksites during the year.

Industrial hygiene

EMPNG's industrial hygiene program is intended to protect the workforce through the assessment, control and communication of potential workplace health hazards.

More than 300 workplace health inspections were conducted during 2022 to check that health requirements were met for food, water, public health, chemical and respiratory safety, including respirator fit-testing. In addition, 30 personal exposure monitoring samples were collected to assess potential worker exposure to factors such as benzene, noise and gasoline.

Noise surveys were conducted at the LNG Plant to establish hearing protection areas during the servicing of refrigerant compressors. This resulted in the temporary relaxation of double hearing protection to single hearing protection

within designated areas, making it easier for work teams to communicate.

A noise survey was also conducted for new H145 helicopters to validate hearing protection requirements for passengers and aviation workers.

A new technician joined EMPNG's industrial hygiene team in July after completing training in Singapore. This technician was involved in the reassessment of all EMPNG worker groups using the revised global industrial hygiene exposure assessment strategy, which will be implemented from 2023. The new strategy will enable a more fit-for-risk approach to exposure assessments with the ability to leverage global data and insights to compare to EMPNG worksites.



EMPNG Chairman and Managing Director, Peter Larden with one of the new H145 helicopters

Other strategic initiatives

EMPNG conducted specific lunch-and-learn sessions and toolbox talks to commemorate internationally-recognised days such as World Tuberculosis Day, World Malaria Day, World Diabetes Day, and World AIDS Day during the year.

EMPNG also provided workers with mosquito bed nets for World Malaria Day, free diabetic screening for World Diabetes Day, and free HIV/AIDS testing and counselling for World AIDS Day.



The HGCP Clinic team promoting the World Aids Day theme 'Equalize' on 1 December



Angore workers in their mental health awareness Sunday shirts

In August, Angore workers began wearing work shirts with vibrant patterns on Sundays to help raise awareness about mental health. The shirts feature an embroidered slogan on the back that states “this is a conversation starter”.

In October, EMPNG commemorated World Mental Health Day with activities including a lunch-and-learn session featuring speaker Dr Umadevi Ambihaipahar, Director of Social Change and Mental Health at the Papua New Guinean National Department of Health. EMPNG also held a week of awareness raising activities such as information booths with partners International SOS and St John Ambulance Service Papua New Guinea offering free health advice, and Odd Socks Day where workers were encouraged to wear odd socks to raise awareness about mental health issues.



The International SOS booth at ExxonMobil Haus during mental health awareness week



The St John Ambulance booth at ExxonMobil Haus as part of EMPNG’s week of mental health awareness

Mental Health First Aider training was implemented across all worksites during the year.



Workers display their odd socks to raise awareness of mental health issues as part of Odd Socks Day

Refer to Case Study – New mental health first aid program helps workers for further information.

CASE STUDY

NEW MENTAL HEALTH FIRST AID PROGRAM HELPS WORKERS

To help workers support each other in dealing with stress as a result of personal, family and broader community and global issues, in August EMPNG introduced a Mental Health First Aider training program in collaboration with the St John Ambulance Service Papua New Guinea.

The Mental Health First Aider training program supports EMPNG's *Wik bilong lukautim tingting* mental health awareness program. *Wik bilong lukautim tingting* means 'the week for taking care of one's mental wellbeing'. The program was launched in 2017 and is held for one week in October each year, with messages about mental health awareness reinforced throughout the year.

Both programs are part of EMPNG's Employee Health Advisory Program and are designed to support workers who are generally reluctant to discuss work or home stress due to traditional beliefs, customs and culture.

While *Wik bilong lukautim tingting* involves Papua New Guinean and expatriate psychologists helping workers address specific mental health problems, the new Mental Health First Aider training program complements this by providing workplace Mental Health First Aiders with the tools they need to support colleagues who may be struggling.

EMPNG's Manager – Medicine and Occupational Health, Dr Nirven Kumar said, "Ongoing issues as a result of COVID-19 continue to highlight both short- and long-term stresses that cause mental health problems for many individuals and their families.

"EMPNG's mental health programs align with the Company's *Em pasin bilong ExxonMobil long PNG* or 'The way we work at ExxonMobil in PNG' core values and helps raise awareness about mental health in the workplace.

"The new Mental Health First Aider training program gives workers techniques/skills they can use to not only support themselves, but also any *wanwoks* [or 'colleagues'] who face a mental health issue."

The Mental Health First Aider training program is accessible to all workers. By the end of 2022, 87 workers from all worksites had completed the voluntary training and became Mental Health First Aiders. Supervisors and managers have also completed the training program.

Dr Kumar said, "We believe that training workers to look out for their coworkers encourages individuals to break the barrier of silence, shame and discrimination and reach out for help when faced with mental health issues.

"The Mental Health First Aider training program is the first of its kind in Papua New Guinea and benefits not only workers but also their families and broader society."

In 2023, EMPNG intends to expand the training program by encouraging Mental Health First Aiders to become part of a new network called *Wanwok lukautim wanwok* or 'colleagues looking after colleagues'. The network will be used to further develop the skills of Mental Health First Aiders and can also be adapted to other organisations for the benefit of Papua New Guinean communities.



Cassie the cassowary was developed as part of the *Wik bilong lukautim tingting* mental health awareness program to encourage workers to take a moment to check on their colleagues with a short 'Yu OK?' or 'Are you OK?'



EMPNG's first group of Mental Health First Aiders



The HGCP Family Market, where community members sell locally grown fruits and vegetables to camp residents

8.3 Camps

EMPNG's construction, drilling and operations programs resumed to full capacity by mid-2022, leading to an increase in the worker population at EMPNG camps. Team sports activities, in-person workforce celebrations and community engagements, such as education outreach and community tours of the LNG Plant site and HGCP, also resumed.

The HGCP Family Market was among activities that recommenced in 2022. The market involves inviting local suppliers into the HGCP Camp so that residents can buy local products directly from suppliers. The HGCP and Angore catering contractors also continue to procure locally produced goods from women's and youth groups including Pajia Iba Women's Agri Business Inc. and the Homa youth group. In 2022, the catering contractors spent a total PGK177,100 (USD50,300) on local produce.

During the year, a new camp opened at Angore Wellpad C to house 150 residents working on the Angore Gathering System.

At the LNG Plant, camp facility improvement projects included electrical and lighting upgrades, roof and ceiling replacements, upgrades to camp furniture and appliances, and remodelling of the gym. In addition, the commissary was redeveloped to create a space where local community members could showcase their crafts for purchase by camp residents. The new community space was built with local communities using EMPNG-donated materials such as wood, electronic equipment and metal. Local communities also used personal protective equipment donated by EMPNG while building the new facility.

8.4 Labour and working conditions

Regular employee and supervisor development forums are held to support career development and reinforce company policies and procedures. Employee resource groups, such as the Women in Energy Network and Wanwoks Initiative, support Papua New Guinean workers by providing programs and mentoring to enhance the personal and professional development of employees.

In March, EMPNG's Women in Energy Network commemorated International Women's Day by hosting

a photo competition where workers shared photos of themselves striking the 'Break the Bias' pose in support of the 2022 theme. Workers were invited to wear purple during the week and participated in EMPNG's International Women's Day webinar. EMPNG representatives also attended the annual Business Professional Women's Club International Women's Day breakfast.



EMPNG representatives at the Business Professional Women's Club International Women's Day breakfast



EMPNG workers support the International Women's Day theme by striking the 'Break the Bias' pose

More than 100 female EMPNG workers participated in Pinktober activities organised by the Women in Energy Network in October. Workers dressed in pink and attended a cervical cancer information session with Dr Paul Pumuye from Papua New Guinea's National Department of Health Human Papillomavirus Cervical Cancer Screening Project. EMPNG workers also participated in a pink ribbon design competition as part of the event.



The Women in Energy Network supporting Pinktober for cancer awareness

Cervical cancer is one of the top three cancers affecting women in Papua New Guinea, which has the highest rate of cervical cancer in Asia Pacific with nearly one in five women testing positive for human papillomavirus.

After two years of virtual meetings due to pandemic restrictions, EMPNG's Eda Wanwok Toastmasters Club held its first face-to-face meeting in May. Club meetings continued to be held face-to-face for the remainder of the year. Toastmasters helps EMPNG workers develop and improve their communication and presentation skills.

Mental health was the 2022 theme for EMPNG's new social club, which aimed to create safe spaces for *wanwoks* or 'colleagues', to *tokaut* or 'speak out', and *tokstret* or 'speak truth'. Among many social activities focused on mental health throughout the year, Peter Larden, as the Lead Country Manager, introduced the Lead Country Manager Cup sporting challenge, which gave workers a fun, safe space to have meaningful conversations outside of the office environment.

EMPNG regularly provides financial literacy programs to help workers with financial advice. In 2022, the Wanwoks Initiative held a three-month financial literacy campaign featuring experts from Deloitte providing advice on personal income tax, a motivational speaker talking about money management, and a week-long financial expo that connected workers with financial institutions for further support.



EMPNG workers participating in the financial expo held at ExxonMobil Haus

In addition to employee programs, EMPNG conducts regular engagement sessions with senior management. These sessions provide an opportunity for employees to ask questions and raise concerns directly with EMPNG's executive team.

Standards of Business Conduct training is provided to new employees and staff contractors as part of their induction

process, while periodic refresher training is delivered to the existing workforce. Standards of Business Conduct training includes policies that cover topics such as ethics, conflicts of interest, anti-corruption, health, safety, environment, alcohol and drug use, equal employment opportunity and harassment at worksites. These Standards also outline EMPNG's open door communication procedures, which encourage employees and staff contractors to ask questions, voice concerns, escalate issues to senior levels of management when needed and make appropriate suggestions regarding the company's business practices.

Performance recognition

Eleven employees were recognised at EMPNG's fifth Lead Country Manager Awards, and another 37 workers received recognition through the new Nambawan Awards, which were introduced by EMPNG Chairman and Managing Director, Peter Larden in 2022.



Camp Facilities Coordinator, Bart Kasen (right) receives a Nambawan Award for Excellence in the third quarter from Logistics Supervisor, Robert Reeves

The Nambawan Awards are presented quarterly, while Lead Country Manager Awards are held annually with employees nominated throughout the year and winners announced in December. Both awards recognise workers who show exceptional behaviours that are consistent with EMPNG's core values of *Em pasin bilong ExxonMobil long PNG* or 'The way we work at ExxonMobil in PNG'.

There are six categories for the Nambawan and Lead Country Manager awards: safety, security, respect for the environment, integrity, teamwork and excellence. Further information about the 2022 Lead Country Manager Award winners is outlined in *Case Study – Celebrating success*.

CASE STUDY

CELEBRATING SUCCESS

EMPNG has recognised 11 employees in its fifth Lead Country Manager Awards.

EMPNG Engineering Technician, Mea Vai, was among Lead Country Manager Award recipients in 2022.

Mea received a Teamwork Award for impressive teamwork skills, demonstrated by coordinating activities across various teams, departments, businesses and work locations, which resulted in the delivery of a project 45 days ahead of its deadline.

Mea has often been observed encouraging his fellow engineers to take ownership and responsibility while exemplifying the 'work hard and have fun' principle by balancing his dedication to work at the HGCP with perimeter walks and socialisation.



Engineering Technician, Mea Vai was among Lead Country Manager Award recipients in 2022

Other 2022 Lead Country Manager Award recipients were:

Safety Award

- Janeth Gurame, Operations Technician
- Louisa Sernay, Occupational Health Coordinator

Security Award

- Stephen Samuel, Security Operations Lead

Integrity Award

- Rosinta Lakasa, Customer Experience Supervisor
- Fatima Hani Morgan, Process and Controls Advisor

Teamwork Award

- Marciah Mizigi, Process Administration Contracts Supervisor

Excellence Award

- John Mobilius, Moro Logistics Coordinator
- Belinda Gurra, Planning and Contributions Supervisor

Environment Award

- Anabelle Smith, Environmental Engineer
- Colman Otmar, Environmental Advisor



Lead Country Manager, Peter Larden (centre front) with Lead Country Manager Award recipients: (back row from left) John Mobilius, Belinda Gurra, Stephen Samuel, Rosinta Lakasa, Colman Otmar, Mea Vai, and (front row from left) Marciah Mizigi, Fatima Hani Morgan, Annabelle Smith and Louisa Sernay

All 2022 award recipients received certificates of recognition, while Lead Country Manager Award winners also received prizes such as vouchers and a customised Kundu coffee cup.

8.5 Security

EMPNG's Security team continues to develop the skills of Papua New Guinean security personnel. During 2022, five Papua New Guinean security personnel completed an internationally accredited security operations qualification through an Australian-based training program. Another three Papua New Guinean personnel completed unmanned aerial systems training in Australia and obtained the Civil Aviation Safety Authority-endorsed Remote Pilot Licence.

In October, an updated version of the Memorandum of Understanding between the Royal Papua New Guinea Constabulary and EMPNG was formalised. By the end of the year, 481 Papua New Guinean police officers and Defence personnel, and 688 contracted security personnel deployed at EMPNG sites, were trained in the Voluntary Principles of Security and Human Rights.

Together with the Hela Provincial Government and the Australian Department of Foreign Affairs, EMPNG provides funding through the Justice Services for Stability and Development Program to support the deployment of a Community Justice Advisor to work with the Hela Provincial Government. This support helps to strengthen the delivery of law and justice programs at the local level by developing the capabilities of community justice mechanisms. EMPNG has supported the Justice Services for Stability and Development Program since 2014 through a Memorandum of Understanding, which was extended in December until the end of 2023.

8.6 Emergency preparedness

Plans and processes are in place to mitigate the impact of an emergency event. These processes, along with training and emergency response drills, give responders the exposure and practice they need to appropriately respond should an emergency occur.

In 2022, EMPNG's Emergency Response team conducted 12 emergency response drills based on major event scenarios, which consider impacts across people, the environment, assets and reputation. EMPNG's Incident Management team also conducts major event training scenarios. During the year, the Incident Management team was involved in five major event scenarios including three loss of containment scenarios in the Upstream area, one loss of containment scenario at the LNG Plant site and a boiling liquid expanding vapor explosion of the propane sphere scenario at the LNG Plant.

Security drills were also held at the HGCP for the safety of workers and site visitors.

After every emergency response drill, in accordance with human performance fluency training, an after action review is conducted. The review considers what was expected to happen during the drill, what did happen, and where improvements can be made.

HIGHLIGHT

EMERGENCY DRILLS REDUCE RISKS

EMPNG regularly conducts both table-top and field-based emergency drill scenarios to reduce the risk and impact of a major event.

In 2022, 12 major event scenarios involving field-based deployments were conducted to test that emergency responders have the knowledge and practical experience needed to manage a major event. This included a pipeline inspection gauge (pig) receiver loss of containment scenario conducted at the HGCP and a boiling liquid expanding vapor explosion of the propane sphere scenario at the LNG Plant in January. The propane sphere exercise required all site personnel to muster outside of the blast radius, so they knew where to gather if this type of event occurred.

During February, the Emergency Response team conducted a major event scenario about a pipeline compressor loss of containment at the HGCP. A Hides Spine loss of containment scenario was held at the HGCP in March. A monoethylene glycol vent gas incinerator explosion scenario was undertaken at the HGCP in April, while an infectious disease outbreak scenario was completed in May at the HGCP.

Loss of containment scenarios at both the LNG tanks at the LNG Plant and condensate pipeline at Moro were completed in June.

EMPNG continues to maintain earthquake preparedness, with an earthquake real-time account for personnel training scenario completed in July.

Toward the end of the year, another three loss of containment scenarios were conducted at a producing well, the Hides Spine and the LNG Plant Marine Terminal. The Hides Spine exercise was observed by subject matter experts from the external OIMS assessment team who provided feedback. Lessons learned from each of these scenarios are being incorporated into EMPNG's emergency response plans as part of a process of continuous improvement.



The propane sphere at the LNG Plant site, which was the focus of a boiling liquid expanding vapor explosion scenario conducted in January

The Emergency Response team completed oil spill response training with assistance from the response contractor during 2022. The training included the deployment of equipment in various locations in the Highlands area and on the ocean. It also involved responding to a simulated unplanned release to the environment and understanding the limitations of equipment in challenging terrain.



Deploying a river boom during an emergency response training exercise at Kaimari River near Moro

First aid is an important part of EMPNG's emergency response preparedness and several first aid training sessions were completed at worksites during the year.



Firefighting training at Komo Airfield

In 2022, the Fire and Rescue team received a new fire truck to replace a pumper tanker truck. The new truck features a cab over design for better visibility during emergency response and a high-capacity water tank. The truck will support all responses at the LNG Plant and assist with brush fires in local communities as required. A three-day firefighter refresher training course was also conducted during the year. The course was held at Komo Airfield and focused on aviation firefighting for both passenger and cargo aircraft. The training included a simulated plane incident on the airfield runway.

2022 PERFORMANCE HIGHLIGHTS

WORKER WELFARE



9+ YEARS LTI-FREE
AT THE LNG PLANT

0.09
TRIR

0.01
LTIR



18.7M
WORK HOURS IN 2022

Total Recordable Incident Rate (TRIR) and Lost Time Incident Rate (LTIR) are the frequency rate of incidents within a given period, relative to the number of hours worked in that period by a 200,000 hours constant, representing 100 workers at 8 hours per day for 250 days per year. It is a proxy for safety performance with lower rates indicating better safety performance.

1

14,898
OBSERVATIONS &
INTERACTIONS

2

1768
HAZARD
IDENTIFICATIONS

3

190
NEAR MISS
REPORTS

16,666 'NOBODY GETS
HURT' SUBMISSIONS

12 MAJOR EVENT
SCENARIO DRILLS

48 WORKERS
RECEIVED AWARDS



21 NON-WORK-RELATED
EMERGENCY MEDICAL
EVACUATIONS

1500 TUBERCULOSIS
SCREENINGS

1580 BIOMETRIC SCREENINGS

13,000 SAMPLES FOR
COVID-19 SCREENING COLLECTED

18,870 PATIENT CONSULTS
AT EMPNG CLINICS

9



STAKEHOLDER ENGAGEMENT

Inclusive and open two-way engagement is used to keep EMPNG's stakeholders informed about production activities, while also providing a forum to raise and address community issues in a timely manner.

9.1 Community engagement

EMPNG's National Content Strategy is based on creating shared, long-term value for its many stakeholders. This is why the company is committed to actively and regularly engaging with community stakeholders, all levels of government and civil society organisations.



Community Affairs (from left): Manager, Peter Kera; Officer, Howard Tumania; and Coordinator, Anton Waim, conducting an engagement in Juni during April

During 2022, some 12,310 engagements were conducted with communities throughout the PNG LNG area of operations. Of these, 3390 were formal engagements and 8920 were informal engagements involving 49,900 stakeholders. Engagements increased by 64 percent when compared with 2021 due to increased work activities and

the removal of pandemic restrictions. This allowed EMPNG to resume community-based programs and advocacy site tours at the HGCP and LNG Plant site facilities.

In the Upstream area, engagements focused on employment and business development opportunities from EMPNG activities in Angore and along the pipeline ROW, Clan Caretaking Agreements, and community investment programs.

LNG Plant site community engagements mainly focused on community development support projects, employment and business opportunities, and marine safety exclusion zones.

A summary of stakeholder engagements conducted during 2022 is shown in Figure 9.1.

9.2 Community issues identification

Community issues are defined in the Production ESMP as a question, comment, concern, suggestion or observation that is presented to PNG LNG. They can include communications about matters that are outside the control of EMPNG, such as government-related inquiries.

Ongoing community liaison and formal stakeholder engagement processes are used to capture issues, which are received, monitored and closed on a daily basis. Some issues may take longer to resolve, so they can remain open for a longer period of time.

During 2022, 2298 issues were received and categorised as shown in Figure 9.2.

Figure 9.1 – Stakeholder engagement summary

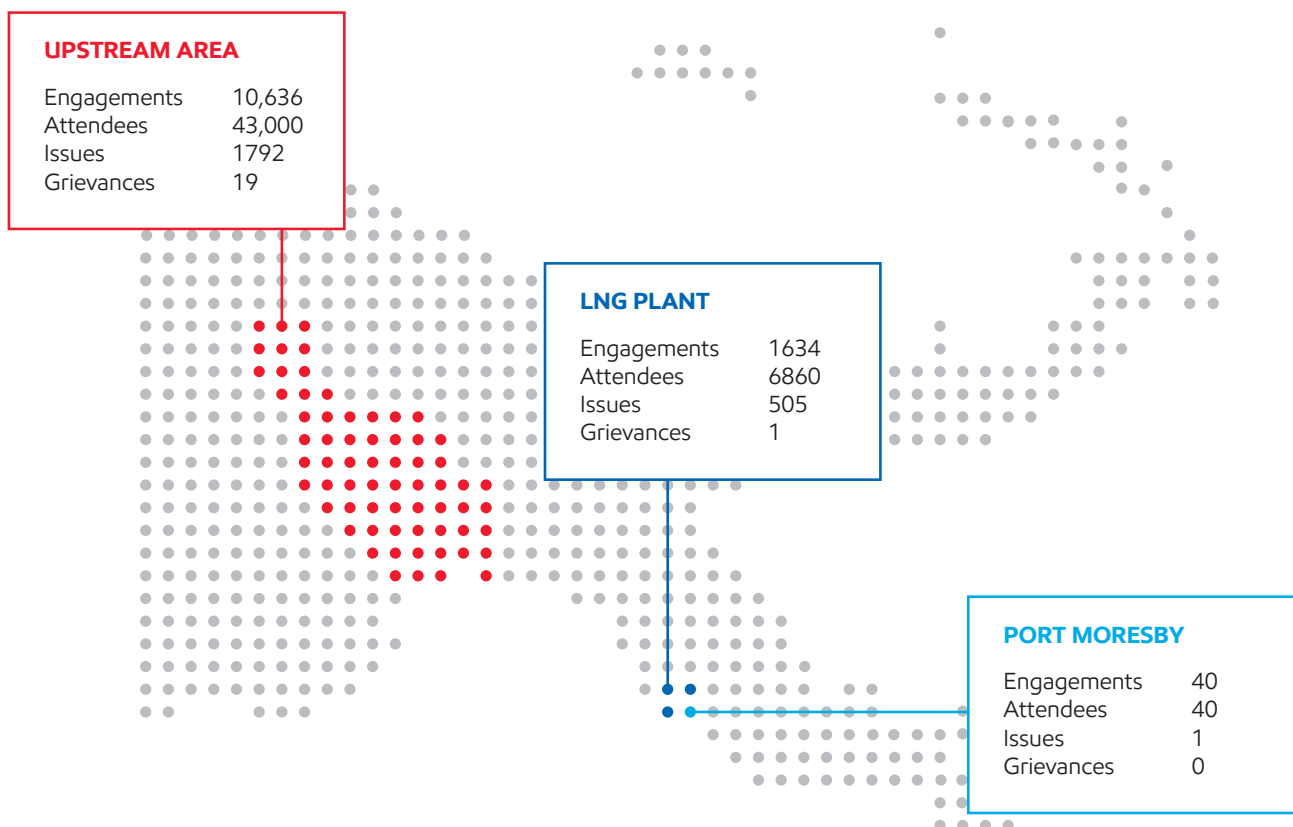
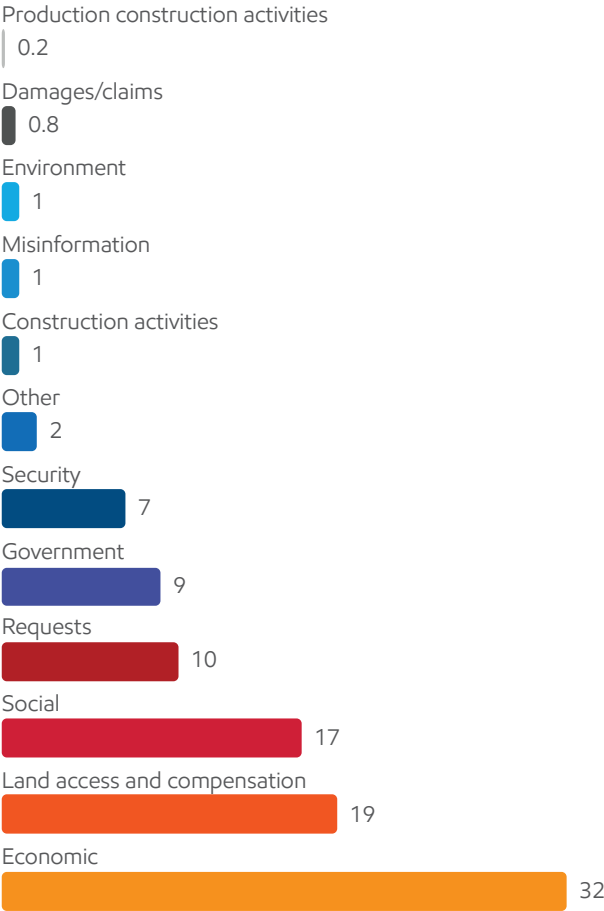


Figure 9.2 – Issues

PERCENTAGE RECEIVED BY CATEGORY



This was a significant increase compared to some 1200 issues in 2021, mainly due to employment and business development requests for work in Angore and along the pipeline ROW.

In addition to requests for employment and business development opportunities, most issues regarded royalty payments for LNG production and requests for donations and community assistance. Some issues related to land access and compensation claims regarding construction activities in Angore.

By the end of 2022, a total 2288 issues were closed. The Community Affairs team is coordinating further actions to close the remaining 10 issues in 2023.

9.3 Community grievance management

A grievance is defined in the Production ESMP as a complaint lodged by an individual, group or community alleging damage, impact, or dissatisfaction specifically resulting from EMPNG's actions or a lack of action.

The Grievance Management Process is used to fairly and promptly receive, assess, respond to, and resolve grievances.

Twenty grievances were registered during 2022, which is consistent with grievances recorded in 2021. The number of grievances by category in 2022 is shown in Figure 9.3.

Figure 9.3 – Grievances

NUMBER OF GRIEVANCES BY CATEGORY



Thirteen grievances related to construction works in Angore. Nine of these regarded damages or claims, while four were environmental complaints. Nine grievances were closed during formal community engagements and the remaining four, all regarding disturbances to household food gardens, remained open for further investigation.

Moro recorded six grievances during 2022. One open grievance, which was registered under the environment category, regarded potential damage caused to the Aju/ Biame River from pipeline earthquake recovery works. The remaining five grievances related to damages claims, with three of these addressed and closed during formal community engagements. The two open damages claims, which were for accidental damage to a Marita fruit plant by an earthquake recovery machine during the relocation of a trade store, are being resolved.

One grievance was raised for a dog that was accidentally hit by a bus near the LNG Plant, and this grievance was close to being resolved at the end of the year.

By the end of 2022, 12 of the 20 grievances registered during the year were successfully closed, along with all six open grievances carried over from 2021. Eight grievances were open and under investigation at the end of 2022, with four of these resolved early 2023.

9.4 Resettlement

EMPNG aims to avoid resettlement resulting from construction activities. In situations where resettlement is unavoidable, the company's objective is to improve, or at least restore, the standards of living and livelihoods of displaced persons.

During 2022, compensation payments for four households that were assessed in 2021 were completed. Eligibility assessments for livelihood restoration support were also completed for two of these households. The two eligibility assessments, which covered household gardens, found that no livelihood restoration support was required. One household that had previously been assessed was found to have an improved livelihood and standard of living.

Pre-construction surveys were conducted along the main pipeline ROW at two river crossings (Kilometre Point 61.8 and 65.9) to assess households in areas identified for pipeline remediation works at the river crossings. Fourteen households were identified during these surveys as being eligible for compensation. By the end of 2022, 11 households had received compensation, with three remaining households to be compensated in 2023.

These three households are also being assessed for eligibility for livelihood restoration support, with the outcome expected during 2023.

9.5 Compensation

Three Clan Agency Agreements were signed with landowning clans during 2022 for land access along 2 kilometres of the pipeline ROW from Kaiaam to Omati and an exclusion zone at Homa. Access was required for ongoing extension works and earthquake repairs along the ROW.

By the end of 2022, 369 of the 372 annual deprivation payments were completed, with three payments outstanding due to clan group account payment processing issues.

Since the start of PNG LNG construction, 17 clans have been involved in internal compensation disputes. Clans along Kilometre Point 270 to Kilometre Point 272 resolved their dispute during the year, while clan disputes remain for Gobe Spurline and the Homa Ridge Access Road. At the end of 2022, 84 percent of disputed payments were completed.

9.6 Government engagement

Government representatives at all levels are kept informed about production-related activities through ongoing engagement. EMPNG also continues to actively work with government departments to support community-based initiatives.

9.6.1 Infrastructure and government support

Infrastructure support for the Papua New Guinean Government continues through projects such as maintenance and upgrade works along the Highlands Highway between Mendi in the Southern Highlands Province and Komo in the Hela Province.

In 2022, Highlands Highway upgrades included installation of a chip-sealed road surface, improved drainage and road shoulders at sections between Ambua and Tari, and also along the Komo to Anguale road.

Through PNG LNG infrastructure tax credit projects like these, local suppliers are able to capitalise on business opportunities while people living in nearby communities can gain benefit from employment opportunities.

9.6.2 Advocacy

EMPNG conducted 33 advocacy workshops with 360 representatives from national government agencies, provincial governments and co-venture partners during 2022.

Advocacy workshops are intended to share information about PNG LNG's operations, community development programs, biodiversity programs, national content initiatives and fiscal benefits paid to the Papua New Guinean Government and landowners. Participants in the 2022 advocacy program found the sessions to be informative and a good opportunity for relationship-building.



Secretary Francis Hualupmomi (seated centre) and officials from Papua New Guinea's Department of Higher Education, Research, Science and Technology with EMPNG's Government Relations team at an advocacy workshop in June



Officials from Papua New Guinea's Department of National Planning and Monitoring with EMPNG representatives following an advocacy workshop at the LNG Plant site in August

Another 365 people from local schools and communities also had the chance to participate in visits to the HGCP and LNG Plant site during the year. At the HGCP, the annual Family Community Tour, which involved a tour of the HGCP by 27 participants from the Hides Seventh Day Adventist Youth Group, was launched along with an annual Thanksgiving Day tour involving 35 women from seven women's groups in the Upstream area. Students from EMPNG's Science Ambassador Program also visited the HGCP as part of their program in 2022. Four tours of the LNG Plant site were conducted for students from the Port Moresby Technical College, Kumul Petroleum Academy and University of Papua New Guinea.

9.6.3 Benefits assurance delivery

In accordance with requirements of the *Oil and Gas Act 1998*, EMPNG makes monthly landowner royalty payments and annual provincial and local-level government Development Levy payments to the Papua New Guinean Government. These funds are managed through trust accounts at the Bank of Papua New Guinea, with the Department of Finance being custodian of the accounts.

The funds are distributed to beneficiaries on behalf of the Government through the Department of Petroleum and Energy and the State-owned MRDC.

In the early stages of PNG LNG, landowners requested granular information from the Papua New Guinean Government regarding royalty apportionments that were provided in Licence Based Benefits Sharing Agreements. Subsequently, the Government introduced Landowner Beneficiary Identification, which is a detailed review to establish a clan's constituents, including subclans and members.

In March, beneficiary clans from Petroleum Development Licence 7 received inaugural royalty payments from the Papua New Guinean Government. Beneficiary clans of Pipeline Segments 8, 4, 5, 7, 1, 2 and 3 received their second royalty payment in September, while the LNG Plant site villages of Papa, Lea Lea, Boera and Porebada received their third payment in November.

The Papua New Guinean Government intends to complete Landowner Beneficiary Identification administrative requirements for beneficiary clans in Petroleum Development Licence 1 so they can receive royalty payments from 2023.

EMPNG has completed its eighth Development Levy payment to the Papua New Guinean Government as required by the *Oil and Gas Act 1998*. The Department of Petroleum and Energy is holding the levy in trust for payment to impacted provincial and local-level governments to address their developmental needs.

9.6.4 Revenue management

Papua New Guinea has been a member nation of the Extractive Industries Transparency Initiative (EITI) since 2013. EITI is a voluntary global standard that promotes open and accountable management of revenues generated from extractive sector activities. It also aims to strengthen government and company systems and processes, inform public debate and enhance trust among stakeholders. The EITI has made significant contributions to improving governance of the extractive industries in 53 countries worldwide.

In 2022, Papua New Guinea achieved its second EITI validation to assess Papua New Guinea's progress in implementing the global EITI Standard. The validation found that Papua New Guinea had made moderate progress against the new 2019 EITI Standard since the nation's first validation in 2018, which was based on the 2016 EITI Standard.

The final validation report, which was released in October, showed that Papua New Guinea had fully met 10 EITI requirements, mostly met another 12 requirements, and had partly met seven requirements, with three EITI requirements assessed as not applicable. In November, the EITI International mission Executive Director visited Papua New Guinean extractive sector stakeholders to discuss the outcomes presented in the final validation report.

One outcome of the second EITI validation was that the Papua New Guinea EITI Secretariat was commended for providing EITI reports that were considered by stakeholders to be a reliable and comprehensive source of information about the extractive sector in an environment where publicly available data is otherwise scarce. The validation also noted that the quality of Papua New Guinea's EITI reports had improved, and the scoping studies on state-owned enterprises, subnational revenues, beneficial ownership and contracts had provided insight on the complex structure of Papua New Guinea's extractives sector.

The second validation also found that further development was required to:

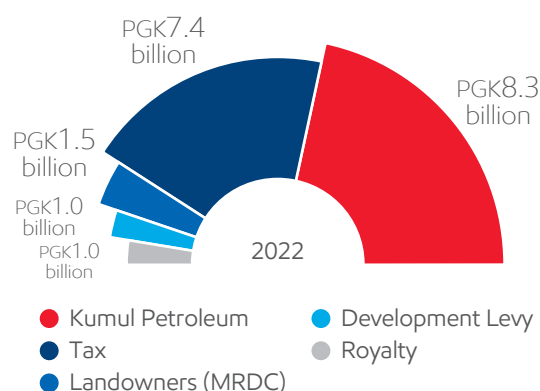
- increase government commitment to full disclosure as part of the EITI process
- promote stakeholder use of EITI data to advocate for reforms and/or policy changes in the extractives sector
- distribute benefits on the subnational level and engage with local stakeholders
- enhance disclosures related to organisations such as state-owned enterprises.

In addition to supporting work for the second EITI validation, on 31 December 2022, the Papua New Guinea EITI Secretariat finalised the 2020 Papua New Guinea EITI Report and is working toward finalising the 2021 Papua New Guinea EITI Report.

Since the start of production in 2014, PGK19.2 billion (USD5.5 billion¹) in revenue from PNG LNG has been distributed to landowners and the Papua New Guinean Government, as shown in Figure 9.4.

Figure 9.4 – PNG LNG distributions²

PRODUCTION-TO-DATE REVENUE DISTRIBUTED BY RECIPIENT



EMPNG continues to be among 21 members of the EITI multi-stakeholder group in Papua New Guinea, and Exxon Mobil Corporation has served continuously on the EITI International Board as either a full or an alternate member since its inception in 2002.

¹ The exchange rate used for 2021 and 2022 is PGK3.5 per USD1, while all years prior to 2021 use the exchange rate of PGK3.4 per USD1.

² Tax provided is an estimate.



Minister for Petroleum and Energy, the Honourable Kerenga Kua; EMPNG Chairman and Managing Director, Peter Larden; Papua New Guinean Prime Minister, the Honourable James Marape; and former EMPNG Managing Director, Andrew Barry cut the celebratory cake at the gala dinner

9.7 Media

Media activities in 2022 primarily focused on commemorating ExxonMobil affiliate's 100 years in Papua New Guinea.

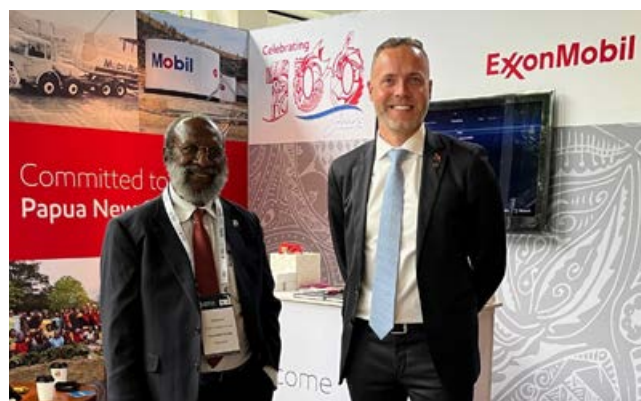
As part of celebrations, EMPNG joined with ExxonMobil affiliates during October to host a gala dinner attended by 300 guests that included senior government officials and business executives. EMPNG also hosted its own celebrations at each worksite and held a 1920s themed ball.

EMPNG's Media and Communications team participated in World Press Freedom Day in May by joining a breakfast held by CAD43, an organisation comprised of former Divine Word University journalism students.

In support of the World Press Freedom Day theme of 'Journalism under digital siege', the breakfast included a panel discussion with Papua New Guinean journalists and lawyers where participants highlighted the importance of media freedom and ethics across Papua New Guinea. The event was officially opened by Transparency International Papua New Guinea Chair, Peter Aitsi. Proceeds from the event will be used to purchase radio equipment for Divine Word University's new radio studio in Madang.

EMPNG Chairman and Managing Director, Peter Larden, presented at the Business Advantage Papua New Guinea's 2022 PNG Investment Conference held in Brisbane, Australia in August.

During September, Mr Larden spoke at the Papua New Guinea Energy Summit and Exhibition in Port Moresby. In December, he was a keynote speaker at the Papua New Guinea Chamber of Mines and Petroleum's 16th Papua New Guinea Mining and Petroleum Investment Conference and Exhibition in Sydney, Australia.



EMPNG Chairman and Managing Director, Peter Larden (right) with Minister for Petroleum and Energy, the Honourable Kerenga Kua at the Papua New Guinea Energy Summit and Exhibition



EMPNG Chairman and Managing Director, Peter Larden (second from right) with EMPNG representatives at the 16th Papua New Guinea Mining and Petroleum Investment Conference and Exhibition

HIGHLIGHT

LOGO COMMEMORATES EXXONMOBIL AFFILIATE'S 100 YEARS IN PAPUA NEW GUINEA

In 2022, ExxonMobil celebrated 100 years since an ExxonMobil affiliate first began operations in Papua New Guinea.

To commemorate the occasion, EMPNG conducted a logo competition, with the winning entry selected based on a design that captured the best of Papua New Guinean tradition from across the provinces, as well as EMPNG's Em Pasin bilong Exxonmobil long PNG or 'The way we work at ExxonMobil in PNG' values and culture. The competition was open to entrants from both PNG LNG and Mobil Oil New Guinea.

Desmond Vaua from EMPNG's Customer Experience and Solutions team developed the winning logo, which was based on the number 100 to reflect ExxonMobil's history in Papua New Guinea.

The '1' in the logo represents the Momase Region with Momase mask drawings.

The first '0' includes the bird-of-paradise (kundu), which represents the Highlands region. It also incorporates *lakatoi* sails to represent the Southern Region and a rugby league ball that reflects the PNG LNG Kumuls sponsorship.

The second '0' features the tubuan and Kina shell to represent the New Guinea Islands, as well as a Samarai lime pot, and a book and leaf to demonstrate EMPNG's commitment to education and biodiversity.

The winning logo design was printed on limited edition memorabilia and used during a five-month celebratory campaign. Both the winning logo and 11 runners-up have also been featured in a limited edition ExxonMobil calendar.



The ExxonMobil 100 years in Papua New Guinea logo

The Conference and Exhibition theme was 'PNG Resources: Securing the Next Wave of Responsible Investment'.

EMPNG continued to present on the Radio FM100 Talkback Show in 2022, with speakers representing women's groups and talking about how the company embraces gender diversity and works with community partners to promote the participation of more women in the workforce.



Joyce Kopunye-Tei representing the Women in Energy Network (front left), Melkie Anton representing the Business Coalition for Women (back left) and Elizabeth Lewago representing the Business Professional Women's Association with FM100 Host, Douglas Dimagi

The PNG LNG Environmental and Social Report – Annual 2021 was published in August. More than 70,000 printed copies of the Report's Executive Summary were published in English and Tok Pisin in national newspapers. The 2021 Report, and previous Environmental and Social Reports, are available on the PNG LNG website.



Visit the website at: www.pnglng.com

The first edition of *Gas Tok* was also released in August and distributed to EMPNG workers, government, media and local communities. This online newsletter covers EMPNG production and business updates.

Sixty-six posts were published to EMPNG's Facebook and Twitter accounts during 2022, generating more than 197,300 engagements.

2022 PERFORMANCE HIGHLIGHTS

STAKEHOLDER ENGAGEMENT



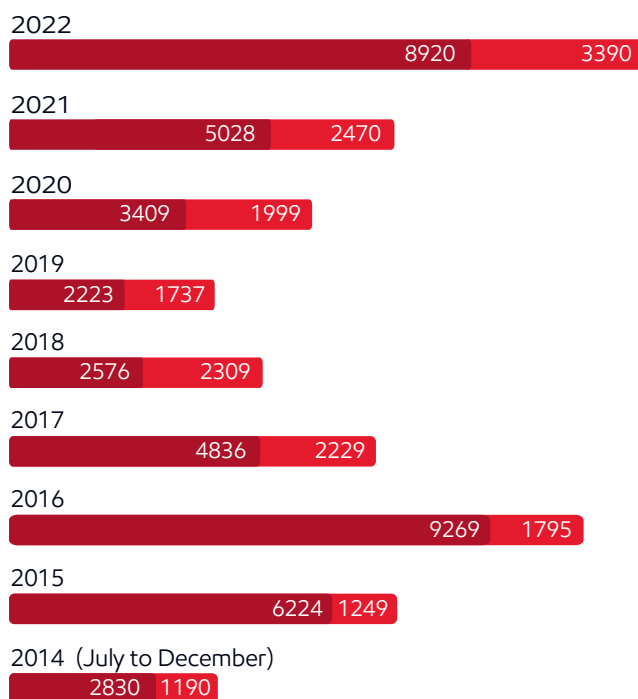
12,310
ENGAGEMENTS
CONDUCTED



PGK19.2B
REVENUE DISTRIBUTION
TO DATE



99%
DEPRIVATION
PAYMENTS MADE

NUMBER OF ENGAGEMENTS
SINCE THE START OF PRODUCTION

● Informal ● Formal



33
ADVOCACY
WORKSHOPS



360
ADVOCACY
ATTENDEES

197K
POST
ENGAGEMENTS



70,000

PRINTED COPIES
OF PNG LNG
ENVIRONMENTAL
AND SOCIAL
REPORT – ANNUAL
2021 EXECUTIVE
SUMMARY

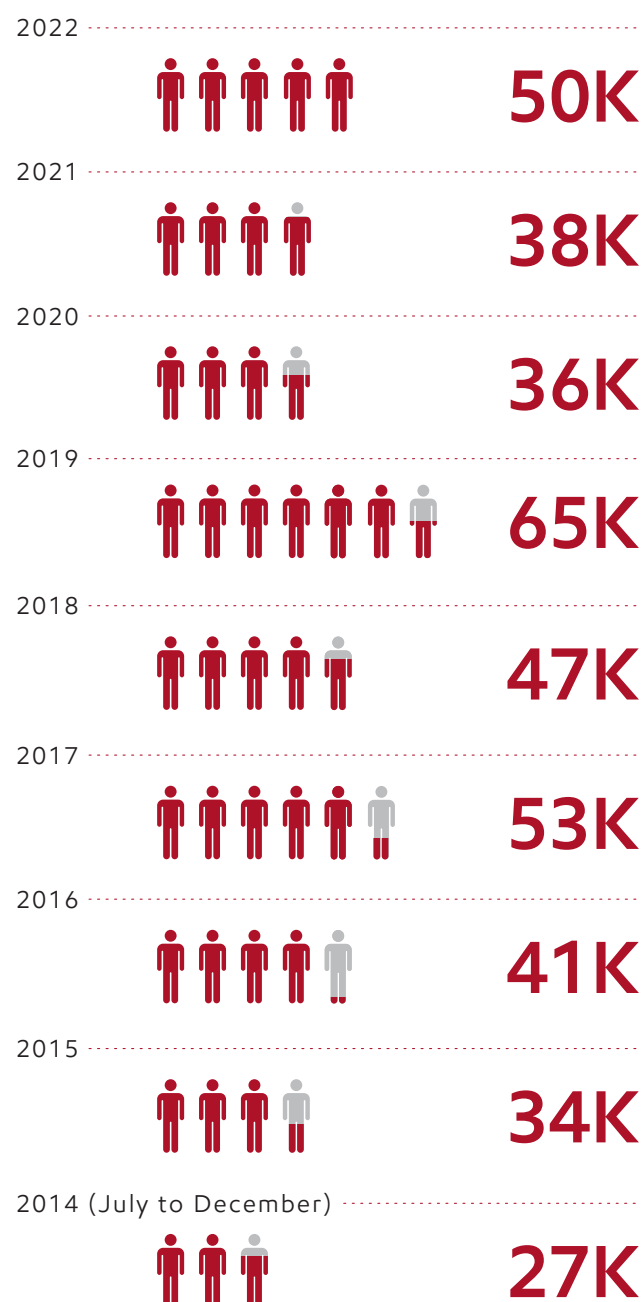
ENGAGEMENT PARTICIPANTS
SINCE THE START OF PRODUCTION

Image captions:

Cover	EMPNG HGCP Control Room Operator, Roman Bukuru and Operations Technician, Elaine Baking at the HGCP
Executive Summary	EMPNG LNG Plant Electrical Technician, Graham Pohai at the LNG Plant site
Chapter 1	View of the LNG tanks at the LNG Plant site (Photo by T. Tamsen)
Chapter 2	New Guinea Binatang Research Centre Botanist Jonah Philip during the annual weeds monitoring survey
Part A	Dawn at the LNG Plant site (Photo by R. Terence)
Chapter 3	Instrumentation Technician, Olive Ipai and Maintenance Electrical Technician trainee, Stephanie Raphael at the LNG Plant site
Chapter 4	EMPNG National Content Manager, Sam Koyama (right) with Qube Heavy Lift PNG, Rigging Supervisor, Peter Tapo at the annual SSHE Forum
Chapter 5	Science Ambassador, Joshua Parep, volunteering his time to teach a Science Ambassador Program lesson
Part B	<i>Euphorbia</i> sp. at the LNG Plant site (Photo by T. Amos)
Chapter 6	A <i>Rattus</i> sp. Cf. <i>niobe</i> captured in Biodiversity Assessment Area 1 (Photo by D. Okena)
Chapter 7	Jacinta Lockley and Daisy Nagiria volunteering their time to plant mangroves near the LNG Plant site in support of World Environment Day activities (Photo by N. Tolentino)
Part C	Huli traditional dress featuring a hornbill and pigs' teeth necklace and a hair wig adorned with plumes of the cassowary, cockatoo and bird of paradise
Chapter 8	Members of the Women in Energy Network celebrating Pinktober
Chapter 9	PNG LNG Community Ambassador, Justin Olam with Blessed Joseph from Papa Village

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Eneji Bilong Wol. Luksave Bilong Papua Niugini.*