PNG LNG Quarterly Environmental and Social Report

First Quarter 2012

PNG LNG

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

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About This Report

The Papua New Guinea Liquefied Natural Gas Quarterly Environmental and Social Report – First Quarter 2012, reports on the Project's recent construction, safety, health, environment and social management activities.

This Report demonstrates the progress made each quarter and is a commitment by the Project to ensure the citizens of Papua New Guinea, interested non-government organizations and other stakeholders are kept well informed.

This Report is published on the Project website, www.pnglng.com. Printed copies are also available.

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Building a sustainable future for Papua New Guinea

"As the PNG LNG Project enters its third year of construction, our work with communities is focused on enabling them to develop their local capacity and skills that will drive long-term economic and social benefits for Papua New Guinea."

Decie Autin, Project Executive, Esso Highlands Limited

A key principle of the Papua New Guinea Liquefied Natural Gas (PNG LNG) Project's (Project) National Content Plan is delivering long-term social and economic sustainability for the people of Papua New Guinea.

In the past two years, the Project has worked to build relationships with many community, government and non-government stakeholders and has provided support to communities in the Project impact area through implementation of the Project Community Development Support Plan.

In this ninth PNG LNG Quarterly Environmental and Social Report, Esso Highlands Limited continues to demonstrate how, as operator of the US$15.7 billion Project, it is delivering on the Project's social, environmental, health and safety commitments. Esso Highlands Limited, a subsidiary of Exxon Mobil Corporation, is responsible for the Project's construction and operation and is developing the Project with co-venturers: Oil Search Limited, National Petroleum Company PNG Limited, Santos Limited, JX Nippon Oil and Gas Exploration Corporation, Mineral Resources Development Company Limited and Petromin PNG Holdings Limited, and their affiliates.

Social development

As part of its commitment to promoting the long-term economic and social sustainability of communities in the Project impact area, the Project is identifying local institutions and individuals able to drive and lead the development of their respective communities.

For example, the Project continues to support the Delta Green Field Marketing Limited women's group with the development of their vegetable farming business. Following vegetable farming skills taught to the women's group during the fourth quarter 2011, the Project provided materials for the construction of a nursery, which was completed this quarter in the Omati area. The nursery was built by the local community for the women's group who will use it to train their members in growing different fruit and vegetable varieties. Cuttings and plantings from this nursery will also be distributed to other local women to grow in their own vegetable gardens.

Personal Viability training was also expanded to the LNG plant site communities this quarter to provide tools for improving livelihoods and managing social issues. To date, more than 250 people have participated in the training which covers: respect for others, promoting positive thinking, budgeting for family needs and making money.

Building education resources remains a high priority for the Project, with a three-year 'Box of Books' school library program launched this quarter. This project will benefit 52 primary schools in the Project impact area. Each school will receive two cabinets filled with books, along with training for two teachers/librarians. Eight teachers from schools in the four LNG plant site villages have already completed five days of training on how to manage their school libraries.

A total 180 desks, built by local contractors, were also delivered to five primary and elementary schools in Hides, while 545 desks were delivered to 15 primary schools along the Highlands Highway, including every primary school from Mendi to Tari.

Students of Halimbu Elementary School with their new school desks

Meanwhile, the third installment of the Toea Project Interface series, titled *Toea and the LNG Project*, was published this quarter. The Toea Project Interface series provides interactive learning tools for students, with past titles including *Toea's Road Safety Activity Pack* and *Toea's Health and Hygiene Megapad*.

Empowering women is another area the Project continues to emphasize. In celebration of International Women's Day, the Project funded the Business Professional Women's Club of Port Moresby to provide scholarships to underprivileged girls in tertiary and secondary schools throughout Papua New Guinea. This organization has proudly assisted hundreds of Papua New Guinean girls and women, who would otherwise not have been able to continue with their education.

In February, with support from the Project, the World Bank entered an agreement with the Papua New Guinean Chamber of Mines and Petroleum to implement the Women's Resilience Program. This Program aims to enhance women's ability to productively enter the informal employment sector – the largest in Papua New Guinea. World Bank consultants will deliver training to women in the Upstream and LNG plant site communities on topics such as basic financial skills, family life improvement skills and income generation through farming, sewing, baking or similar activities.

An important Papua New Guinean Government initiative was the passing of the *Sovereign Wealth Fund Law* by the Papua New Guinean Parliament in February. The Fund's purpose is to insulate government spending from the volatility associated with income from natural resource projects. Associated goals are ensuring transparency, accountability and good governance.

Early this quarter, the Papua New Guinean Government also took important steps toward implementing the Extractive Industries Transparency Initiative – a global standard that promotes transparency by monitoring company payments and government revenues at a country level. This included sponsoring a workshop held over two days in Port Moresby, where World Bank and Extractive Industries Transparency Initiative representatives outlined the goals of the program and discussed steps to advance the initiative with representatives of civil society, industry and the Papua New Guinean Government.

Construction

The Project's construction is progressing well and in line with the schedule. Numerous milestones were achieved during this quarter including: reached 50 percent of the Komo Airfield's bulk earthworks; completion and delivery of the second drilling rig; completion of the second of four horizontal directional drilling operations; finalization of the offshore pipeline detailed design; and a record 453 truckloads of equipment moved from Lae to Hides in one month.

10,000th weld for the onshore pipeline completed

During this quarter, the Upstream Infrastructure contractor, who achieved over ten million work hours Lost Time Incident free, was recognized by the Project for excellence in worker involvement in safety, effective subcontractor management and collaboration and teamwork.

In addition, the Esso Highlands Limited ground transport workers achieved an outstanding safety record of over 7.5 million kilometres driven by a fleet of more than 125 passenger vehicles with no Lost Time Incidents.

Table 1 – Contracts and construction highlights

Contract	Contractor	Major activities during the first quarter 2012
Upstream Infrastructure (C1)	Clough Curtain Brothers Joint Venture	Completion and handover of multiple areas of the HGCP to the Hides Gas Conditioning Plant and Hides Wellpads contractor.
Offshore Pipeline (EPC2)	Saipem	Detailed design for the pipeline completed. Installation of 320 kilometres out of 344 kilometres of the deep-water portion of the offshore pipeline completed.
LNG Plant and Marine Facilities (EPC3)	Chiyoda and JGC	Over half of the process area steel erected and half of the pipe fabricated and installed on Train 1. Eighty percent of piling for the marine jetty completed.
Hides Gas Conditioning Plant and Hides Wellpads (EPC4)	CBI Clough Joint Venture	Final check of the site's detailed design completed. Piles for foundations completed in multiple areas.
Onshore Pipeline (EPC5A)	SpieCapag	Completion of the 10,000th weld and the second of four horizontal directional drilling operations.
Komo Airfield (EPC5B)	McConnell Dowell and Consolidated Contractor Group	Reached 50 percent of the Komo Airfield's bulk earthworks and achieved record productivity of earthworks.
Associated Gas Development	Various	Engineering for the associated gas facilities completed. Triethylene glycol unit completed.
Drilling (new wells and workovers)	Nabors Drilling International Limited	Completion and delivery of the second drilling rig to Papua New Guinea.

Offshore installation vessel Semac 1

This quarter, pre-construction surveys were completed for supporting infrastructure for the onshore pipeline. The surveys covered areas such as valve stations, drilling platforms and access roads. Pre-construction surveys assess areas of ecological interest, weeds and water quality at Project worksites, while identifying potential archaeology and cultural heritage sites. The only pre-construction survey remaining is on the 24.8-kilometre Hides Spineline.

Workforce development

The Project has reached a major workforce development milestone with more than one million hours of training now provided to the Project's workforce, including over 164,000 training hours this quarter alone.

With construction activity at its peak this year, the Project workforce stands at more than 16,200 people. The total number of Papua New Guinean citizens trained to date for both construction and production roles across all Project sites reached more than 8,500.

16,200+ people make up the total Project workforce

In January, the first intake of Operations and Maintenance trainees from the Production Operations Training Centre in Port Moresby left for Nova Scotia, Canada to undergo one year of Advanced Skills training. At the end of 2012, they will return to Papua New Guinea to complete the final phase of their program, which involves on-the-job training at the LNG plant site and Hides Gas Conditioning Plant (HGCP) for their specific trade specialty.

At the Juni Construction Training Facility, the first intake of trainees graduated in March with an Australian Quality Training Framework standard Certificate II in General Construction and Civil Construction. Meanwhile, the second intake of 20 trainees commenced their training program in January.

Also in January, Jason Maisasa from the Papua New Guinea Institute of Medical Research (IMR) was selected to undertake the Biomedical Equipment Repair Training program in Dallas, Texas, through MediSend International. Jason will become the fifth Papua New Guinean to benefit from this program and will return from his training with specialized skills to support the IMR and other health centers in the Highlands.

Growing Papua New Guinean businesses

To date, more than 880 million Kina (US$424 million) has been spent with Landowner Companies (Lancos) for all Project-related activities. This quarter, 195 million Kina (US$94 million) was spent with Lancos representing an increase of 30 percent from the previous quarter. The total in-country Project-related spend to date is now over 4.3 billion Kina (almost US$2.1 billion).

4.3+ billion Kina spent in Papua New Guinea to date

In its two and half years of operation, the Enterprise Centre has supported more than 1,300 local businesses with training and business development programs.

Air Niugini and Esso Highlands Limited officials gathered at Jacksons Airport, Port Moresby to farewell trainees departing to Canada

Safety, health and security

The Project experienced a fatality this quarter when a contractor supporting quarry operations was struck by a front-end loader. The Project expresses deepest sympathies to the family, friends and fellow workers of our team member. An investigation team was mobilized and the appropriate authorities notified. Various Project-wide measures and initiatives, including highlighting safety awareness about construction traffic, have been implemented in an effort to prevent a similar recurrence.

Papua New Guinean landslide

The Project, as well as many others, has assisted Papua New Guinean citizens following the Tumbi landslide from which many people lost their homes and their lives.

The landslide occurred near the Hides and Komo areas on January 24, 2012. Landslides occasionally occur in the Papua New Guinean Highlands and the Papua New Guinean Government is investigating the cause of this incident.

While Project personnel and facilities were not directly affected, Project teams provided support to the local community and to the Government-led rescue effort. This included providing accommodation at the Juni Construction Training Facility, and vehicles, storage facilities and an operations center for those associated with the recovery/ relief effort. The Project also assisted with rations, tarpaulins, water and lighting equipment for the local community. In addition, the Project provided further assistance by donating heavy equipment for use in the Government's response effort and for reinstatement of the road to reconnect Komo to the Highlands Highway. With road transport to Komo cut off by the landslide, the Project facilitated helicopter transport of urgent medical supplies to the Malanda Health Centre. In addition, the Project donated 135,000 Kina (approximately US$65,000) to the Salvation Army to support relief work in the disaster area.

During this quarter, security incidents in the Komo area escalated into community disruption. This situation was investigated and resolved with additional security measures implemented to minimize risk to Project personnel. For example, the Project has: improved radio communications; enhanced vehicle safety and journey management measures; and revised emergency response procedures to protect workers. With increasing construction activity in the Hides and Komo areas, the Project has increased community consultation in these areas to keep communities informed of Project activities and provide feedback from these communities to Project teams.

The Project also enhanced health initiatives this quarter to improve the prevention, diagnosis and treatment of illnesses such as malaria and tuberculosis. For example, the Project sponsored a World Health Organization Grade 1 specialist to conduct technical training in reading malaria slides and to assess the Project and selected Papua New Guinean community health laboratories for World Health Organization accreditation.

The Project continues to work with communities, the Papua New Guinean Government and non-government organizations on sustainable health services for Papua New Guinean citizens in the Project impact area.

Construction of the National Infectious Disease Diagnostic and Research Laboratory began this quarter with a ground-breaking ceremony held for the upgrade of the University of Papua New Guinea School of Medicine and Health Sciences biomedical laboratory in Port Moresby. Managed by the IMR with support from the Project and the University of Papua New Guinea School of Medicine and Health Sciences, the laboratory will provide advanced training for Papua New Guinean scientists. It will also play an important role in rapid diagnosis to help prevent outbreaks of infectious diseases.

Environmental performance

In March, the Lender Group's Independent Environmental and Social Consultant (IESC) conducted its sixth site audit, visiting worksites and meeting with Project workers and members of relevant communities to monitor the Project's conformance with its environmental and social commitments. During the visit, an agreement was reached between the Project and IESC to postpone the submission of the final Project Biodiversity Offset Delivery Plan from December 2011 to December 2012 to allow time for stakeholder feedback to be fully integrated.

Findings from the IESC's visit will be published on the Project website once completed. In the interim, the IESC has released a report from its fifth site visit, conducted in November 2011.

As waste management is central to the Project's commitment to continuous improvement in environmental performance, the official opening of the LNG plant site landfill was an important achievement this quarter.

Tree planting ceremony celebrating the official opening of the LNG plant site landfill

Agreements were also reached between the operator of the landfill and all other contractors to clearly define waste sorting, segregation and handling expectations and responsibilities for users of the facility.

The Project's spill rate for this quarter continues to show improvement from 2011. Despite an increase in work hours, the number of spills decreased by more than 50 percent during this quarter. This achievement was marked by the publication of a Safety, Security, Health and Environment (SSHE) Alert summarizing the spill prevention keys to success.

The Onshore Pipeline contractor has commenced preliminary construction activities within the Lake Kutubu Wildlife Management Area. Construction environmental management measures were explained to workers during kick-off meetings and are reinforced through daily toolbox talks.

The Project's water taskforce, formed in the fourth quarter 2011, began working with contractors this quarter to address water-related community concerns and review water implementation plans, catchment proposals, community water system progress and water quality. Meanwhile, the Project continues to maintain water extraction volumes within the annual limit set in the Project Environment Permit, with no additional extraction permits sought this quarter.

The Project has also provided support to the Piku Conservation Project, which is focused on raising awareness about the threatened Pig Nosed Turtle species.

Piku – the Pig Nosed Turtle

Stakeholder and community engagement

In addition to reinforcing construction and traffic safety messages with the community, the Project's Socioeconomic team is increasing its focus on helping to build the skills and resources of communities in the Project impact area.

For example, with Project support, the Community Development Initiatives (CDI) Foundation installed the recently purchased generator that will power their office and revive their former radio station, CDI-FM.

The station broadcasts locally-produced radio programs throughout Project areas. This support will help to create employment and improve communications for communities in this area.

Traffic and pedestrian safety awareness session in Tamadigi

As Project-related activities continue, the Socioeconomic team has been engaging with communities to build relationships and trust, as well as working with other Project teams in Port Moresby and field teams to ensure all grievances are resolved appropriately and effectively. This quarter, 132 grievances were registered, showing a proportional increase with increased work activity as compared to the previous period, with 117 grievances closed. Closing grievances within the 30-day has been challenging given the time it takes for grievants to confirm in writing that they are satisfied when an issue has been resolved.

The Project also continues engaging with the Papua New Guinean Government to keep officials informed of the Project's progress. During this quarter, Papua New Guinea's Department of Petroleum and Energy deployed field officers in the Upstream South (Gobe and Kantobo) and Upstream North areas to manage issues and grievances that require action by the Government. The Project is meeting regularly with the Department of Petroleum and Energy to help address Project-related issues as they arise.

27,500+ people participants in engagement activities to date

As the Project works to help build economic and social sustainability with the people of Papua New Guinea, community interest as well as concerns continue to be welcomed in order to enable the Project to address these quickly and to keep all stakeholders informed of the progress being made.

1 Introduction

Maintaining effective communication with the Papua New Guinean community, government, non-government organizations and other stakeholders is critical to the success of the PNG LNG Project.

The Project is investing heavily in programs to develop and maintain ongoing communications and engagement with all stakeholders. This Quarterly Environmental and Social Report is a key communications vehicle for providing updates on construction activity and the safety, health, environment and social management aspects of the Project. It is the ninth in a series of reports published to keep all stakeholders well informed about this US$15.7 billion project.

The Project involves the construction of gas production and processing facilities in the Southern Highlands and Western Provinces of Papua New Guinea. It incorporates liquefaction and storage facilities (located north-west of Port Moresby on the Gulf of Papua) with a capacity of 6.6 million tonnes per year. More than 700 kilometres of pipelines will connect the facilities. The Project will progress in development phases, with the first LNG deliveries scheduled for 2014.

Over the life of the Project, it is expected that over 250 billion cubic metres of gas will be produced and sold. This will provide a long-term supply of LNG to customers including: the Chinese Petroleum Corporation, Taiwan; Osaka Gas Company Limited; The Tokyo Electric Power Company Inc.; and the China Petroleum and Chemical Corporation (Sinopec). The location and elements of the Project are illustrated in Figure 1.1. Appendix 1 shows how the contracts for Phase I of the Project are divided.

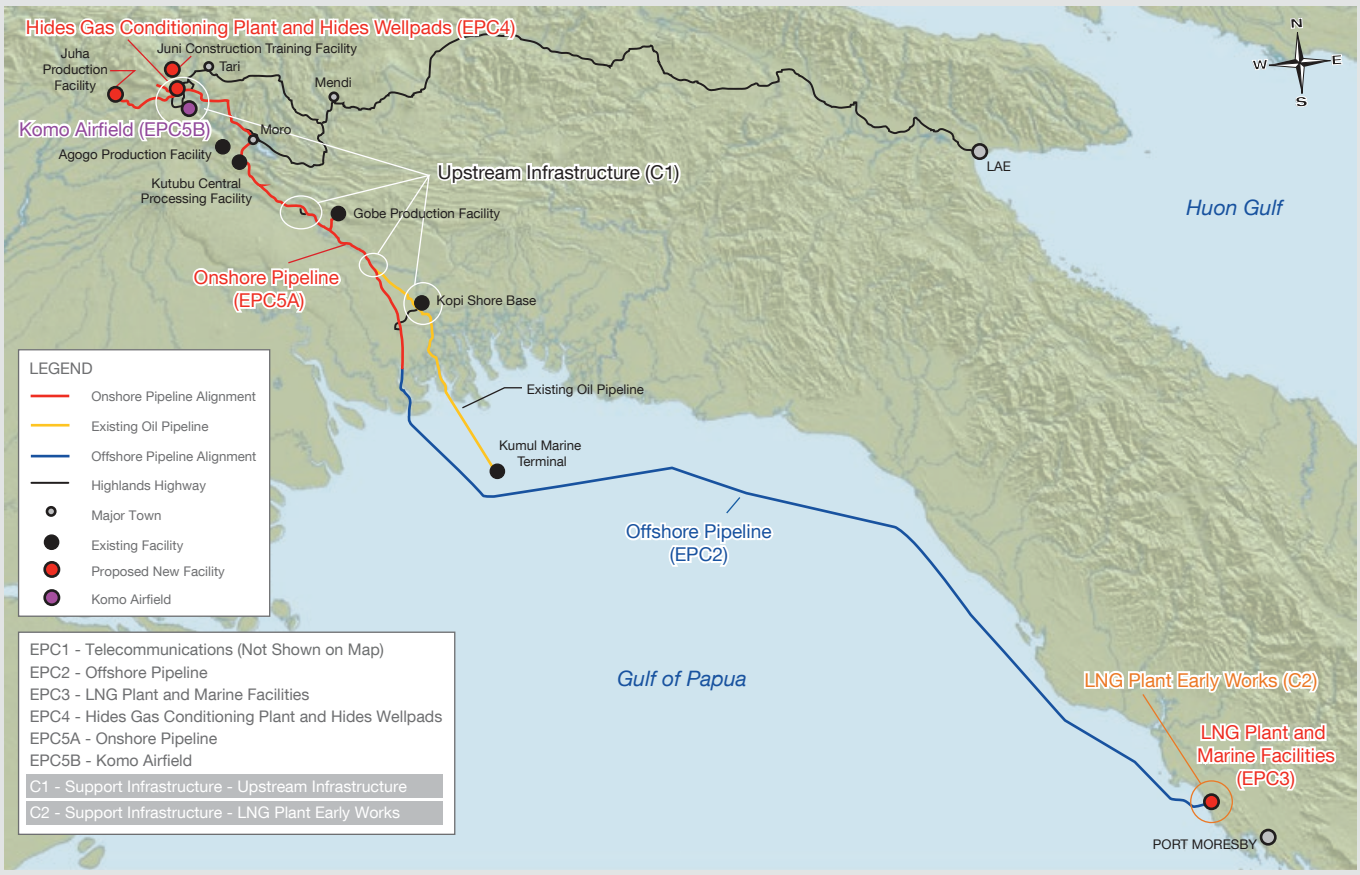
The complete Quarterly Environmental and Social Report series is available on the Project website.

Read the Quarterly Environmental and Social Report series at
www.pnglng.com

Printed copies of each quarterly report and translated summaries are also distributed, where applicable, to make information available to Papua New Guinean citizens who may have limited access to the internet.

Plate 1.1 – Offshore installation vessel Semac 1

Figure 1.1 – Project elements



Kopi Shore Base | LNG Plant | Juha Production Facility | Gobe Production Facility

Juni Construction Training Facility | Offshore Pipeline Install | HGCP Site | Agogo Production Facility

Komo Airfield | Moro Airfield | Kumul Marine Terminal | Kutubu Central Processing Facility

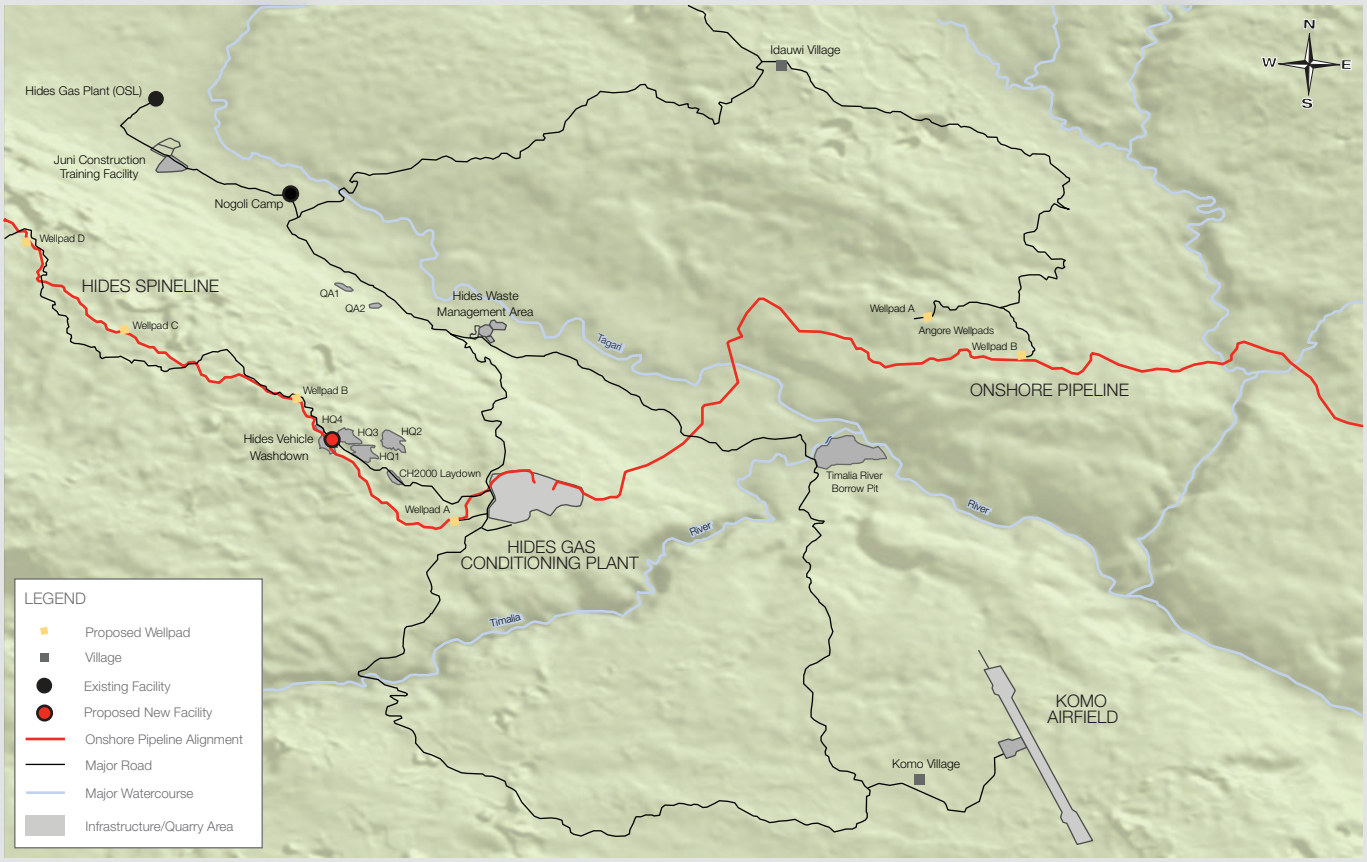
2 Construction Overview

Numerous construction milestones were achieved in the first quarter including: reached 50 percent of the Komo Airfield's bulk earthworks; completion and delivery to Papua New Guinea of the second drilling rig; completion of the second of four horizontal directional drilling operations; finalization of the offshore pipeline detailed design; and a record 453 truckloads of equipment moved from Lae to Hides during a single month.

In addition, Esso Highlands Limited ground transport workers achieved an outstanding safety record of over 7.5 million kilometres driven by a fleet of more than 125 passenger vehicles with no Lost Time Incidents.

2.1 Highlands area

Figure 2.1 – Highlands area Project activities



2.1.1 Upstream Infrastructure

The Upstream Infrastructure contractor continued pioneer earthworks along the Wellpad Access Road. At the same time, Wellpad C earthworks commenced while the Wellpad B cellar construction was completed. Wellpad B is the first drilling location and the completion of the cellar enables mobilization of the drilling rig to the site. Earthworks on the HGCP site also progressed, with the completion and handover of the camp area, utilities area, helipad flyway and the first two process areas to the Hides Gas Conditioning Plant and Hides Wellpads contractor.

Plate 2.1 – Construction of Wellpad B cellar

Plate 2.2 – HGCP camp and process area

2.1.2 Hides Gas Conditioning Plant and Hides Wellpads

At the HGCP construction site, piling in the utilities area was completed and piling in the process area continues. Camp expansion also progressed.

The Hides Gas Conditioning Plant and Hides Wellpads contractor completed the 90 percent model review, which marks the final check of the site's detailed design. In addition, all purchase orders were issued and factory acceptance testing of all major rotating equipment was completed.

2.1.3 Komo Airfield

The Komo Airfield contractor has now completed over half of the Airfield's bulk earthworks, and in March, achieved record productivity of earthworks.

Plate 2.3 – Earthworks at the Komo Airfield

All Komo Airfield building foundations necessary for cargo operations were also completed, along with construction of the power house and pump house. Meanwhile, the erection of steel for the fire house commenced. The runway asphalt plant construction and static commissioning was also completed.

Plate 2.4 – Komo Airfield asphalt plant construction

During this quarter, the Komo Airfield contractor commenced the runway aggregate base-course pavement on a section of the runway. The base-course pavement provides the foundation for the final topcoat of the Airfield runway.

Plate 2.5 – Pavement trials for the Komo Airfield runway

2.1.4 Drilling

The completion of the second drilling rig marked a significant milestone for this quarter. Drilling Rig 703 arrived in the Port of Lae in late March and, similar to Rig 702, will begin its 800-kilometre journey along the Highlands Highway to the Hides area.

2.2 Onshore Pipeline

Pipeline construction progressed with over 10,000 individual welds completed and more than 130 kilometres welded to date of the 292-kilometre pipeline. Hydrostatic testing was also completed on a 50-kilometre section of the pipeline. Hydrostatic testing is used to confirm the integrity of the pipeline.

The second of four horizontal directional drilling operations was completed this quarter under the Wa'a River. The Horizontal Directional Drilling team has moved north to the Mubi River, which will be the third and longest directional drill site on the pipeline.

Plate 2.6 – Welded pipe ready for commencement of lowering-in activities

With construction progressing north, the Kaiam and Gobe camps began demobilizing and shifting north to Moro where the camp foundation is now under construction. Planning also began for a northern camp in the Homa area, Hela Province.

Meanwhile, a pre-fabrication workshop was constructed at the Kopi Shore Base to fabricate valve, scraper and metering stations, which will be transferred to relevant sites along the pipeline.

2.3 Offshore Pipeline

The Offshore Pipeline contractors' team achieved a major milestone with the completion of detailed design for the last sections of the offshore pipeline.

With pipeline manufacturing and coating complete, more than 350 kilometres of the 407-kilometre pipeline has been delivered to Papua New Guinea.

Offshore pipeline construction is also progressing rapidly. For the deep-water portion of the offshore pipeline, installation of 320 kilometres out of 344 kilometres has been completed to date. Following completion of dredging in the Omati River, more than 23 kilometres of shallow water pipeline was installed in the River this quarter.

Plate 2.7 – Offshore pipeline installation

The Omati River landfall shore pull was also completed and reinstatement works commenced on the landfall site.

2.4 LNG Plant and Marine Facilities

Despite significant rainfall this quarter, construction at the LNG plant site progressed well with 50 percent of the process area steel erection completed and 50 percent of the pipe fabrication and installation on Train 1 complete. In addition, all camp accommodation buildings were completed and the camp construction contractor began demobilizing.

Plate 2.8 – Steel erection and pipe installation for Train 1

The erection of the outer shells of the north LNG tank is nearing completion, with 13 of the 14 rings installed. Meanwhile, ring 10 of the south LNG tank was completed this quarter. The construction of foundations for the two condensate tanks also began, with the north tank foundation completed during this quarter.

Eighty percent of the piles for the marine jetty have now been installed, and piling has been completed for the ship navigation aid beacon.

Heavy lifts at the site continued progressing well, with all molecular sieve vessels positioned, all seven gas turbine generators placed on their foundations and all three mixed refrigerant compressors secured on their foundations.

2.5 Associated Gas Development

A milestone for the Associated Gas Development contractor this quarter was completion of engineering for the associated gas facilities within the Kutubu Central Processing Facility and Gobe Production Facility.

Meanwhile, key construction activities included installation of the commissioning gas skid, completion of structural works for the associated gas cooler, and completion of the triethylene glycol unit.

Upgrades to the Kumul Marine Terminal continued as well. Installation and commissioning of a new tanker loading line was completed and the first loading through this line and the new Catenary Anchor Leg Mooring buoy system was conducted in March.

Plate 2.9 – Installation of new stairs on the Kumul Marine Terminal

2.6 Development support execution, logistics and aviation

Esso Highlands Limited's ground transport workers achieved a safety record of greater than 7.5 million kilometres driven to date with no Lost Time Incidents. This is a significant achievement given the fleet size of more than 125 passenger vehicles operating across Port Moresby, Lae, the Highlands Highway and the Hides area.

A record 453 truckloads of equipment were delivered from Lae to Hides in March, which was the highest achieved to date. This achievement represented the fifth consecutive record month for truckload movements.

A third aircraft also commenced operation in January to assist with freight movement from Lae to Tari. The aircraft can move up to 17 tonnes of equipment at a time and greatly increases the rate of equipment transport to Hides.

Also this quarter, the Project put an agreement in place with the Papua New Guinean Department of Works to improve sections of the Highlands Highway and replace key bridges to improve transport capacity along this route.

2.7 Pre-construction surveys

Pre-construction surveys assess areas of ecological interest, weeds and water quality at Project worksites, while identifying potential archaeology and cultural heritage sites. The Project's Environmental and Social Management Plan (ESMP), and additional site-specific measures that are defined as necessary, describe management and mitigation measures to be applied in areas where sensitivities are identified. This enables compliance with the Project Environment Permit issued by the Papua New Guinean Department of Environment and Conservation.

During this quarter, pre-construction surveys were ompleted for the supporting infrastructure of the onshore pipeline, such as valve stations, drilling platforms and access roads. Pre-construction surveys were also undertaken at a number of worksites for the Komo Airfield contractor. The only pre-construction survey remaining is on the Hides Spineline.

Pre-construction surveys in progress this quarter are illustrated in Figure 2.2.

Figure 2.2 – Pre-construction survey progress

1	Protected Areas	✎	Report in Preparation
2	Protected Species	➔	Issued to DEC
3	High-Conservation Value Habitat	✘	No longer going to be used
4	Sites or Habitats of Ecological Significance	☑	Approved by Project
5	Cultural Heritage Sensitivity	➲	DEC Permission to Construct (as required)
6	Social Sensitivity	*	Submission/Approval Month/Quarter (Q) (2011)

Survey Site	Sensitivities Surveyed						Status	
	1	2	3	4	5	6		*
ONSHORE PIPELINE FACILITIES								
Moro Campsite and Kamari Quarry	✓			✓	✓		☑	Q1
Onshore Pipeline ROW: Kilometre Point 0 - 9.5					✓		✎	
Onshore Pipeline ROW: Kilometre Point 9.5 - 28		✓		✓	✓		☑	Q1
Onshore Pipeline ROW: Kilometre Point 28 - 50.5		✓		✓	✓		☑	Q1
Onshore Pipeline ROW: Kilometre Point 50.5 - 65.5		✓		✓	✓		✎	
Onshore Pipeline ROW: Re-alignment Kilometre Point 65 - 67		✓		✓	✓		✎	
Onshore Pipeline ROW: Re-alignment Kilometre Point 96.6 - 97.6		✓					✎	
Onshore Pipeline ROW: Re-alignment Kilometre Point 106.5 - 109 (Soro Fault), Kilometre Point 99.5 - 101.5 and Kutubu Spurline		✓		✓	✓		✎	
Onshore Pipeline ROW: Re-alignment Kilometre Point 120.5 - 125.5, Kilometre Point 127 - 128.7 and Kilometre Point 146 - 147.5		✓		✓	✓		✎	
Kilometre Point 172 Access Road and Kilometre Point 158.5 Borrow Pit		✓			✓		☑	Q1
Kilometre Point 192 Access Road, Valve Station and Vent Stack		✓		✓	✓		☑	Q1
Homa/Paua Laydown and Quarry		✓		✓	✓		✎	
Homa Quarry 2				✓	✓		✎	
Auwitangi Quarry 1 and Quarry 2 and Associated Access Road		✓		✓	✓		✎	
Kilometre Point 4.5 Campsite		✓		✓			☑	Q1
Kilometre Point 24 Campsite		✓		✓	✓		☑	Q1
Tagari Horizontal Directional Drilling Platform (formerly Tagari Campsite)		✓		✓	✓		☑	Q1
Cathodic Protecton 1 and Associated Infrastructure		✓		✓	✓		✎	
Cathodic Protecton 2 and Associated Infrastructure		✓		✓	✓		☑	Q1
Kutubu Mainline Valve Station and Associated Facilities		✓					✎	
Benaria Mainline Valve Station 1 and Quarry		✓			✓		✎	
Mainline Valve Station 2 (Kilometre Point 57) and 3 (Kilometre Point 66) and Additional Workspace		✓		✓	✓		✎	
Mubi River Horizontal Directional Drilling Platform		✓		✓	✓		☑	Q1
Access Road at Kilometre Point 91.5 (near Kaimari Quarry)	✓	✓		✓			✎	
Shoo-fly Access Road at Kilometre Point 137				✓			✎	
Neango to Dauli Access Road at Kilometre Point 18		✓		✓	✓		✎	
Angore Roads and Angore Wellpads		✓		✓	✓		✎	
KOMO AIRFIELD								
Southern Diversion Outlet					✓		☑	Q1
Waguba Bridge Upgrade							☑	Q1
Talipuni Bridge Upgrade							☑	Q1
Logistics Road - Devils Elbow					✓		☑	Q1
Logistics Road - Devils Shoulder							☑	Q1
Southern Diversion Access Track							☑	Q1

Environment Permit sensitivity definitions:

1 - Protected Areas
Recognised or pending protected areas which include but are not limited to wildlife management areas, conservation areas, Ramsar sites, provincial reserves, national reserves, sanctuaries and protected areas, and national parks.

2 - Protected Species
Any species protected under Papua New Guinea legislation or listed in Convention on the International Trade in Endangered Species appendices, or in the International Conservation Union (IUCN) Red Data Book as Critically Endangered, Endangered Vulnerable or Data Deficient.

3 - High-Conservation Value Habitat
Any habitat identified within the high-conservation value Forest Toolkit as being within categories high-conservation value 1-5.

4 - Sites or Habitats of Ecological Significance
Sites or habitats of ecological significance such as:
a) Caves with a large entrance which may be used by bat colonies.
b) Pinnacles containing bat colonies.
c) Birds of paradise or bower bird display trees or display grounds.
d) *Pandanus* swamp forest.
e) Antarctic Beech *Nothofagus* spp. forest.
f) Areas of Antarctic Beech *Nothofagus* spp. dieback.
g) *Pharotis imogene* (New Guinea big-eared bat) colonies.
h) Sandalwood *Santalum macgregorii* trees.
i) High-value conservation swamps containing juvenile fish nursery habitat.
j) Swamps in sink holes < 50 m deep on Hides Ridge.
k) Areas of infestations of priority weeds or pests.
m) Mangrove stands and forest.
n) Seagrass beds.
o) Coral reefs.

5 - Cultural Heritage Sensitivity
Any site in which any cultural property as described in s. 20(1) of the National Cultural Property (Preservation) Act has been located.

6 - Social Sensitivity
Issues include, but are not limited to:
a) Impact on previously undisturbed sites of cultural heritage.
b) Significant and unpredicted loss of resources that affects livelihoods.

3 Safety, Security, Health, Environment and Social Management

A core value of the Project is protecting the safety and health of Project workers and communities as well as the environment within which Project-related activities occur.

3.1 Approach

The Project's ESMP articulates the Project's commitment and approach to environmental and social management activities in Papua New Guinea. The ESMP is supported by discipline-specific plans, which are outlined in Figure 3.1. These plans were developed from the Project Environmental Impact Statement and are publicly available on the Project website.

Explore the ESMPs at
www.pnglng.com/commitment

The Project also has a Safety Management Plan, a Health Management Plan, a Regulatory Compliance Plan and a Security Management Plan.

Collectively, these documents form the basis of a best practice culture across the Project and demonstrate the priority that ExxonMobil has set on sustainable economic growth in Papua New Guinea.

3.2 Security

Managing a comprehensive training and mentoring program for Papua New Guinean security personnel continues to be a focus for the Security team. So far this year, the Security team has facilitated training and skills enhancement for Lanco guard force personnel and commenced a guard force recognition program to further encourage good performance. In addition, two expatriate security positions were transferred to Papua New Guinean nationals, providing opportunities for Papua New Guinean personnel to further develop their competencies in security management.

During this quarter, security incidents in the Komo area escalated into community disruption. These incidents were investigated and resolved, with additional security measures implemented to minimize risk to Project personnel. The Project has improved radio communications, enhanced vehicle safety and journey management measures and revised emergency response procedures.

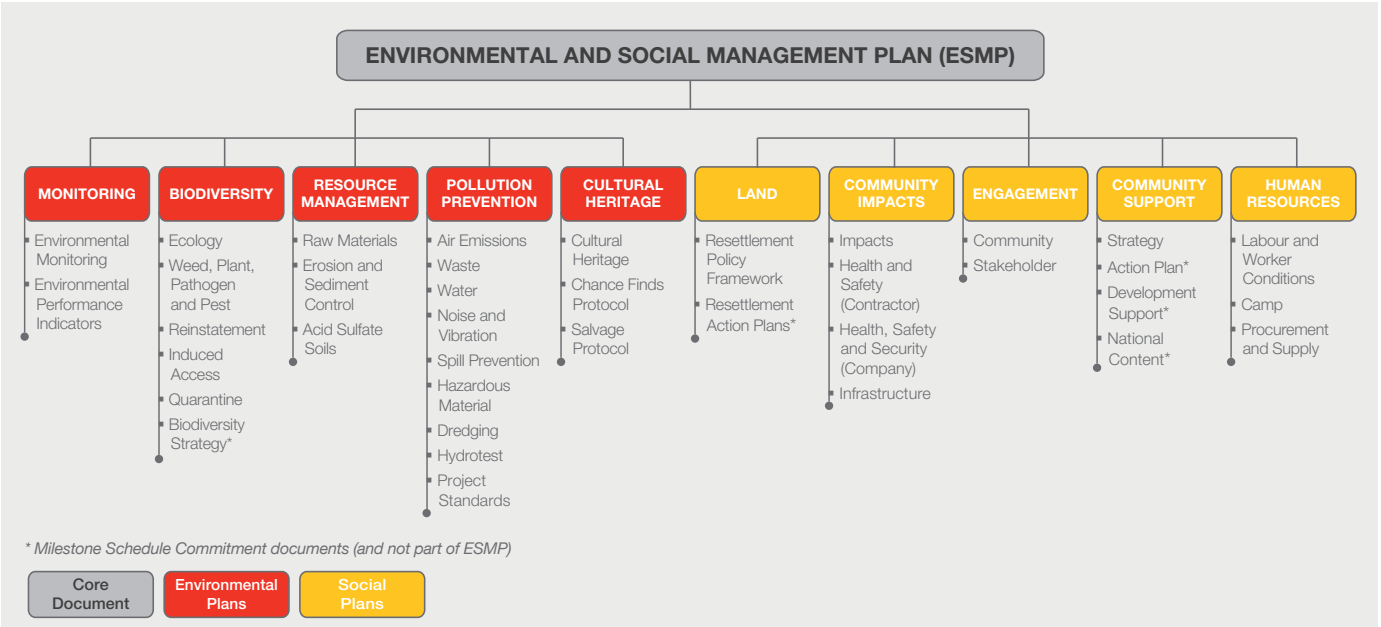
3.3 Revenue management

The Papua New Guinean Parliament passed the *Sovereign Wealth Fund Law* in February, which will allow for a Sovereign Wealth Fund to be set-up. The Fund's purpose is to insulate government spending from the volatility associated with income from natural resource projects. Associated goals are ensuring transparency, accountability and good governance.

Early this quarter, the Papua New Guinean Government also took important steps toward implementing the Extractive Industries Transparency Initiative – a global standard that promotes transparency by monitoring company payments and government revenues at a country level. This included sponsoring a workshop held over two days in Port Moresby, where World Bank and Extractive Industries Transparency Initiative representatives outlined the goals of the program and discussed steps to advance the initiative with representatives of civil society, industry and in the Papua New Guinean Government.

In addition to participating in this workshop, the Project took part in subsequent meetings on the Extractive Industries Transparency Initiative, convened by the Department of Treasury in February and March.

Figure 3.1 – Environmental and Social Management Plans



3.4 Management of Change

The Project's Management of Change procedure is implemented when changes to the Project's scope are required. Prior to any proposed change, the Project's requirements comprising health, safety, security, environmental and social management, as well as operability and maintenance, regulatory and cost and schedule are considered. Changes are classified in accordance with how they need to be managed. For example, Class I changes require Lender Group review prior to implementation, while Class II changes only require Lender Group notification in the PNG LNG Quarterly Environmental and Social Report.

This quarter, one Class II Management of Change request was raised to conduct well testing at Hides Wellpad B. The early design basis was to have all well testing done through the Hides Spineline and the HGCP; however, to confirm the deliverability of the Hides wells early in the drilling program, production well tests will be conducted.

3.5 Environmental and Social Milestone Schedule

An agreement was reached between the Project and the Lender Group's IESC to postpone submission of the final Project Biodiversity Offset Delivery Plan from December 2011 to December 2012 to allow time for stakeholder feedback to be fully integrated. Multiple stakeholders including the Government, industry and numerous non-government organizations were consulted throughout 2011 and early 2012. Feedback was comprehensive and positive and will contribute greatly to an effective Biodiversity Offset Delivery Plan. The objective of the Offset Program is to achieve no net loss of biodiversity in the Upstream Project area and account for residual losses, which might eventuate as a result of the Project.

The Resettlement Action Plan commitment is progressing with site-specific Resettlement Action Plans being developed, as they are required.

4 Procurement and Supply

As construction activities progress, the Project is supporting Papua New Guinean suppliers and developing the capacity of Lancos through its Business Development team as well as dedicated resources such as the Enterprise Centre.

4.1 Supplier development

Increasing activity along the pipeline route and at the LNG plant site, HGCP and Komo Airfield has led to additional reliance on Lancos to supply camp maintenance, catering, security and labor recruitment and hire services. Esso Highlands Limited also continues using Lancos to supply goods and services resulting in an overall spend of over 195 million Kina (US$94 million) with Lancos this quarter. Goods and services provided by Lancos included: construction of roads; provision of timber; plant and equipment hire; as well as completion of some community development projects.

To date, more than 880 million Kina (US$424 million) has been spent on Lancos for all Project-related activities. This represents an increase of nearly 30 percent from the previous quarter, due to the Project's increased activity. It is also the result of capacity building programs offered by the Enterprise Centre and the assistance provided to Lancos by the Project's Business Development team.

The total in-country Project-related spend is over 4.3 billion Kina (almost US$2.1 billion) to date. Some of the goods and services supplied by non-Lanco Papua New Guinean businesses include office and residential accommodation, resources for the IMR, resources for the Papua New Guinea Institute of Banking and Business Management, hire of long distance heavy haul trucks, charter of helicopters, charter of Airlines PNG aircraft and plant and equipment hire.

4.2 Enterprise Centre

Since its establishment in the third quarter 2009, the Enterprise Centre, an independent organization located within the Papua New Guinea Institute of Banking and Business Management premises at Port Moresby, has supported more than 1,300 local businesses by providing a range of services.

The Enterprise Centre is an important initiative, operating in conjunction with and supported by the Project's Local Business Development program. Now operating from its new building, which also houses the Project Information Centre, the Enterprise Centre continues its focus on evaluating Papua New Guinea businesses, helping them build business skills and enabling effective communication between contractors, subcontractors and the Project.

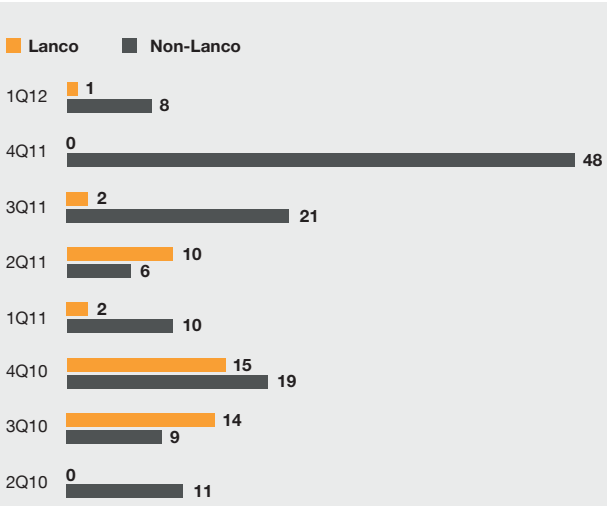
4.2.1 Business assessments and training

During this quarter, the Centre's Business Assessment team completed nine assessments, finalized 12 assessment reports and made 40 report presentations to Papua New Guinea businesses in industries such as hire cars, catering, construction, freight transport and real estate services. The number of Lancos and non-Lancos assessed by quarter is provided in Figure 4.1.

Plate 4.1 – Assessment report presentation to ACS Management Limited

Plate 4.2 – Assessment report presentation to Jubilee Rent-A-Car

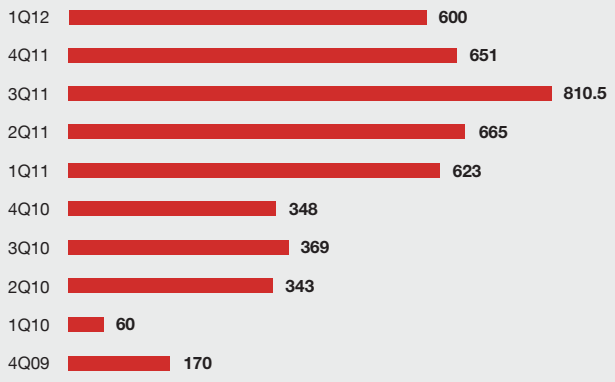
Figure 4.1 – Number of Enterprise Centre assessments for Lancos and non-Lancos



Demand for Enterprise Centre training was steady during the quarter. In total, 600 training days were provided to 78 women from the Boera and Porebada villages near the LNG plant site. Other scheduled training in the Upstream areas was affected by various events, which resulted in an overall decrease in training days compared to the previous quarter, as shown in Figure 4.2.

The women from Boera received Business Basics and Directors' training and the women from Porebada undertook Business Basics training.

Figure 4.2 – Number of capacity building training days



NOTE: The Papua New Guinea Institute of Banking and Business Management provided training prior to the Enterprise Centre's opening in April 2010.

During this quarter, the Enterprise Centre also conducted a special one-day Human Resources and Industrial Relations Awareness workshop for Lancos and suppliers, outlining important aspects of employment and industrial relations. This workshop was organized as a result of employment-related queries raised by Lancos regarding the Papua New Guinean *Employment Act 1978* and *Industrial Relations Act 1962* during business training sessions in 2011. Fourteen participants attended the workshop, which was jointly facilitated by the Enterprise Centre and the Papua New Guinea Human Resource Institute.

The Enterprise Centre also conducted a special one-day Small Business Development Corporation-National Development Bank Supplier workshop on the assistance available to women in business. In total, 140 women in the four LNG plant site villages (Boera, Papa, Lea Lea and Porebada) attended.

4.2.2 Advisory services

The Enterprise Centre's support for developing Lancos continued throughout the quarter, despite the sad passing of its Business Advisor. During the quarter, 109 hours of advisory services were provided. There was a gradual upward trend in the interest shown by women in these services, particularly from the LNG plant site villages.

4.2.3 Enterprise Centre communication and events

During the quarter, more than 1,000 potential and active entrepreneurs were assisted through business meetings, the use of workstations, provision of information, business registration on the PNG Supplier Database and coordinated workshops. These focused on providing small business assistance to empower women to contribute in their communities.

4.2.4 PNG Supplier Database management

The Enterprise Centre's PNG Supplier Database has to date registered 1,324 Papua New Guinean businesses and Lancos, across a wide variety of activity areas. In addition, more than 2,000 people visited the PNG Supplier Database dashboard online during this quarter.

Plate 4.3 – Participants at the Human Resources and Industrial Relations Awareness workshop

Plate 4.4 – Participants at the Small Business Development Corporation-National Development Bank Supplier workshop

5 Communities

The Project works closely with communities to understand their perspectives on the potential impacts of construction activities, and create programs that invest in and support community health and safety, and local business initiatives.

5.1 Structure and relations

The Project follows a set of management plans, outlined in Table 5.1, to help manage community interactions and potential impacts from construction activities.

Table 5.1 – Scope of ESMP community impact management plans

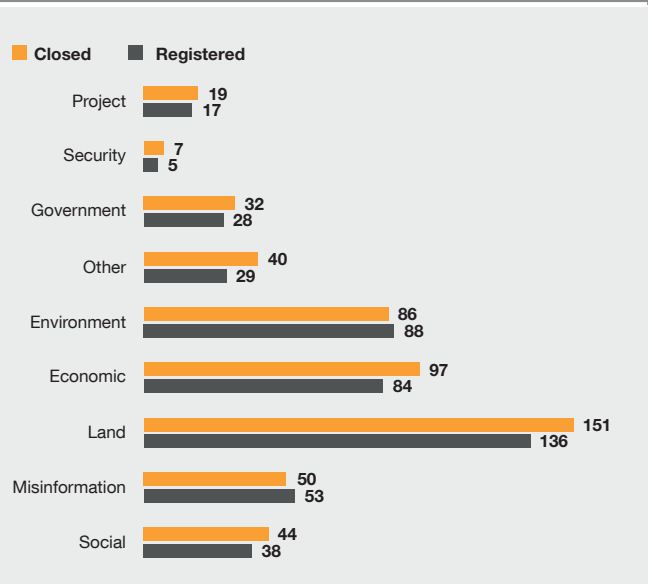
Plan	Scope of Plan
Community Engagement Management Plan	Covers community relations, grievances and disruption.
Community Impacts Management Plan	Addresses impacts that may affect the structure of, and relations within, communities.
Community Infrastructure Management Plan	Aims to avoid or minimize the impact of construction activities on existing community infrastructure and services.
Community Health and Safety Management Plan	Focuses on avoiding or minimizing risks to, and impacts on, the health, safety and security of the local community during construction.

5.1.1 Community grievance management

As Project-related activities continue, the Socioeconomic team has been engaging with communities to build relationships and trust to ensure all grievances are addressed both appropriately and in a timely manner.

This quarter, 132 grievances were registered; an increase proportional with the increase in work activity as compared to the previous period, and 117 grievances were closed. As shown in Figure 5.1, over the last 12 months, 478 grievances were registered and 526 grievances (raised either in the last 12 months or earlier) were closed.

Figure 5.1 – Number of grievances by category during the last 12 months



During this quarter, a new training module was rolled out to field community affairs workers covering: how to identify and record grievances via a new grievance card; how grievances are investigated; and ways to effectively close-out grievances. In the spirit of continuous improvement, the new grievance card was modified based on feedback from field officers. The grievance closure document was also reviewed and updated at this time.

To complement the training, the Project developed new materials to raise awareness of the grievance process in communities. Use of the improved cards during formal community engagements is believed to have contributed to the increase in grievances registered this quarter.

Of the grievances captured this quarter, 27 percent related to land – access, agreements and compensation. A further 22 percent related to water, including requests for alternative water sources, concerns about perceived impact on water sources or requests for water projects. Another 17 percent were received regarding economic grievances – either the desire to be employed, or to be awarded a contract for services, or requests for a community development project.

The water taskforce has been working diligently towards resolving the increase in water-related grievances in a coordinated manner. Six water structures, including *'haus wins'* and water tanks, were constructed in the Hides and Komo areas this quarter, bringing the number of community-based water structures completed to date to 40, with further structures and smaller collection systems planned.

Plate 5.1 – Using the newly installed tap at one of the *'haus wins'* recently built in Komo

Social grievances related to around six percent of new grievances, and the majority of these were related to resettlement. The remaining social grievances related to the demobilization process, apart from one worker non-payment grievance.

Closure of grievances within the 30-day target has remained a challenge. Grievants are required to confirm in writing that they are satisfied that an issue has been resolved before a grievance is closed and in some instances this can be a time-consuming process.

5.1.2 Project Induced In-Migration

The focus for much of this quarter was a Project Induced In-Migration assessment in the Kopi and Kikori (Omati) areas. Utilizing the findings, the Socioeconomic team compiled an action plan for the area, as well as another for the Hides and Komo areas based on an assessment carried out last year.

The assessments incorporated input from stakeholders including local, district and provincial government officials and community members. Further stakeholder consultation is planned for the early part of the second quarter 2012, so that their commitments and agreements to jointly address key aspects of the plan can be incorporated.

The Socioeconomic team also met with the Hela Transitional Authority to review their development plan and identify potential areas for collaboration. Ongoing discussions are determining appropriate roles for each party, including ways of working together to minimize social impacts from induced in-migration.

Meanwhile, plans are being developed to evaluate activities undertaken to support the In-Migration Committees that were set up in each of the LNG plant site villages and link them up with respective government agencies.

A meeting was held with the Central Provincial Government and officials from the Hiri District Government to share plans and updates on progress to date. This resulted in appreciation of the issues around Project Induced In-Migration and commitment from the district and provincial governments to work together on these issues. The Project's Socioeconomic team will continue working closely with the Central Provincial Government's Policy and Planning division. For example, by inviting the Government division to participate in the planned Project Induced In-Migration assessment in the LNG plant site area.

5.1.3 Fisheries surveys

The Project is continuing quarterly fisheries surveys throughout 2012 in the four LNG plant site (Caution Bay) villages and the five Omati villages, focusing on catch landings and vessel inventories, while monitoring for construction-related fisheries issues. Surveys for the first quarter were conducted at all nine villages, concluding in March. These surveys included interviews with 143 fishers in the Caution Bay area and 242 in the Omati area. The data captured will be entered for analysis in the second quarter 2012.

Members of the Fisheries team have been on hand every day since dredging began in October 2011 to address community issues and concerns. Along the Omati River, daily monitoring during dredging and trenching found very little impact on fisheries. During shore pull, localized, short-term impacts to water quality and temporary disruption to access to fishing and sago grounds were identified, raised and addressed resulting in minimal impact in the Omati area during construction. The Fisheries team worked closely with communities, helping them safely access temporary alternative grounds for fishing and sago-making purposes on a daily basis. A total of 243 people in 38 canoes and dinghies were safely escorted to A'abari passage off the Omati River.

Plate 5.2 – Traffic monitoring at the A'abari passage

In Caution Bay, the Fisheries team began a number of fisheries projects, along with other Project teams. This included the mangrove rehabilitation program, working with the Papa Fisheries Committee, community members and the University of Papua New Guinea Marine Biology Department. Deep sea fishing skills training also commenced for selected fishers in all four Caution Bay villages.

A meeting was also held with the Central Provincial and Hiri District Fisheries Department to share 2011 in-village fish catch landing survey findings and plans for 2012. This work aims to identify potential areas for collaboration and improve fisheries habitats and sustainability.

Another achievement this quarter was completing the findings of the 2011 accumulated baseline report for the Omati and Caution Bay in-village fisheries survey. This provides the Project, community and the Government with useful data to compare the health of fishing and its generated income from the area over the Project's construction phase and into the operations phase.

5.1.4 Social considerations for logistics activities

Progress is being made towards identifying eligible students from the Omati communities for the Barging Route Waterways Memorandum of Understanding Scholarship Program. During this quarter, two students were supported for acceptance into tertiary institutions – Aileen Baretta from the Porome tribe will study for a Bachelor of Communication Arts in Journalism at the Divine Word University and Hartsen

Baei from the Morigi tribe will pursue a Diploma in Business and Computing at the International Training Institute. Other tribes are in contact with St Joseph's, the Kikori Catholic Vocational School, to identify enrolment opportunities for students wishing to undertake basic carpentry, mechanical and business training.

Community agreements have been signed with the Omati and Urama tribes for the planned construction of water supply facilities in identified villages in the second quarter 2012. Community agreements have also been finalized with the Porome, Kerewo, Morigi and Kibiri tribes for sawmill projects, and the Rumu tribe for a community hall.

The Project has also facilitated an agreement between the CDI Foundation based in Kikori, and the Barging Route Waterways Memorandum of Understanding Committee, which was formed to help manage the Memorandum of Understanding signed between the Project and the communities impacted by construction along their waterways.

With Project support, the CDI Foundation installed the recently purchased generator that will power their office and revive their former radio station, CDI-FM. The station broadcasts locally-produced radio programs to Project areas. In return, the CDI Foundation will provide the Committee with administrative support including office space, free of charge for the next 18 months, and air time to broadcast Project-related matters to communities.

The Project's Socioeconomic team is also supporting the Committee with basic office supplies and equipment.

Plate 5.3 – The new generator upon delivery to the CDI Foundation

5.2 Infrastructure, services and resources

This quarter, the Project provided support to the local community and to the Papua New Guinean Government-led relief effort for the Tumbi landslide near the Hides and Komo areas, by working with the National Disaster Relief Operations Committee's Tumbi Disaster Operations Centre. This included providing accommodation at the Juni Construction Training Facility, use of vehicles, storage facilities and an operations center for those associated with the recovery/ relief effort. The Project also assisted with food, tarpaulins, water and lighting equipment for the local community. Meanwhile, the Upstream Infrastructure contractor donated heavy equipment for use in the Government's response effort and for reinstatement of the road to reconnect Komo to the Highlands Highway. With road transport to Komo cut off by the landslide, the Komo Airfield contractor facilitated helicopter transport of urgent medical supplies to the Malanda Health Centre.

Meanwhile, community access tracks continue being constructed around Project facilities. Most of the pioneering and earthworks were completed for the community access track at the HGCP; however, the machinery that was allocated to this work was re-assigned to assist with the Tumbi landslide. Once work at the landslide was complete, the machinery returned to the HGCP to continue work on the access track. Construction of the Komo Airfield site vehicle access track continued.

This quarter, the Project worked in consultation with community leaders to help improve water resources by identifying potential locations where the Project could develop additional water structures, such as water tanks. In Komo, the Project also rolled-out a sanitation and hygiene education program in collaboration with the non-government organization Population Services International (PSI), following social and environmental assessments of areas where community concerns have been raised. An additional six water structures were also constructed in the Hides and Komo areas this quarter to provide meeting places and water resources.

Meanwhile clearing and widening of the old Kiap administration track commenced during the quarter in Angore. The Awatangi people are working with the Onshore Pipeline contractor to complete this work.

In the Gulf Province, the Project facilitated a visit by the Kikori District Health Services mobile clinic to Goare, Ai'dio, Dopima and Bisi villages. The mobile clinic provided basic health treatment to both adults and children and tetanus vaccinations were given to women of childbearing age.

Plate 5.4 – Kikori District Health Services providing community health services and vaccinations

After seven months of negotiations, Laba Holdings Limited and Bank South Pacific signed an agreement in early February to open a banking facility at the Laba office near the LNG plant site. This service will mean that LNG plant site workers and local community residents no longer have to travel into Port Moresby to do their banking.

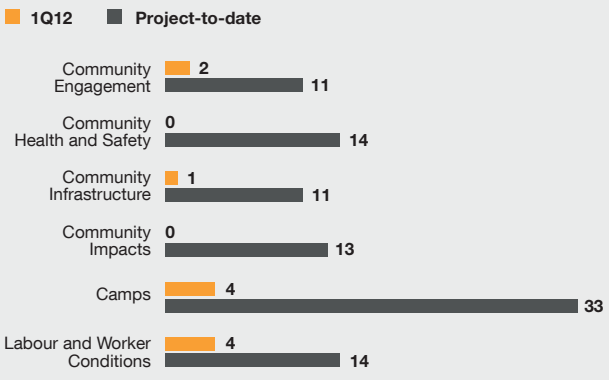
Plate 5.5 – Raho Kevau, Executive Chairman and Chief Executive Officer, Laba Holdings Limited and Ian Clyne, Chief Executive Officer, Bank South Pacific signing the partnership agreement

5.3 Verification, monitoring, assessment and audit

Implementation of the six social management plans continued during this quarter. The Socioeconomic team monitored the Camp, Labour and Worker Conditions, Community Engagement, Community Health and Safety, Community Impacts and Community Infrastructure Management Plans to ensure the Project is meeting its commitments within these plans.

Monitoring conducted by the Socioeconomic team during this quarter focused on worker welfare, camp conditions and engagement activities in communities. As detailed in Figure 5.2, 11 monitoring events were conducted this quarter bringing the number conducted by the Project-to-date to 96.

Figure 5.2 – Number of monitoring events against relevant social management plans



There are three reporting tools used to track conformance with the various social management plans: non-conformances, field observations and positive field observations.

Non-conformances occur when situations are identified that are not consistent with Social Management Plan requirements and require corrective actions. Corrective actions are also developed for field observations. Field observations, if not corrected in a timely manner, have the potential to escalate to a non-conformance. Meanwhile, innovative or excellent performance against Social Management Plan requirements is recognized as a positive field observation.

A total of 34 non-conformances have been reported during this quarter. Three of these were raised during the quarter and 31 are from previous quarters, which were raised during a data reconciliation process. In addition, 42 field observations were raised during this quarter, as shown in Figure 5.3. Non-conformances related to access to Project sites and pedestrian control measures. Camp minimum space requirements were also noted as a non-conformance this quarter. The closure status non-conformances is shown in Figure 5.4.

Figure 5.3 – Number of non-conformances and field observations raised during this quarter[1]

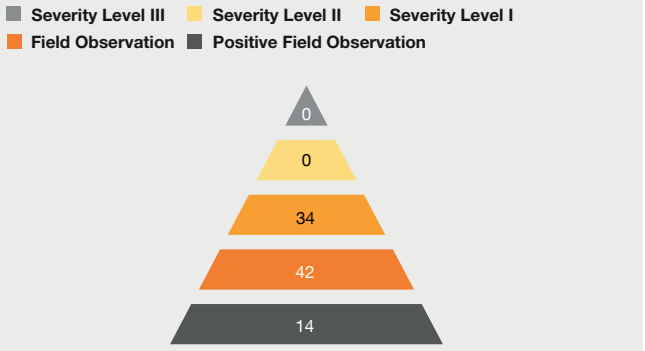
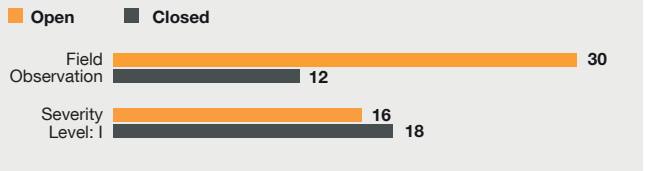


Figure 5.4 – Closure status of non-conformances and field observations raised during this quarter[1]



One of the positive field observations recorded this quarter related to the Human Resources and Industrial Relations Strategy. This included the introduction of a worker code of conduct by the Hides Gas Conditioning Plant and Hides Wellpads contractor with an emphasis given to supervisors in addressing worker issues as they arise.

1 Included in this Figure are 31 non-conformances that did not actually occur during the quarter but were previously unreported. These non-conformances were raised during a data reconciliation process.

5.4 Community health

The Project is working with non-government organizations and Papua New Guinean health professionals to mitigate potential health impacts from community and contractor interaction. The Project's integrated Community Health Impact Management Program manages mitigation and outreach efforts in areas such as Sexually Transmitted Infections (including Human Immunodeficiency Virus [HIV]/ Acquired Immune Deficiency Syndrome [AIDS]), water and sanitation, and potential exposures to chemical and physical hazards. This Program is based on a framework developed by the International Petroleum Industry Environmental Conservation Association (IPIECA), and integrates environment, health and key social determinants. The International Finance Corporation has provided additional input into the program through its guidance notes to the performance standards, which include Performance Standard No. 4 Community Health, Safety and Security.

5.4.1 Integrated Health and Demographic Surveillance System

Within the LNG plant site area, the IMR completed data entry and a quality assurance/quality control review of data from the Integrated Health and Demographic Surveillance System (iHDSS) socioeconomic pilot survey and nutrition pilot survey. The morbidity, or cause of illness, database was also completed. Accurately understanding the cause of illnesses in patients seeking care at the local health centers is an important function for the IMR staff. This provides valuable input for the Papua New Guinean health system in planning and implementing national, regional and district health programs.

The IMR also piloted a sanitation hygiene questionnaire to better understand community behaviors and practices to help in evaluating sanitation hygiene programs implemented through the non-government organization PSI. The Project helped coordinate this effort between the two organizations to reduce household survey fatigue, a situation common in communities where multiple organizations are working separately to achieve common goals.

Meanwhile, three of the IMR's senior scientific graduates were able to submit proposals to PhD programs based on their scientific experience gained through the iHDSS program. The graduates are focusing on: the Geographic Information System application for health surveillance in Papua New Guinea; health metrics and epidemiological transition using verbal autopsy; and nutrition transition among resource development impacted populations.

Completion of the IMR physician's staff house at Malanda Health Centre was delayed this quarter; however, two semi-permanent traditional houses will be built to accommodate field staff for the Centre's immediate needs. The dwellings will provide extra space for staff who will need transit accommodation in the future.

To help complete the Malanda Health Centre census, the IMR recruited 42 census assistants for the 13 local council wards. Of the census assistants recruited, 18 percent were female.

Plate 5.6 – An IMR researcher recording patient diagnoses

Plate 5.7 – Malanda Health Centre

All enumerators were trained and tested regarding the correct use of various forms, including census registration and household forms.

During this quarter, the census was conducted in two council divisions, Hibiria and Kigiria, including Komo station, the Komo Airfield area and the villages surrounding the Hides 4 well. By the end of February, the total population surveyed was approximately 9,000. Another 4,000 to 5,000 people are expected to be surveyed from the remaining households in the Hibiria and Kigiria divisions. In the Komo area, baseline census surveys have been completed and Global Positioning System mapping is underway and is expected to be completed in early April 2012.

5.4.2 Tuberculosis

In the Kikori area, a Memorandum of Understanding with Gulf Christian Services was signed to enable support for a tuberculosis prevention, diagnosis and control program through the IMR. Kikori Hospital is the primary health facility in the Gulf Province with the medical equipment and personnel able to diagnose and treat tuberculosis. Health care in the Kikori area is challenging since there are very few roadways and most travel is by water.

The Project continues working with Kikori Hospital to improve diagnostic capabilities and help reduce the incidence of tuberculosis in this region.

This quarter, two Australian doctors recruited through the Walter and Eliza Hall Institute began working in Kikori Hospital supported by the 'Partnership for Health' agreement between the Project and the IMR.

5.4.3 Support to non-government organizations

This quarter, the Project supported PSI with conducting Community-Led Total Sanitation programs in five villages in the Malanda Health Centre catchment near Komo. These sessions help villagers learn to calculate human waste produced per month and per year to create an awareness of how waste can be accumulated in open areas and put the community at-risk of disease. This program has shown high success rates in Papua New Guinea towards total changes in eliminating open defecation behavior, resulting in entire villages certifying an open defecation-free status.

PSI is also working with the LNG plant site villages where the population depends upon tidewaters to carry refuse human waste out to sea. Through the Community-Led Total Sanitation program, PSI aims to help these villages also become open defecation free.

A lease agreement was signed this quarter with the Komo Catholic Mission for office space in the Komo/Malanda area for PSI staff. This enables PSI to expand its services to the entire Komo and Hides areas.

Domestic violence prevention

Marital Relationship Training was conducted with 47 participants from the Para Village this quarter, reaching 34 percent of the goal for the Marital Relationship Training program for 2012. This training is benefiting villages by helping to reduce alcohol consumption, episodes of gender-based violence and concurrent partnerships, while also encouraging increased school attendance.

Prevention of Sexually Transmitted Infections, including HIV/AIDs

This quarter, PSI, with support through its Enhanced Community Health initiative, educated over 3,500 people about reproductive health and HIV issues.

PSI also distributed health care vouchers to truck drivers to enable them to obtain treatment for potential Sexually Transmitted Infections and enable accurate data collection regarding the extent of Sexually Transmitted Infections among truck drivers. The Marie Stopes Papua New Guinea health center in Lae is providing services through the voucher program.

Building capacity through education

The Project is funding five training grants for Evangelical Church of Papua New Guinea workers in the Hides area to enhance their health care skills. This includes: advanced training in microscopy for one community health worker, health care financial administration for three workers, and advanced training for one nursing officer.

Success of the Marital Relationships Training program

Gideon Wally, community health worker at Para Health Centre, said that as a result of the Marital Relationship Training he is seeing less domestic violence in the villages and observing changes in people's relationships where husbands and wives were understanding each other more. "There is more respect inside the family," he said.

Gideon Wally, community health worker

Plate 5.8 – Marie Stopes Papua New Guinea workers at the health center in Lae

Plate 5.9 – Rana Nema, Evangelical Church of Papua New Guinea community health worker at the Malanda Health Centre

In addition to the five training grants, the Project continues funding 25 Divine Word University students from provinces within the Project impact area who received scholarships in 2011. Nine of these students will be eligible to graduate this year.

National Infectious Disease Diagnostic and Research Laboratory

Construction of the National Infectious Disease Diagnostic and Research Laboratory began this quarter, with a ground-breaking ceremony held for the upgrade of the University of Papua New Guinea School of Medicine and Health Sciences biomedical laboratory in Port Moresby. Managed by the IMR with support from the Project and the University of Papua New Guinea School of Medicine and Health Sciences, the laboratory will provide advanced training for Papua New Guinean scientists. It will also play an important role in the rapid diagnosis of emerging infectious diseases.

5.5 Community safety

Road safety remains a high priority across the Project. In Komo, the Project's Socioeconomic team conducted community road safety awareness on the logistics road between the Komo Airfield main gate through to the Timalia Bridge. Prior to the first term school holidays, road safety messaging was also delivered to all elementary and primary schools within the LNG plant site area. As part of this message, the Socioeconomic team worked with teachers to distribute the *Toea Fun Road and Worksite Safety Activity Pack* to school children, which includes a range of games and information to help children stay safe around roads.

Along the pipeline Right of Way (ROW), the Onshore Pipeline contractor has engaged the services of community leaders as ROW wardens to ensure residents refrain from entering construction activities between the Tamadigi and Manu areas.

Meanwhile, the increased vigilance of security personnel, improved gate control processes and continual reinforcement of worksite access messages at the HGCP site is proving effective at dissuading public access to the worksite. The HGCP perimeter fence construction is also more than 90 percent complete.

With an increased frequency of heavy and wide-load haulage near the LNG plant site, the Socioeconomic team is working with the Upstream Infrastructure contractor security team and the Royal Papua New Guinea Constabulary to deliver road-use messages to the community. Aimed at public motor vehicles and other community road users, flyers are distributed to communicate the dates and times of heavy/wide hauls. Early communication through these flyers, and through messages on community notice boards, has reduced community wait-time on roads and led to zero recorded grievances this quarter.

In the Gulf Province, community safety awareness raising was a priority during the offshore pipe lay and pipe transport at nine villages, and engagement sessions were attended by 766 people.

Making health sustainable

"The Project is committed to investing in sustainable health projects in Papua New Guinea to help address the health challenges affecting the country," Peter Graham, Managing Director, Esso Highlands Limited.

Professor Ken Sumbuk, Pro Vice-Chancellor (Planning and Development) University of Papua New Guinea; Peter Graham, Managing Director, Esso Highlands Limited; Professor Peter Siba, Director, IMR; and Professor Sir Isi Kevau, Executive Dean, School of Medicine and Health Sciences at the ground-breaking ceremony for the National Infectious Disease Diagnostic and Research Laboratory

At Goare Village, community safety awareness was conducted prior to the arrival of the offshore installation vessel, to remind the local community to keep clear of construction activities.

5.6 Community investment

The Project invests in many community initiatives to promote economic growth and create positive and sustainable outcomes for communities in the Project impact area.

This quarter the Socioeconomic team focused on community capacity building to identify local institutions and individuals who can drive and lead the development of their respective communities. Personal Viability training was also expanded to the LNG plant site communities, while initial training for women's groups in the Moran area was undertaken. The Socioeconomic team will continue its work building community development committees throughout this year to increase self-sustainability for communities and reduce the need for Rapid Implementation Projects.

Rapid Implementation Projects

During this quarter, 180 desks built by local contractors were delivered to five primary and elementary schools in Hides (Tigibi, Walete, Wabia, Pureni, Waralo), while 545 desks were delivered to 15 primary schools along the Highlands Highway, including every primary school from Mendi to Tari.

In addition, four 'haus wins' were constructed in Komo for the Mamali, Hora, Imini Kela and Tombe clans to provide clean and fresh water, as well as community meeting places, to the people living in the area.

Support for women's groups also continued this quarter, with two oven drums provided to the Boera and Lea Lea villages near the LNG plant site, enabling the women to cook food like scones and cakes for sale at local markets.

5.6.1 Community Development Support Plan

The Project's Community Development Support Plan consists of three components: Strengthen Social Resilience, support Local Economic Development and develop Community Capacity Building and Partnerships.

Strengthening Social Resilience

During this quarter, the Project launched a new school library project titled 'Box of Books'. Spanning three years, this project will benefit 52 primary schools across the Project impact area. Each school will receive two cabinets filled with books, along with training for two teachers/librarians. So far, eight teachers from schools in the four LNG plant site villages have already completed five days of training on how to manage their school libraries.

Plate 5.10 – The 'Box of Books' trainers and teachers/librarians

The third installment of the Toea Project Interface series, titled *Toea and the LNG Project*, was also published this quarter. The Toea Project Interface series provides interactive learning tools for students, with past titles including *Toea's Road Safety Activity Pack* and *Toea's Health and Hygiene Megapad*.

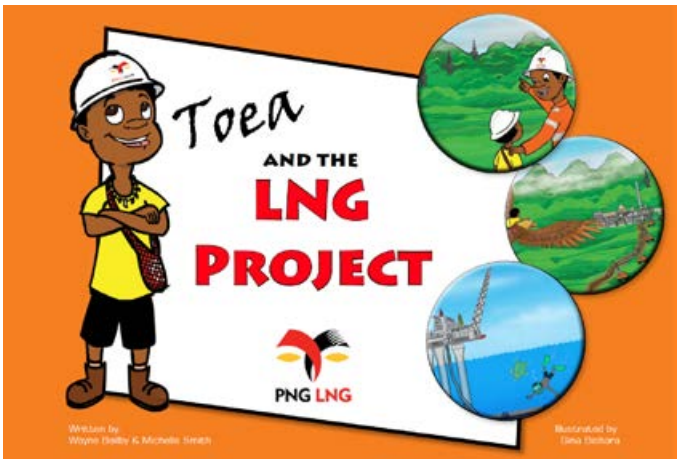


Plate 5.11 – The third installment in the Toea Project Interface series

Local Economic Development

Following vegetable farming skills taught to the Delta Green Field Marketing Limited women's group in the fourth quarter 2011, the Project provided materials for the construction of a nursery, which was completed this quarter in the Omati area. The nursery was built by the local community and the women's group will use it to train their members about how to grow different varieties of fruit and vegetables. Cuttings and plantings will also be distributed to local women for their own vegetable gardens.

Plate 5.12 – The completed nursery in the Omati area

The Project is currently working with a recognized business enterprise and a non-government organization to establish a poultry egg production company to provide sustainable business opportunities for villagers from the LNG plant site villages. It is anticipated that this egg production company will become the base for continued economic and community development.

Community Capacity Building and Partnerships

During this quarter, a group of 27 women from the Homa and Paua areas participated in a workshop in Moran to obtain skills in: organizational operations; programs and activities; relationships and networking; and resources. The women also used the workshop to develop a one-year activity plan to achieve their vision: *'Gut pela sindaun'*, which translates in English as: 'Happy and healthy'.

Plate 5.13 – Workshop participants completing group activities

Personal Viability training sessions continued in the four LNG plant site villages of Boera, Papa, Lea Lea and Porebada. A total of 114 participants learned skills in managing their own mental, spiritual, financial and social development. To date, more than 250 people have participated in Personal Viability training sessions across the Project impact area.

5.6.2 Strategic community investments

In January, Jason Maisasa from the IMR was selected to undertake the Biomedical Equipment Repair Training program in Dallas, Texas, through MediSend International. Jason will become the fifth Papua New Guinean to benefit from this program, and will return from his training with specialized skills to support the IMR and other health centers in the Highlands.

During this quarter, the Project sponsored the Law and Justice Secretariat's national symposium program on the status of alcohol abuse in Papua New Guinea. The symposium brought together members of government, civil society, health professionals and the private sector to discuss alcohol-related issues and solutions.

The Project continues supporting communities impacted by the Tumbi landslide, with donations including 135,000 Kina (approximately US$65,000) provided to the Salvation Army to support relief work in the disaster area.

Additional charitable donations and support provided during the quarter included:

- A donation of 10,000 Kina (US$4,820) to Cheshire Homes, a non-government organization that provides support to children living with disabilities.
- Donations to the Port Moresby General Hospital of 54 boxes of clean linen for the labor ward, kitchen utensils for the hospital kitchen and hot water containers for the hospital's nurseries.
- A donation of 10,000 Kina (US$4,820) to the Susu Mamas non-profit organization, which is dedicated to reducing the high infant mortality rate in Papua New Guinea.
- A commitment to support the Operation Open Heart Program through a 54,000 Kina (approximately US$26,000) sponsorship. This year about 70 Papua New Guinean citizens will benefit from life saving surgery by visiting surgeons and nurses from the Royal Children's Hospital in Melbourne, Australia.

Women's economic empowerment

In February, with support from the Project, the World Bank entered an agreement with the Papua New Guinean Chamber of Mines and Petroleum to implement the Women's Resilience Program. The Program aims to enhance women's ability to productively enter the informal employment sector – the largest in Papua New Guinea.

World Bank consultants will deliver training to women in the Upstream and LNG plant site communities on topics such as basic financial skills, family life improvement skills and income generation through farming, sewing, baking or similar activities. The training will take place within the villages, with candidates identified through women's associations and other community membership groups.

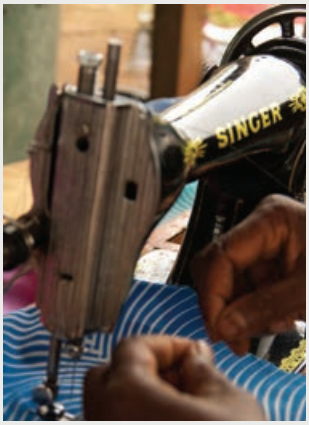
The World Bank's Women's Self Reliance Program is part of the broader Women in the Extractive Industries Initiative. This Initiative is directly linked to the Global Assessment of the Gender Dimensions of the Oil and Gas sectors, being implemented in six pilot countries, including Papua New Guinea. The combined aim of this work is to develop an action plan for women in petroleum areas to help address development challenges. A related initiative involves the Project's participation in World Bank facilitated dialogue on 'Using extractive agreements to achieve better outcomes for women'. This showcases how women can be empowered to equitably participate in benefit sharing decision-making processes, and demonstrated the need to adopt policies that enhance the participation of women in consultative and decision-making processes within male-dominated cultures.

In celebration of International Women's Day, the Project funded the Business Professional Women's Club of Port Moresby to provide scholarships to underprivileged girls in tertiary and secondary schools throughout Papua New Guinea. The Business Professional Women's Club of Port Moresby was established as a local non-government organization in 1982, operating under the umbrella of the National Council of Women in Papua New Guinea. The organization has proudly assisted hundreds of Papua New Guinean girls and women, who would otherwise not have been able to continue with their education.

5.6.3 Volunteer Programs

During the quarter, the Project's Onshore Pipeline contractor team at Kaiam Camp 2 worked together with the local community to conduct a clean-up of the nearby area. In recognition of the volunteers' hard work, the Project donated 500 Kina (US$240) to a community church operated by the women of Kaiam.

Sewing the pieces together



Jukuli Kapiako threading her sewing machine

"Sewing has helped me so much," says Jukuli Kapiako, as she skillfully threads cotton through the needle of a sewing machine. "I'm able to support my children and help other women in Mabuli to meet their daily needs." Jukuli is part of a group of women who received training and material support from the Project, as one of the numerous initiatives to support communities in the Southern Highlands.

It started with the women. They thought that if they worked collectively to secure funding and resources, they could improve the lives of other women in their community. They entered into a partnership with the Hides Women's Association, a representative organization of ten women's groups with hundreds of members, and developed a plan for a sewing project. Through combined support from the Project and the Hides Women's Association, the women purchased nine sewing machines and received sewing training. Women throughout the area now run their own businesses selling handmade ladies blouses and skirts locally.

Jukuli explains that sewing has become an important part of their lives. With material bought from Mt Hagen, skirts sell for 20 Kina (almost US$10) and the contribution to household income is significant. The money is used to pay school fees and to buy soap and dry foods. It is also used to help other women in times of hardship. "When there is trouble in the community, the women are always affected. We help each other. We try to support other women in any way we can," she says.

Jukuli Kapiako displaying her handmade ladies blouses

The extra income also helps sustain various other initiatives. Jukuli rears ducks and chickens, and hosts a guesthouse in her garden. The income from the sewing helps to buy fuel for running the lights in the guesthouse. It also supports her baking enterprise, where she bakes cakes and scones in drum ovens – another Project-supported initiative – for sale in the local community and at the guesthouse. "By supporting one business, you support the others too," says Jukuli. "Business helps to build the community and this is what we need."

Cleaning-up Kaiam

During recent years, the population of Kaiam has grown. With more people in communal areas like the marketplace, there has been a steady increase in rubbish and it has become increasingly problematic.

Rubbish in the Kaiam marketplace prior to clean up

Twenty volunteers from Kaiam community in the Omati region decided it was time to clean things up.

Initiated by the Onshore Pipeline contractor and with support from the Project's Rapid Implementation Project program, the 'Clean-up Kaiam' project began.

Over two days, the 20 volunteers collected, separated, recycled and bagged rubbish in the marketplace to create a better environment for the whole community. Plastic rubbish bags were provided, as well as a vehicle to transport the rubbish for safe disposal. The response from the community was very positive and the women are determined to keep the marketplace clean.

"This kind of community project is good," says Thomas Kokents, Land and Community Affairs Officer in Kopi. "It shows we have respect for the environment and for the people," he said.

Volunteers in the 'Clean-up Kaiam' project

6 Compensation and Resettlement

The Project's approach to resettlement aims to give physically and economically displaced people the opportunity to, at a minimum, restore their livelihoods and standards of living. Livelihood restoration activities are carefully monitored and evaluated to ensure they are leading to planned outcomes.

6.1 Compensation

In the first quarter of each year during the construction phase of the Project, annual deprivation payments are made for land that is required for Project use. During this quarter, 34 deprivation payments were made in the region extending from Omati through to Komo, based on obligations under agreements made in 2011. All obligations under finalized compensation agreements have now been paid.

The Socioeconomic team continues working with clans and landowners to identify clan agents and finalize compensation agreements for initial damage, surface damage, and annual deprivation payments, which will include 2012. During this quarter, a compensation agreement was achieved and payment made for the Juni Construction Training Facility. Additionally, the eighth Komo Airfield clan (out of 11) finalized their clan agency agreement, and compensation will be paid in April 2012.

Compensation negotiations continue at the HGCP site, with clans still rejecting their statutory compensation package as determined with reference to values published by the Valuer-General, as prescribed in the *Oil and Gas Act 1998*. Further meetings are planned with clan leaders early in the second quarter 2012 with the aim of reaching a voluntary agreement. Meanwhile, land demarcation and negotiations with landowners for quarry sites, spoil stockpile sites and the Hides Waste Management Facility continue, with compensation to these landowners planned for mid-2012.

In the Upstream South area, one additional clan agency agreement was reached and compensation paid for a 3-kilometre section of the pipeline ROW near Kopi. Additionally, eight clan agency agreements were signed for 30 kilometres of the pipeline ROW from the Mubi River to Tamadigi. This compensation will be paid later in the year when pipeline construction is completed in the area. Compensation for approximately 20 percent of the pipeline ROW has now been paid, including 2012 annual deprivation payments. Another 55 kilometres of pipeline ROW in the areas of Gobi and Kopi are under land ownership dispute, preventing compensation payments. Compensation for this area will be paid upon settlement of these disputes, which are not impeding construction access to the land.

6.2 Resettlement

The primary focus areas for resettlement activities this quarter were securing land access for sections of the onshore pipeline, livelihood restoration for impacted communities, and monitoring physically and economically displaced households.

Activities were curtailed this quarter for a number of reasons including the landslide that restricted access to the Hides/Komo area for a month and a work stoppage at Hides Quarry 4.

The Project's Livelihood Restoration Program continues evaluating the needs of local communities and finding new and resourceful ways of ensuring food security in the Project impact area. Breeding of livestock is proving to be a viable option for income generation and food supply in the Hides and Komo areas. Landowners are being offered introductory training on animal husbandry in addition to ongoing training in agricultural production skills (temperate vegetables and citrus fruits), food processing and household nutrition.

Despite significant efforts communicating the cut-off dates for the census and survey of structures and gardens, some landowners continue building speculative structures and planting gardens in an attempt to claim resettlement compensation. Walkthroughs and additional awareness sessions are being held with communities to further reinforce requirements and expectations.

6.2.1 Milestones and progress

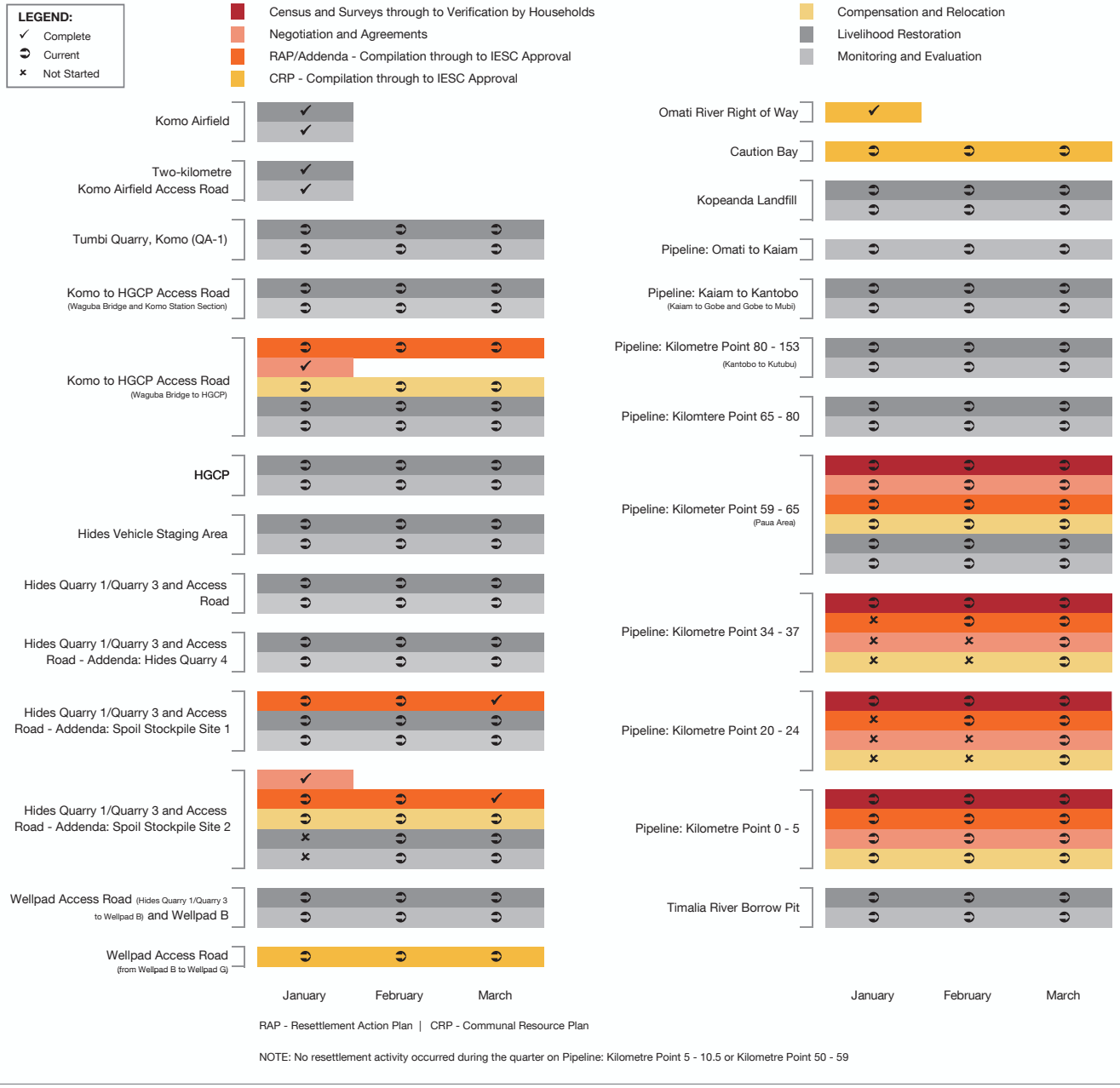
During this quarter, resettlement activities had a particular emphasis on the onshore pipeline, with teams spread across multiple work fronts along the proposed pipeline ROW in the Paua, Benaria and Awatangi areas.

Resettlement milestones achieved include:

- Completing Communal Resource Plans for construction camps at Kilometre Point 4.5 and at Kilometre Point 24.5.
- Providing land access for the pipeline ROW from Kilometre Point 65 to 80.
- Establishing a designated team for monitoring vulnerable households and individuals.
- Continuing resettlement activities along the pipeline ROW in the Paua area (Kilometre Point 59 to 65), as well as areas designated for a laydown area and a quarry.
- Commencing census and survey activities for Kilometre Point 20 to 24 and Kilometre Point 34 to 37.

Figure 6.1 provides an overview of the status of key resettlement activities during the quarter.

Figure 6.1 – Status of key resettlement activities



RAP - Resettlement Action Plan | CRP - Communal Resource Plan

NOTE: No resettlement activity occurred during the quarter on Pipeline: Kilometre Point 5 - 10.5 or Kilometre Point 50 - 59

6.2.2 Highlights, achievements and lessons learned

The following key activities took place during this quarter.

Komo Airfield and HGCP: All monitoring and evaluation of resettled households and gardens was completed.

Pipeline camps and components: Garden and household surveys continued for the Paua area (Kilometre Point 59 to 65). Meanwhile, resettlement activities for the onshore pipeline commenced for Kilometre Point 34 to 37 and Kilometre Point 20 to 24. A census of households and surveys of gardens from Kilometre Point 0 to 5 continued.

Spoil stockpile sites and logistics routes: Compensation was paid to landowners for spoil stockpile sites along Hides Quarry Road; and households and gardens were resettled.

Resettlement activities continued along the road from Komo to Hides.

Monitoring of vulnerable individuals: An assessment team for vulnerable persons and a designated coordinator were engaged specifically to monitor 'at-risk' resettled individuals or groups, who, by virtue of gender, ethnicity, age, physical or mental disability, economic disadvantage or social status may be more affected by displacement than others and/or limited by an inability to claim resettlement assistance. This team has also been verifying claims and assigning a priority for assistance to individuals, depending on their status and whether they have met criteria that classify an individual as vulnerable.

By the end of the quarter, temporary houses, including water collection structures, were built for two vulnerable individuals, and the construction of a further two permanent houses has been prioritized by the Project.

Monitoring of these vulnerable resettled individuals will continue.

Livelihood restoration: A range of activities were also undertaken regarding livelihood restoration this quarter:

- Planning commenced for livelihood restoration activities in the Homa and Paua areas (Kilometre Point 50 to 65).
- Demand for livestock as a source of income generation continues growing, and additional suppliers are being evaluated. Following basic animal husbandry training conducted at the Project-established Komo Livestock Demonstration Centre, animals were distributed to households.
- On-site, one-on-one training covering vegetable production and breeding of ducks and chickens was conducted with vulnerable households.
- Monitoring of food supply for vulnerable (at-risk) households was a key focus, which will continue in the future.
- Introductory training on poultry and vegetable management was conducted with various landowners from the Hides and Komo areas.
- 'Farmer Fact Sheets' were developed as a way of providing farmers with simple notes on soil management and production for various crop types. These will be printed and distributed to the local communities in subsequent quarters.
- More than 220,000 grams of peanut seeds, 9,000 sweet potato seedlings, various other types of local seedlings and 137 chickens and ducks were distributed in the Hides and Komo areas.

Resettlement housing and water structures: Four replacement houses were completed for resettled households in the Hides and Komo areas and four more houses are planned for the second quarter 2012. In addition, two communal water structures were constructed and additional sites identified.

Poultry program promotes livelihood restoration

Ducks and chickens are being introduced as a component of the Livelihood Restoration Program in the Hides and Komo areas. Ducks and chickens are an important livelihood asset of rural households and there is high demand for quality animals. Their short breeding cycle, adaptability to local conditions and low management systems make them ideal animals for rural families.

Resettled households are being provided with training, technical advisory services and initial breeding stock as a means of diversifying their food security options during the resettlement phase. The interest and participation of resettled households and the broader community in poultry activities is very high.

One challenge is sourcing quality breeding stock as supply is low and local demand across the Highlands region means high prices for animals. To address this, the Project is accelerating the production and supply of ducks and chickens through local, small enterprise development models in the Hides and Komo areas. These efforts are designed to promote small enterprise development and participation in economically viable livestock farming in a way that helps develop the local economy and enhance peoples' livelihoods and food security. The Project is also developing the capacity of local ducks and chicken breeding units to produce young animals for sale to resettled households and the wider community.

In addition to the economic benefits, it is anticipated that the wider availability of eggs and meat will improve the diet of local families.

Ducks and ducklings supplied as part of the poultry program

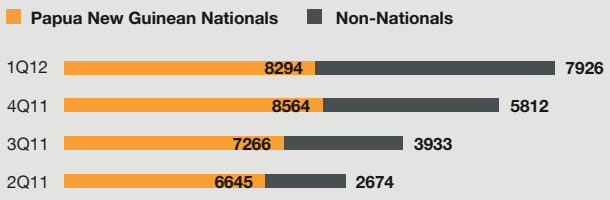
7 Workforce

Providing employment and training opportunities to Papua New Guinean citizens, and developing the skills of its workforce to meet the demands of construction activities is a key principle of the Project's National Content Plan.

7.1 Development

As work at the HGCP and the LNG plant site ramps-up, workforce numbers are increasing. More than 16,200 people are now engaged in the Project workforce, as shown in Figure 7.1. Over 70 percent of the Papua New Guinean nationals were employed through Lancos.

Figure 7.1 – Project workforce numbers



At the LNG plant site, employment numbers for specialized non-nationals increased, resulting in a decrease in the ratio of nationals as a component of the total workforce this quarter. This trend at the LNG plant site will continue as more complex and specialized skills are required to complete the more technical aspects of the LNG Plant. As demobilization by the Upstream Infrastructure contractor continues, the overall ratio of Papua New Guinean nationals is decreasing in this area as well. However, the Project's total workforce increased by nearly 13 percent compared to the fourth quarter 2011. Approximately 1,100 women are now employed by the Project, of whom 93 percent are Papua New Guinean citizens.

7.2 Workforce training

The Project continues developing the skills of the national workforce through a wide range of training programs including on-the-job, in-house and formal training.

7.2.1 Construction training

To date, more than 8,500 Papua New Guinean citizens have been trained for both construction and operation roles across all Project sites. Over 164,000 training hours were delivered in this quarter alone, bringing the Project's total training hours to more than one million to date. This has been achieved through more than 4,160 courses, 914 of which were provided this quarter.

Project provided training

Training provided by the Project includes the Production Operations and Maintenance training program and the Australian Quality Training Framework training at both the Port Moresby Construction Training Facility and Juni Construction Training Facility.

Some courses are mandatory and continue being provided to all Project workers. For example, courses have been delivered in areas such as SSHE, construction, cultural awareness, camp maintenance and catering.

Safety remains a top priority throughout all Project activities. While helping to protect the safety of the Project's workforce, the safety training provided is also transferable to many other activities. Some examples of safety skills that Project workers achieved this quarter included: loss prevention, job safety analysis, observation and interaction, basic fire-fighting, working at heights and first aid.

Contractor provided training

During the quarter, the engineering graduates sponsored by the LNG Plant and Marine Facilities contractor returned from their 12-month training program in Yokohama, Japan. These graduates are now gaining on-the-job training in instrumentation, mechanical and electrical engineering, piping, project control and quality control at the LNG plant site.

Plate 7.1 – Engineering graduates upon return to Papua New Guinea

While the training provided by the Project's construction contractors is directly relevant to their construction activities, it is also providing workers with transferable skills which they can use to help them obtain work after demobilization. In addition to engineering, some of the transferable skills provided through on-the-job training include: driving, electrical and instrumentation, mechanical and piping, painting and insulation, catering and housekeeping, and office administration.

The Project's construction contractors are also preparing young Papua New Guinean citizens for longer-term job opportunities within the Project and for employment elsewhere in Papua New Guinea and abroad.

For example, the Offshore Pipeline contractor is sponsoring 38 Papua New Guinean citizens to participate in a welding, plumbing, refrigeration/air conditioning and carpentry trade

training course through the Works Institute of Technology, which includes on-the-job training with Papua New Guinean businesses. The trade apprentice trainees were also funded by the Offshore Pipeline contractor to refurbish Works Institute of Technology classrooms and sleeping quarters to give them additional on-the-job experience. The trainees have also completed levels 1 and 2 of their training course and are completing level 3 over the next two quarters. Once they complete this, they will undertake the National Apprentice Trade Test to qualify as a Level 1 Tradesperson.

Plate 7.2 – Trade apprentice trainees sponsored by the Offshore Pipeline contractor

7.2.2 Contractor workforce training

The first intake of trainees at the Juni Construction Training Facility graduated in March with an Australian Quality Training Framework standard Certificate II in General Construction and Civil Construction. Meanwhile, the second intake of 20 trainees commenced their training program in January. The Juni Construction Training Facility will have four intakes of 20 students in 2012.

Plate 7.3 – Second intake of trainees at the Juni Construction Training Facility

At the Port Moresby Construction Training Facility, more than 1,600 graduates, of whom 30 percent are female, have completed basic skills and safety training to assist with the construction of the LNG plant site. Figure 7.2 illustrates the skill sets that the graduates achieved.

Juni Construction Training Facility sees its first graduates

The first 14 students have graduated from Juni Construction Training Facility after undergoing 12 weeks of basic construction training. The training is part of the Project's commitment to build capacity within local communities so that they can participate in Project construction activities.

A key component of the training provided is the importance of safety in both the workplace and at home. "The Project is committed to conducting business in a manner that protects and promotes the safety and health of our employees and the communities where we work," says Alan Clark, Project Manager, Hides Gas Conditioning Plant and Hides Wellpads contractor during his address to the new graduates.

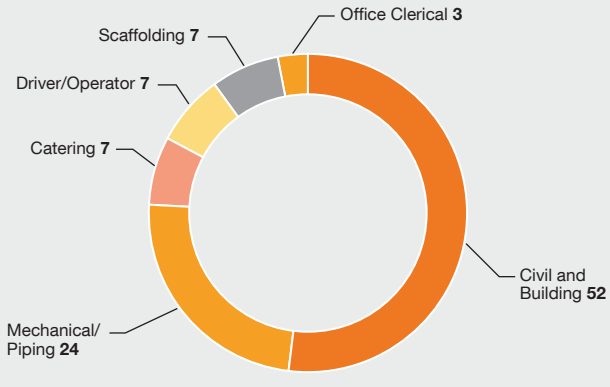
The graduates will now put their skills into action by starting work on the HGCP site. Graduate Sen Paro is excited: "No one in my family has had this kind of training before and I will represent my clansmen and my family in the work I do," he says. "I will help to carry my family into the future."

It is also a proud day for Chief Albert Jakaneko, who was instrumental in identifying the students from the area. "The Project has given us skills of an international standard and I am very proud of my people," he says. "They will carry these skills with them throughout life."

More training will take place at the Juni Construction Training Facility as part of an ongoing program to build capacity in local communities. This will include Certificate Level II in General Construction and Certificate Level II in Civil Construction. Both courses take three months to complete and four intakes of 20 trainees are anticipated for 2012.

The first successful graduates from Juni Construction Training Facility

Figure 7.2 – Percentage of graduate skill areas by skill set



The skills and knowledge of these graduates are assessed as part of the Technical and Further Education (TAFE) Australia requirements to enable them to qualify for the Certificate I in Resources and Infrastructure Operations, which is recognized worldwide. Over 300 graduates have attained their Certificate I in Resources and Infrastructure Operations to date.

7.2.3 Graduate programs

Esso Highlands Limited recruited ten Papua New Guinean graduate engineers in February, three of whom were part of the Project's 2011 graduate training program. Four of these have joined various teams including the SSHE team in Port Moresby, the Global Real Estate and Facilities team, and Mobil Oil New Guinea. The other six have joined ExxonMobil's graduate engineering program in Melbourne, Australia and will work alongside the first six graduate engineers from the 2011 program.

In addition, two drilling engineers continue gaining valuable experience and mentorship from experienced engineers with an ExxonMobil Australian affiliate in Melbourne.

7.2.4 Operations and Maintenance training

In January, the first intake of Operations and Maintenance trainees left for Nova Scotia, Canada to undergo one year of Advanced Skills training. These trainees have been assigned to their preferred discipline in production operations or one of the maintenance trades – mechanical, electrical or instrumentation. At the end of 2012 they will return to Papua New Guinea to complete the final phase of their program, which involves on-the-job training for their specific discipline.

The second intake of 76 Operations and Maintenance trainees, of whom 20 are women, are undergoing the Foundation Skills Program and Basic Skills Training Program at the Production Operations Training Centre in Port Moresby. Fifteen of these trainees were part of the Esso Highlands Limited Intern Program in 2011.

Intern Program testimonials

Belinda Gurra, 2011 intern now contracted in the role of Issues and Grievance Interface

"I have never taken safety seriously, but it is as important as anything you do."

"Working in a multi-cultural environment I have learned various things, especially through training, coaching and mentoring from experienced professionals. This has motivated me to learn more on how to see things from different perspectives."

Diari Mapiso, 2010 intern who is contracted as a National Content Analyst/Planner

"The very key thing that I picked up from the Company is safety – the safety culture that ExxonMobil has. It's just safety every day… That made me realize that safety is a value of life."

"We have very good mentors….They are like our trusted guide, coach, good listener, encourager and are a role model to us."

Based on the positive experience with the first intake, this 18-month program has been reduced to a 12-month program. Upon completion of their training, trainees are deployed into their preferred disciplines in either production operations or one of the maintenance trades.

Twenty of the applicants who missed out on the 2012 intake of Operations and Maintenance trainees have taken up positions in the Esso Highlands Limited Intern Program for 2012. Meanwhile, 22 interns from the 2011 Intern Program now have assignments on the Project.

Plate 7.4 – The second intake of Operations and Maintenance trainees

Plate 7.5 – Operations and Maintenance trainees from the first intake working in Canada

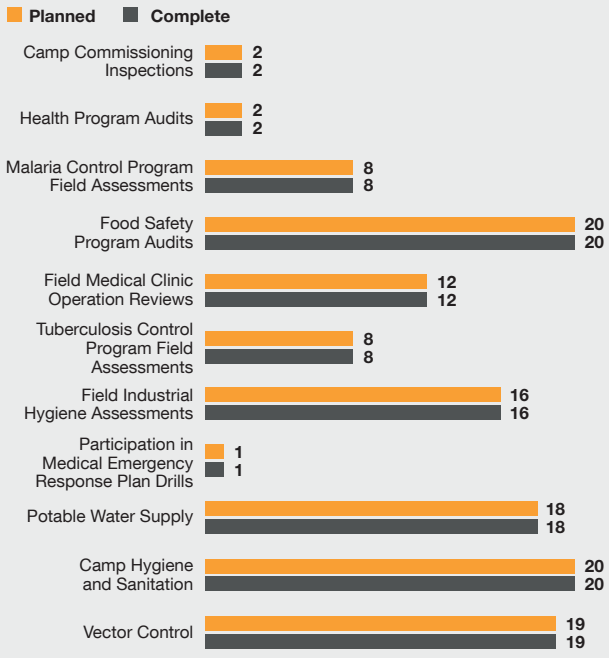
7.3 Health management

Ongoing health assessment monitoring continues delivering leading indicators that help focus health services and identify priority areas of need across the Project. This quarter, the Project focused on clinical health delivery, emergency medical response and further integration of health advisors into field construction sites.

Improvements across all areas of the health program were achieved this quarter, as indicated by improved results in all assessments. This included continued improvements in diagnostic testing for malaria and tuberculosis as well as streamlined laboratory pathways.

Figure 7.3 illustrates the Health team's activities during the quarter.

Figure 7.3 –Number of planned and completed health activities during this quarter



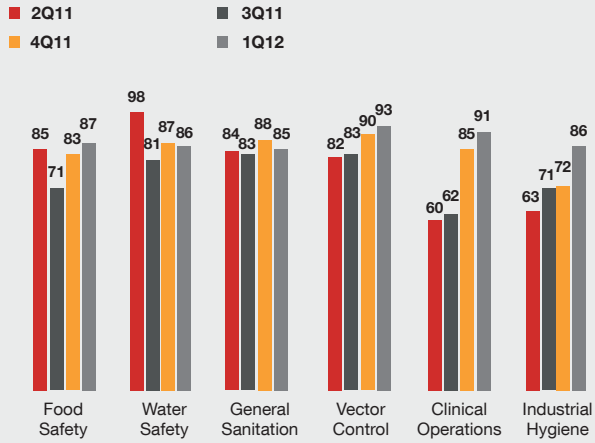
7.3.1 Camp and contractor health support

Personnel mobilization continued increasing across Project worksites along the onshore pipeline in the Highlands area, in offshore pipeline areas and at the LNG plant site. In addition to managing the increased population in worker camps, there were logistical challenges impacting food quality. These related to the continual movement of construction activities and camps along the onshore pipeline into new and more difficult terrain, inclement weather and other environmental events. However, the Health team was able to use some of the camps in the area as operational hubs, providing assistance with water, medical and food supplies. The Health team also helped deliver essential medical supplies to a community clinic in the Highlands that was affected by the Tumbi landslide.

Health assessments conducted during this quarter focused on tuberculosis and malaria control programs; clinics; food and potable water safety; vector control; camp hygiene and sanitation; and camp industrial hygiene across the Project. Results showed an improvement across all areas from the previous quarter as shown in Figure 7.4.

As the Project workforce reaches its peak, there is a strong focus on aligning current health systems and services with available services to meet the health needs of the expanding worker population.

Figure 7.4 – Percentage of camp adherence to Project specifications by health category



7.3.2 Leading and lagging indicators

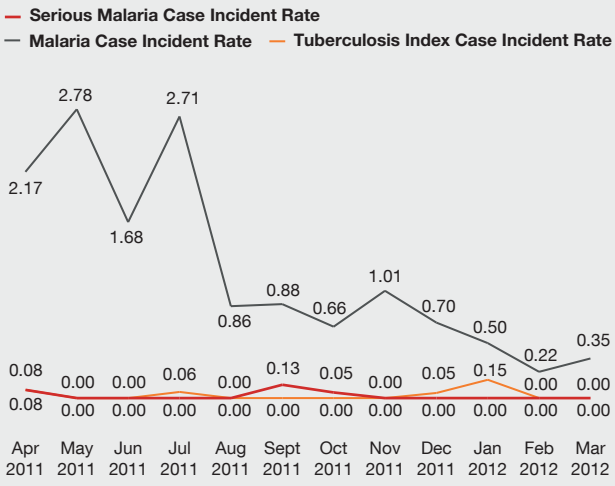
Leading indicators are those, where the Project is proactively managing worker health, for example, the Malaria Control Program measures essential program components that must be in place, such as mosquito bite prevention measures. Lagging indicators are actual cases of illness that are tracked to confirm the effectiveness of control programs. The Project tracks actual malaria cases that occur during the Project in order to evaluate the effectiveness of the Malaria Control Program. This section covers both leading and lagging indicators for Project health criteria.

Malaria and tuberculosis

The Project recorded no confirmed cases of serious malaria (includes both non-immune and semi-immune personnel) or tuberculosis (resulting from on-site transmission) this quarter. Malaria cases involving semi-immune personnel show an overall reduction from the previous quarter and a consistent downward trend. There were three confirmed cases of community-acquired tuberculosis during this quarter. Each of these tuberculosis cases were diagnosed by Project clinical services then isolated to receive treatment and to protect other personnel.

Malaria and tuberculosis incident trends for the year-to-date are shown in Figure 7.5.

Figure 7.5 – Malaria and tuberculosis case incident rates per 200,000 work hours



NOTE: Tuberculosis cases have undergone re-classification as either Index cases (community acquired from outside camp or worksite) or Serious Illness Event cases (a confirmed tuberculosis case acquired from someone within a camp or worksite). This Figure shows the incident rate for tuberculosis Index cases only as there were zero Serious Illness Event cases for tuberculosis within this period.

Health incidents included in the PNG LNG Quarterly Environmental and Social Report are based on the best information available at the time of publication. Health incidents are subject to an investigative process and this sometimes leads to incidents being re-categorized or an illness confirmed, following a detailed investigation, after the Report has been released. This means that the number of incidents reported against a particular category may increase or decrease between one Report and the next.

Malaria

This quarter, the Project sponsored a World Health Organization Grade 1 specialist to conduct technical training in reading malaria slides and assess the Project and selected Papua New Guinean community health laboratories for World Health Organization accreditation. In addition, the Project provided training to clinical staff on preparing and reading blood slides in support of the standardized diagnostic system introduced in the fourth quarter 2011. The Project also invited community health organizations to participate in this training.

Compliance with the Malaria Chemoprophylaxis Compliance Control Program for non-immune workers remains steady, with the non-detect rate[2] of 0.41 percent for the first quarter. This is a slight improvement from the rate of 0.54 percent recorded in the previous quarter.

Tuberculosis

A review of the classification of the tuberculosis cases reported on the Project was completed by Esso Highlands Limited, resulting in re-classification of cases into two categories:

- Index cases: community-acquired cases.
- Serious Illness Event cases: resulting from exposure to an Index case in a camp or worksite. This definition focuses on cases where worksite transmission has occurred.

Following this change, all tuberculosis cases on the Project-to-date were re-classified into one of the two new categories. The re-classification, combined with a review of the diagnostic results for all cases, resulted in a revision to previously reported tuberculosis cases from 19 to 5 Index cases and zero Serious Illness Event cases for 2011. This re-classification creates a greater understanding of the risk profile of tuberculosis on the Project, and helps to evaluate the efficacy of the Tuberculosis Control Program, while ensuring all cases are managed appropriately.

There was a strong focus on improving tuberculosis diagnostics during this quarter, in response to the challenges of diagnostic confirmation, especially in remote areas. The Project continues working with health providers to explore options to support accurate and timely confirmation of suspected tuberculosis cases, such as investing in diagnostic technology in Project clinics. Improved diagnostic capabilities will differentiate between those who are infected with tuberculosis (have the disease) and those who are infectious (have the disease and could transmit the disease to others), which is a key factor in the Tuberculosis Control Program.

Improving malaria prevention with new technologies

Esso Highlands Limited, in partnership with other stakeholders, has supported a newly developed field test for malaria chemoprophylaxis compliance. Tetrapal® is a rapid diagnostic test that is easy to use in field settings to detect malaria chemoprophylaxis compliance. The kits will provide results on chemoprophylaxis use within ten minutes, allowing much earlier counseling for improved compliance and reducing the probability of malaria occurrence among non-immune personnel.

Tetrapal® malaria chemoprophylaxis compliance test kit

This diagnostic tool was launched in two Project sites this quarter and will be deployed across the Project during the third quarter 2012.

Food and water safety

Food and potable water safety remain a high priority in camps and on vessels, and the Project continues its assessments of all camp and offshore pipe lay vessel food, and potable water safety systems. There was also a strong focus on food quality this quarter. The Project worked with contractors and caterers to improve previously identified issues of limited kitchen staff supervision, logistics and the vaccination of food handlers.

2 A non-detect means chemoprophylaxis is not detected during testing.

Improvements were made through an increase in the number of key supervisory staff, the addition of a warehouse for improved food storage in the Highlands, and worker adherence to vaccination requirements, which are reflected in improved health assessment results.

With regard to potable water safety controls, the Project is working to resolve ongoing challenges in the logistics and transport of water samples for testing.

Camp hygiene and sanitation

Ventilation, air quality and infection control continue to be monitored through camp and vessel hygiene and sanitation assessment programs. Contractors are responding to identified issues by conducting air quality assessments and developing solutions to reduce the risk of respiratory illness. Solutions include increasing ventilation as well as maintaining and cleaning air-conditioning units. During this quarter, concerns were raised about hot water not reaching adequate temperatures for disinfecting laundry and dishes. The Health team is monitoring these and other hygiene and sanitation issues, and liaising with contractors to address health-related concerns that may arise.

In the meantime, camp hygiene assessments have identified improvement opportunities in procedures and training in infection control measures, including cleaning and disinfection, procedures for contaminated laundry and control of blood-borne pathogens. Implementation of these procedures reduces the likelihood of transmission of illness within high-density shared accommodation.

Vector control

Heavy seasonal rains during the quarter increased the potential for mosquito breeding and the risk of transmission of vector-borne diseases across the Project. Vector surveillance by contractors indicated an increase in the prevalence of adult mosquitoes across the Project; however, overall numbers of vector mosquitoes remained low despite the weather.

Clinical operations

Logistics associated with providing medical care and emergency response in remote and difficult to access areas remains a challenge as the Project workforce expands. Ongoing assessment of clinical operations and improved diagnostics, laboratory and referral pathways, especially in the field, is helping to meet these challenges. The addition of two operations managers by the medical provider (one in the Northern Highlands and one in the Southern Highlands) has contributed to improved clinical governance in these areas.

The Project continues working towards integrating multiple site and contractor clinical operations in the Hides area, with full integration expected in the second quarter 2012.

Industrial hygiene

Improvements were observed in industrial hygiene practices around camps for the storage of hazardous chemicals. However, health audits identified a need to improve exposure risk assessments for tasks requiring respiratory protection. The Health team is assisting contractors with task-specific exposure assessment criteria. Several sites with identified exposures that require respiratory protection also showed improvement opportunities in procedures on fit-testing and cartridge replacement. The need for specifying task-related hearing protection in camp settings was also identified as an area for improvement.

General illness events

Project-wide, there was an outbreak of chickenpox, resulting in 24 cases with another two cases unrelated to the outbreak. Rapid containment response by the Project prevented further infectious disease cases and minimized the impact on personnel and productivity.

Cases of infectious disease, including the chickenpox outbreak and tuberculosis, reinforce the health risks and challenges associated with a large multi-national workforce. This quarter the Health team worked to identify and close gaps in diagnostic capabilities and pre-employment vaccinations, highlighting potential health risks to Project personnel.

Medevacs and medical transfers

During the quarter there were 21 medevacs, with 16 related to personal health issues and three related to community support. Two medevacs were work related.

Medical transfer and referral activity increased in line with workforce expansion, with 130 transfers and referrals reported during the quarter. This compares with 87 recorded in the previous quarter. Approximately 85 percent of the medical transfer and referral activity originated from the LNG plant site, which has the largest workforce on the Project. Of the 130 transfers and referrals, 122 were for personal health issues and eight were work related.

Improvements in the efficiency of medevac and medical transfers have been observed across the Project and the Health team continues working with contractors and medical providers to meet the Project's emergency medical needs.

7.3.3 Other strategic initiatives

This quarter, the Project's strategic initiatives included tuberculosis awareness and screening of the workforce, along with recognition of World Tuberculosis Day on March 24. Infectious diseases can spread quickly and easily in settings where people live in close quarters, impacting the health of workers and resulting in disruptions to operations.

Plate 7.6 – Peter Graham, Managing Director; Dr. Moses Lester, Deputy Manager Occupational Health; and Decie Autin, Project Executive, Esso Highlands Limited promoting World Tuberculosis Day

Plate 7.7 – Decie Autin, Project Executive, Esso Highlands Limited awarding the 2011 Annual Project Executive SSHE Award to the Upstream Infrastructure contractor team

Following a gap analysis to assess contractors for their preparedness to manage an infectious disease outbreak, the Health team implemented a new Infectious Disease Outbreak Management program. This program aims to prevent, detect and rapidly interrupt an outbreak of infectious disease in camps and other remote settings. Building on the ExxonMobil global practice for outbreak management, it includes a Project-specific toolkit, which provides practical guidance to managers.

7.4 Safety management

Regrettably, the Project experienced a fatality this quarter when a contractor worker supporting quarry operations was struck by a front-end loader. The Project expresses deepest sympathies to the family, friends and fellow workers of our team member. An investigation team was mobilized and the appropriate authorities notified. Various Project-wide measures and initiatives have been implemented in an effort to prevent a similar recurrence.

A notable safety initiative conducted during the quarter was a safety leadership workshop with all major construction contractors to reflect on the achievements and challenges of 2011, review 2012 focus areas and share learnings. At this workshop, the Upstream Infrastructure contractor, Clough Curtain Brothers Joint Venture, received the Annual Project Executive SSHE Award. The objective of this award is to provide opportunities for nominated contractors to showcase their achievements over the past year and share learnings and best practices among all the teams.

Contractors are eligible for this Award if nominated for outstanding performance in areas such as:

- Management commitment and leadership.
- Worker involvement.
- SSHE competency/training.
- Incident prevention.
- Performance in both leading and lagging indicators.

The recipient contractor, who achieved over ten million work hours Lost Time Incident free, was recognized for excellence in worker involvement in safety, effective subcontractor management and collaboration and teamwork.

Prior to the workshop, special guest speaker Mal Meninga, a renowned rugby league player and coach, conducted site visits to the Project areas to discuss safety leadership with Project teams. He was accompanied by a group of graduates from the Safety Champions initiative, who helped communicate key messages to the workforce.

The Safety Champion initiative continues providing additional training and knowledge for first line workers who display safety leadership attributes so that they may assist their supervisors in promoting a safe workplace. Since its inception in September 2011, over 300 Safety Champions have completed the initial training, including 80 during this quarter. The five-day initial training course will be supplemented with additional coaching and mentoring in order to build upon the knowledge, skills and experiences of the Safety Champions, while enhancing relationships with their supervisors.

Plate 7.8 – Safety Champions

The Project has developed a set of 'life saving rules', which identify the most critical rules and behaviors that must be followed by workers to prevent fatal incidents. The program requires the 'life saving rules' to be fully communicated to workers to ensure they understand expectations. It includes a progressive coaching/discipline process, which is implemented if the 'life saving rules' aren't followed. The Project is working closely with its Socioeconomic team to communicate key messages to the workforce and the community and to ensure that the program is implemented in a culturally sensitive manner.

The Project has also developed a Leading Indicators for Higher Hazard Activities program to identify the most critical safety controls for preventing higher consequence incidents. Examples of higher hazard activities include confined space entry, excavation and work at heights. The program provides Project teams with a systematic means of measuring the effectiveness of the established safety controls for these types of critical activities.

7.4.1 Leading indicators

As illustrated in Figures 7.6 and 7.7, the Project is achieving an ongoing positive safety trend through core safety processes, such as Job Safety Analyses and Observation and Interactions.

Plate 7.9 – Komo Airfield team conducting a Job Safety Analysis

These processes increase safety awareness and engage workers in hazard management on a daily basis.

7.4.2 Lagging indicators

The Project's Total Recordable Incident Rate continues to improve (as shown in Figure 7.8), while the Lost Time Incident Rate has increased slightly. The Project's work hours continue to increase during ramp-up of the workforce (as shown in Figure 7.9).

Figure 7.6 – Number of Job Safety Analyses conducted by quarter[3]

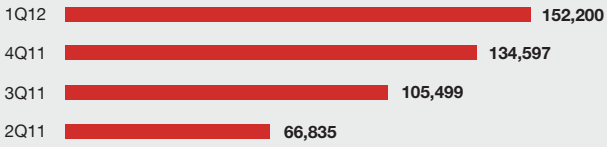


Figure 7.7 – Number of Observation and Interactions conducted by quarter[3]

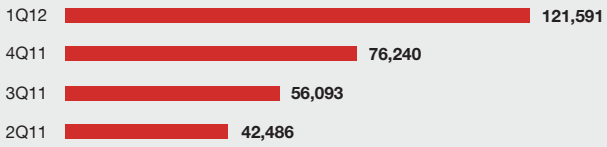


Figure 7.8 – Project incident rates by quarter[3]

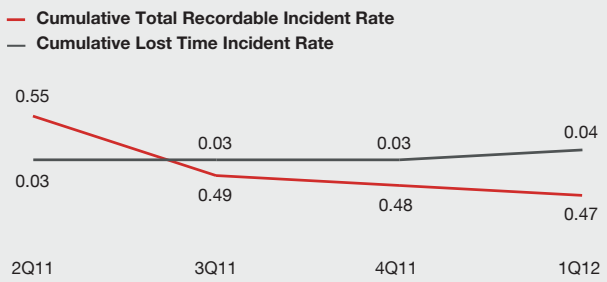
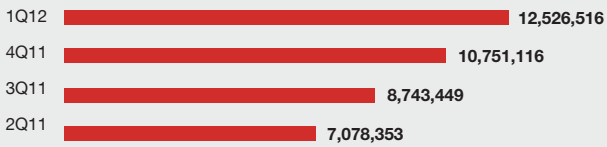


Figure 7.9 – Project work hours (Category 1) by quarter[3]



NOTE: Project-to-date work hours totalled 59,087,014.

7.5 Worker welfare and conditions

As the Project reaches peak employment, it aims to maintain acceptable worker living standards and a fair and equitable recruitment process.

3 Data adjustments may be reported by contractors after the Report is released, and as such safety data may be refined between one report and the next.

7.5.1 Camps

Ongoing mobilization and demobilization of camps is occurring along the onshore pipeline. During this quarter, Kopi Camp 1 was demobilized and Kaiam Camp 2 was in the process of being demobilized. At the same time, mobilization began at Tamadigi Camp 4, while construction of the Moro Camp 5 commenced.

Work on demobilizing the Komo Pioneer Camp continued as major facilities were relocated to the Komo Main Camp. At Komo, a Camp Facilities Management Committee was established and will meet monthly to address camp-related issues.

While undertaking demobilization activities at Komo, two container buildings that were no longer needed by the Project were donated to the Malanda Health Centre.

During this quarter, four camp monitoring events were conducted with one non-conformance recorded in relation to minimum space requirements. A risk assessment was undertaken and corrective actions have been identified, including management through the camp booking system.

7.5.2 Labor and worker conditions

A key component of delivering fair and equitable working conditions is the ability to enhance positive, productive and supportive work environments.

During this quarter, the Project identified an opportunity to provide a specific grievance process for female workers. Contractors across the Project are engaging senior women at each worksite to be available to listen to and manage grievances from female workers. This avenue provides a more confidential and culturally sensitive method for the female workforce to raise gender-specific issues with management.

In recognition of the Project's multi-national workforce, this quarter a bi-monthly publication of the *Plant Site Worker Bulletin*, specifically for non-nationals was established. This bulletin shares an update of construction activities, safety, health and social messaging for non-nationals. The bulletin is largely pictorial and uses accessible language to effectively communicate to a wide range of workers. The bulletin is distributed throughout workplace dining rooms and contractor notice boards, refer to *Case Study One – Keeping workers informed*.

Following the establishment of the LNG Plant and Marine Facilities contractor's National Workforce Committee in the third quarter 2011, this employee relations group has been engaging with subcontractors and the Papua New Guinean Department of Labour and Industrial Relations.

For example, National Superannuation Fund (NASFUND), the LNG Plant and Marine Facilities contractor and Laba Holdings Limited are now helping workers to make the most of their time by having the Fund collect information and deliver their membership cards at work. With these cards, members are able to access their savings account, as well as NASFUND benefits, including discounts on goods and services at various stores throughout Papua New Guinea.

The Community Issues Committee at Komo also continues to assist with managing cultural sensitivities on the recruitment and completion of contracts for people hired locally. The Committee meets regularly and consists of 28 member representatives from the 11 clans in the Komo Airfield area.

PNG LNG

Plant Site Worker Bulletin

29 February 2012

CJJV

The many benefits of working safely

After CCC's toolbox talk Feb. 17, management awarded three workers for their safety efforts. Shown here (from left) are Poh-sun Leong, EHL Construction Lead; Narciso Ilagan, Charge Hand Civil (award recipient); Tsutomu Terashima, CCJV Construction Manager; Ibrahim Hussein, Site Superintendent; Vivek Mohan Saxena, Senior HSE Supervisor; Balkar Singh, Steel Fixer (award recipient); Ashok Kumar Mason, Flagman (award recipient); and In Koon Goh, EHL Construction Supervisor.

A number of workers are finding out that their dedication to safety pays off in more ways than one.

During the management safety walkabout last month, the team began a new initiative that recognizes and rewards workers who go the extra mile to ensure safety in their environment.

How it works

During their weekly site review, management members from EHL, CJJV, and Sub-contractors complete a checklist of their observations. Along the way, they also make notes of those who are taking a lead role in the name of safety.

A good example is when a worker finds a hazard, corrects it, and shares what they've learned with their co-workers to alert them of the potential dangers.

People helping each other, completing O&I cards, and taking steps to eliminate hazards go a long way in preventing incidents and accidents.

At the end of the walkabout, management members meet to review their findings. Together they select the winners and reward them with telephone or internet cards.

While going home safely at the end of every day is the biggest reward we could all hope for, recognition for a job well done is another reminder of the many ways it pays to Think Safety.

Project launches Injury and Incident-Free (IIF) publication

Just out this week, the new IIF newsletter is posted in mess halls and buildings across the site. Our goal with this publication is to engage everyone in developing meaningful relationships with safety and each other.

Watch for the newsletter each month, as we highlight our commitment to safety as well as the latest news on the training and what to expect in the coming weeks.

If have any safety stories you want to share in an upcoming issue, please give it to your supervisor or drop it off in a suggestion box in your area.

Where in the world?

Tell us about where you live

Do you have stories you would like to share about your country?

For such a multi-national workforce, many of us know very little about other cultures and traditions. If you would like to share interesting facts (or photos) about where you live, we would love to hear from you. Please place your submissions in any suggestion box throughout the site. Be sure to include your full name and contact information (phone number or e-mail).

Plate 7.10 – First issue of the *Plant Site Worker Bulletin* for non-nationals

CASE STUDY ONE

Keeping workers informed

The LNG plant site is a huge operation. With more than 8,000 workers and 35 nationalities represented, communication is an essential part of ensuring that everything runs smoothly.

There is a lot that needs to be communicated and teams at the LNG plant site have developed a series of tools to help keep workers informed.

Workers at the LNG plant site reading the *Worker Bulletin*

First and foremost, there is verbal communication. There are morning toolbox talks that share important safety and task-related information and highlight the priorities for the day. There are also weekly management meetings between the Project, its contractors and subcontractors to align expectations and agree on priorities, while preventing and actioning issues.

Toolbox talk being conducted

To support workers having a voice, there is a monthly National Workforce Committee meeting at the LNG plant site as well. Every three months, representative national workers are elected to the Committee, inducted and taught basic meeting protocols. National Workforce Committee meetings are also attended by supervisors and contractor management, who discuss existing worker grievances and proactive measures to deal with site issues. Minutes are displayed on worksite notice boards, and worker representatives are given phone credit so they and other workers can communicate with management.

In terms of written communication, the *Worker Bulletin*, which is distributed three times a week, provides regular messages on safety, construction updates, management meetings and community activities. A fortnightly *Worker Bulletin* for non-nationals aims to create cultural awareness and a broader understanding of the different cultures of people working on-site through sharing personal stories.

In addition, 3,000 copies of the *Incident and Injury Free Newsletter* are distributed to workers and communities each month, communicating safety messages and experiences aimed at broadening awareness and creating a safer workplace.

Communities are also kept informed of worksite and broader Project initiatives through the *PNG LNG Plant Site Newsletter*, a four-page publication. With aspects of this also translated into Motu, this newsletter is distributed to workers on-site as well as to key points in the community, such as local government representatives, schools, churches and youth leaders. To date, the LNG Plant and Marine Facilities contractors' External Affairs team has distributed over 200,000 copies of Project-related communications.

All publications are available to workers in paper form, as well as placed at communal locations.

CASE STUDY ONE

Keeping workers informed

"I read this newsletter every issue," says Heau Heau as he sits back with the *Worker Bulletin* on his way home. Heau is a bricklayer from Porebada working at the LNG plant site. "It reminds us that we need to work together as a family. Just as we look after our own families, everyone working at the plant site needs to look after each other as a family."

LNG plant site worker, Heau Heau, reading his copy of the *Worker Bulletin*

The Project supplements scheduled, written information with additional alerts and updates as the need arises. For example, supervisors are warned via text message about the risks of heat stress on hot days, and reminded to ensure their teams take regular breaks and rehydrate. Targeted and special bulletins also go to workers and communities to inform them of 'big impact' events, such as heavy and wide hauls that may slow traffic, as well as to specific work groups on issues that relate only to them.

Another communication tactic that captures attention and builds team morale and workforce pride is radio shout-outs, whereby workers and staff are able to say hello to each other and request songs on FM radio stations.

Management committed to ongoing communication

Yow-Yeen Lee, Senior Project Manager, Esso Highlands Limited

"Our written communication does much more than just keep our teams informed. It is building and reinforcing a strong workforce culture, by helping us understand each other and the need to take care of our own and others' safety at all times as we work towards the Project's goals."

8 Conformance

The Project identifies and manages areas for improvement, as well as conformance with the environmental commitments, outlined in the ESMP, through a range of measures, including verification, monitoring, and assessment and audit systems. These measures enable the Project to identify and effectively manage areas for improvement and share successes and lessons learned across all worksites.

8.1 Verification

Members of the Project's Field Environmental team are located at contractor worksites, but operate independently providing an ongoing verification presence. Field Environmental team members are involved in daily checks, meetings, awareness raising workshops and training sessions with contractors. Field Environmental Advisors can raise non-conformances and field observations at any time. Formal weekly site reports including field observations and non-conformances are submitted and collated in the Project's Information Management System, which is used to identify areas requiring focus or support.

During this quarter, central databases for waste (refer to *Section 9.3 Waste management*) and water consumption (see *Section 11.1.1 Usage*) were developed, enabling the Field Environmental team to monitor and provide advice on target areas.

Each contractor also has a team of environmental staff, tailored to the specific needs of the contractor's activities. For example, during the quarter the Onshore Pipeline contractor employed a botanist to work in the field and a geotechnical engineer to assist with permanent erosion control and reinstatement.

At the LNG plant site, participants in the annual environmental internship program, conducted in partnership with the University of Papua New Guinea and the Pacific Adventist University, have been experiencing verification work in action. The three interns have assisted with environmental inspections, noise verification monitoring, water quality monitoring and waste incinerator verification monitoring, as well as the preparation of posters and presentations about environmental issues. The three interns have also nominated the research topics they will present at the end of the year – management of acid sulfate soils, waste management of the LNG plant site and accreditation under the Wildlife Habitat Council.

8.2 Monitoring

The Project's Environmental Verification and Monitoring Manual provides detailed procedures to communicate consistent monitoring methods across the Project, and is regularly updated to address identified issues and share lessons learned.

Contractors are also using their individual environmental management systems to meet the monitoring requirements of the ESMP and the Environmental Monitoring Plan.

Results of monitoring programs undertaken this quarter are outlined in the following sections.

8.3 Assessments and audits

Contractors compliment regular Project inspections and verifications with their own audits and assessments. For example, this quarter the Komo Airfield contractor audited weed management throughout the site, at laydown areas and at the Tamalia Quarry. Other audits and assessments included waste management, wastewater treatment plants, hazardous goods, cultural heritage, and erosion and sedimentation control.

Joint inspections are also undertaken with representatives from both the Project and contractors. For example, at the Onshore Pipeline contractors' worksites, nine joint visits were conducted focusing on reinstatement, hydrotesting, horizontal directional drilling activities and visual and landscaping aspects of the pipeline alignment.

The LNG Plant and Marine Facilities contractor completed a second oil spill response audit. This audit included inspection of all subcontractors' spill response kits and fuel/used oil storage facilities. Certificates of excellence were presented to three outstanding subcontractors by site management.

In March, the IESC conducted its sixth site audit, visiting worksites and meeting with Project workers and members of Project-impacted communities to monitor conformance with the Project's environmental and social commitments. The IESC findings will be published on the Project website once completed. The IESC has recently released the report from its fifth site visit, conducted in November 2011, which is available on the Project website.

Visit the Project website at
www.pnglng.com

8.4 Incidents, non-conformances and corrective action

8.4.1 Incident summary

There were no serious environmental incidents (greater than Severity Level 0), requiring notification to the IESC/ Lender Group or the Papua New Guinean Department of Environment and Conservation. However, there were 64 environmental incidents (less than Severity Level 0) reported. The reported incidents were primarily hydrocarbon spills, plus three wastewater spills and one stockpile slip.

All incidents were recorded and investigated to a level appropriate to their severity so that causal factors could be determined and corrected. Figure 8.1 illustrates incidents classified by severity, while Figure 8.2 groups incidents by their cause.

Figure 8.1 – Number of environmental incidents by severity level[4]

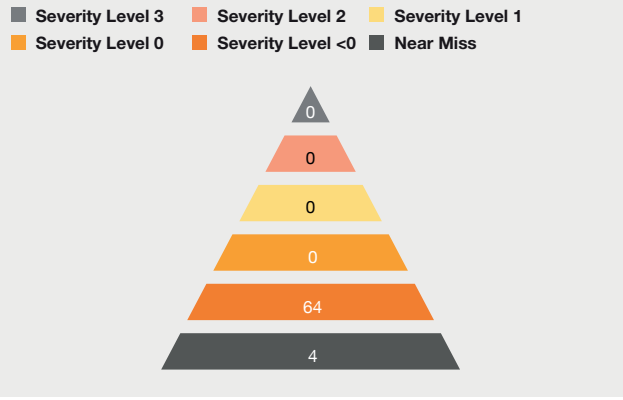
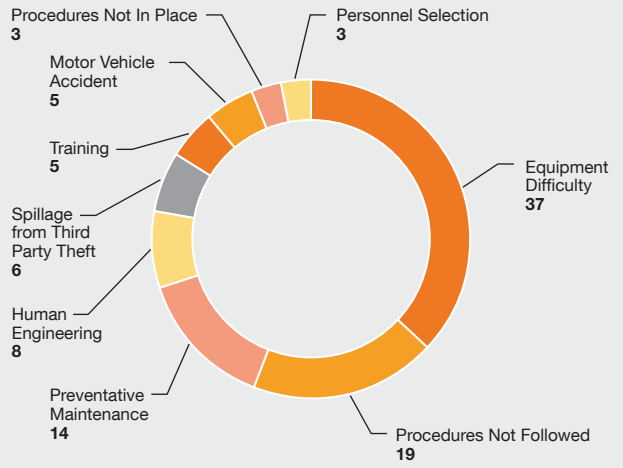


Figure 8.2 – Percentage of environmental incidents by causal factor[4]



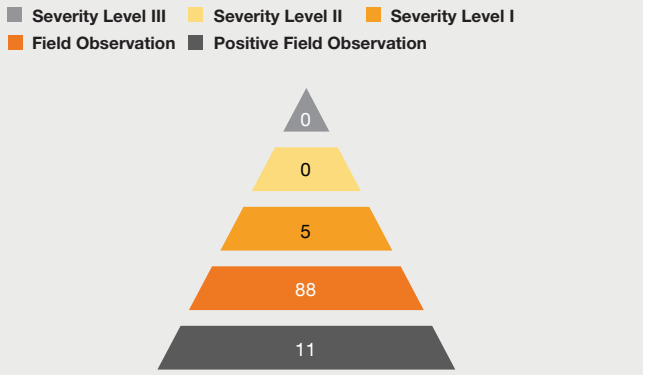
8.4.2 Non-conformance and field observation performance

Recording non-conformances and field observations is an integral part of ongoing environmental performance verification efforts. Field observations are a potential non-conformance situation where an observation, intervention and/or corrective action is required in order to prevent a non-conformance. A non-conformance is a situation that is not consistent with ESMP requirements.

This quarter, 88 field observations and five Level I non-conformances were raised. A summary of all non-conformances and field observations is outlined in Figure 8.3.

Also during this quarter, a total of 11 positive field observations were made. These related to spill prevention and waste management.

Figure 8.3 – Number of environmental non-conformances and field observations by severity level[4]

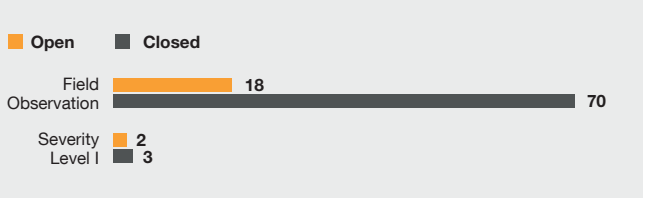


For example, the contractors working in the Hides area have been commended for their continued efforts in appropriately storing and handling wastes in anticipation of the Hides Waste Management Facility opening.

No Level II or Level III non-conformances were recorded this quarter. Working outside of approved boundary lines during clearing and waste management activities accounted for the Level I non-conformances raised. Company field environmental verification efforts have identified erosion and sediment control, water management, spill prevention and waste management as the main contributors to the field observations recorded.

The Project Field Environmental team is working closely with each major construction contractor to: proactively address areas identified as potential high risks; ensure contractors are focused on addressing field observations immediately; and proactively reduce the level of risk to prevent environmental incidents in the future. The closure status for non-conformances and field observations is shown in Figure 8.4.

Figure 8.4 – Number of environmental non-conformances and field observations by closure status[4]



4 Data adjustments may be reported by contractors after the Report is released, and as such safety data may be refined between one report and the next.

9 Pollution Prevention and Abatement

The Project aims to continuously improve environmental performance including recycling wherever possible across all activities.

9.1 Air emissions

Air emissions are generated from Project-related activities in the form of dust from exposed soils and equipment movement, incinerator operations, exhaust gas from machinery, and greenhouse gas emissions from fuel combustion. Persistent rainfall across much of the Project during this quarter negated the need for dust control in most areas, but water trucks were used as needed for dust suppression. Dust from earthwork stockpiles was managed through progressive reinstatement and revegetation where possible (see *Section 10.5 Reinstatement*).

Plate 9.1 – Water truck in action on the Hides Quarry Road

Efforts to minimize exhaust emissions through regular equipment maintenance continue, with records kept for all site-based equipment.

At the HGCP site, commissioning of the last planned construction waste incinerator was completed and the interim use of three drum burners discontinued. The new incinerators are used for perishable and non-hazardous wastes, and both are operating efficiently. Once a week, the incinerators are shut down as part of a regular maintenance program to clean burner nozzles, replace fuel filters and conduct an operational run check.

All incinerators used by the Onshore Pipeline contractor were reviewed by vendor representatives, and maintained as required. The Onshore Pipeline contractor is operating six incinerators that are distributed according to the changing capacity requirements of pipeline construction activities. For example, during this quarter, as activities around Kaiam Camp 2 were completed, one of the two incinerators from Kaiam Camp 2 was moved to Tamadigi Camp 4 as construction work moved further north.

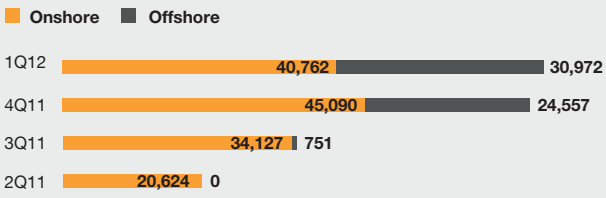
Greenhouse gas emissions rose in line with increasing construction activity, in particular, as fuel use in offshore marine works continued. Greenhouse gas emissions are calculated based on direct fuel use within the Project.

Indirect sources, such as purchased electricity, are not included. Marine operations use automotive diesel, so emission factors are lower than the heavier marine fuels typically used in shipping.

Meanwhile, the Project's onshore and aviation fuel use equated to a greenhouse gas emissions value of 40,762 tonnes of carbon dioxide equivalent. This quarter also recorded the third calculation of marine operations, contributing 30,972 tonnes of carbon dioxide equivalent. Marine operations peaked during the quarter with two offshore installation vessels and supporting vessels. Various marine works are expected to continue throughout 2012 but to a lesser extent, so it is anticipated that emissions will decline accordingly.

Figure 9.1 shows the increase of Project-related greenhouse gas emissions.

Figure 9.1 – Greenhouse gas emissions (tonnes of carbon dioxide equivalent) per quarter



NOTE: Emissions calculations are based on the Australian Government Department of Climate Change and Energy Efficiency, National Greenhouse Accounts Factors, July 2011.

Atmospheric air monitoring continued at the LNG plant site, with four designated areas monitored for sulfur dioxide and nitrogen dioxide in March. All sites were well below the air monitoring criteria levels adopted for the Project.

9.2 Noise and vibration

Noise monitoring is required near semi-permanent accommodation camps, while vibration monitoring of airblast overpressure is required where blasting is undertaken near sensitive noise receptors.

Verification monitoring was undertaken by the Project's Field Environmental team at Komo Main Camp, Timalia River Borrow Pit and throughout the LNG plant site this quarter. Readings confirmed that noise levels were within the Project's noise level guidelines.

Noise monitoring equipment is now available at key worksites. The Upstream Infrastructure contractors' Environmental team completed noise monitoring training, including a practical component to test set-up and monitoring procedures.

Project-wide, there were no unresolved noise grievances at the end of the quarter.

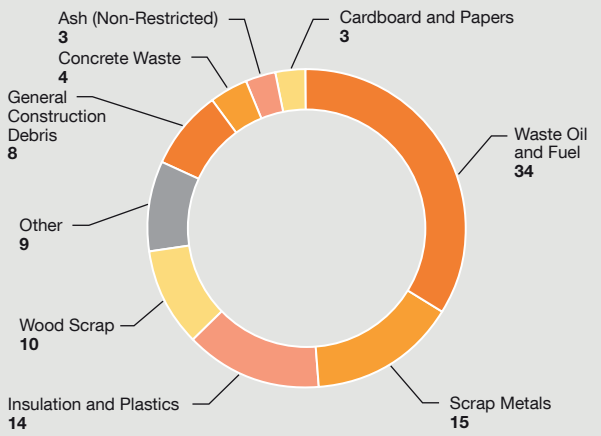
9.3 Waste management

Development of the Project-wide waste register was completed during this quarter. The register will be used to verify waste volumes, disposal methods and provide a comparison against waste projections.

Assessment of third party recycling and disposal companies progressed during this quarter, with detailed audits of hazardous waste facilities undertaken.

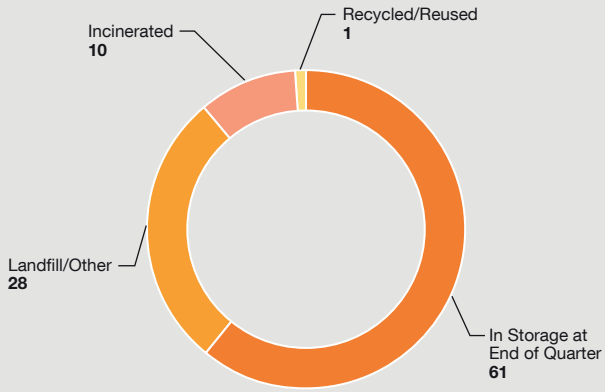
Project-related waste materials generated this quarter by weight were predominantly waste oils and fuel, scrap metals, insulation and plastics, wood scrap, and general construction debris as illustrated in Figure 9.2. Figure 9.3 illustrates disposal methods for solid waste during the quarter.

Figure 9.2 – Percentage of solid waste by type



NOTE: Waste types with values of two percent and under have been combined in the category of 'Other'.

Figure 9.3 – Percentage of waste by disposal method



At the Hides Waste Management Facility, construction of the first waste landfill cell, the leachate collection and treatment system and the site stormwater management pond was completed this quarter. A review was also conducted of all mobile equipment needed for landfill operations, while the Project began drafting a landfill operations manual. At the same time, fieldwork for baseline landfill groundwater monitoring was completed and an assessment of surface water and groundwater interfaces was undertaken to help define appropriate monitoring locations during landfill operations.

In addition, interface agreements were developed between the operator of the landfill and all other contractors to clearly define waste sorting, segregation and handling expectations and responsibilities for users of the Hides Waste Management Facility.

Meanwhile, the Hides Gas Conditioning Plant and Hides Wellpads contractor focused on operating the temporary waste management facility efficiently and maximizing storage space prior to the Hides Waste Management Facility being completed. Perishable, combustible and other specified waste is being incinerated to minimize storage time, while other waste is segregated and stored at the Waste Segregation Area for transport to the Hides Waste Management Facility.

Plate 9.2 – Hides Waste Management Facility nearing completion

Plate 9.3 – Litter collected during a housekeeping sweep

Sixteen workers from the Hides Gas Conditioning Plant and Hides Wellpads contractor undertook a housekeeping sweep of the HGCP site and local market area, collecting 53 bags of litter. With over 1,000 people working daily on the site, this initiative aimed to increase awareness of litter control not only at the worksite, but within the community as well.

Waste generated by the Offshore Pipeline contractor continues being disposed of largely at the LNG Plant Waste Management Facility. The Offshore Pipeline contractor segregates waste on-site or onboard vessels before delivering non-hazardous waste to the LNG Plant Waste Management Facility for disposal or recycling. Hazardous waste, such as contaminated oily rags, is transported out of Papua New Guinea for appropriate disposal.

The LNG Plant Waste Management Facility (including the landfill) is now processing waste from the LNG Plant and Marine Facilities contractor and the Offshore Pipeline contractor. Additional detail is provided in *Case Study Two – Managing waste responsibly*.

9.3.1 Wastewater

During this quarter, systematic verification of wastewater operations continued, with the Project conducting an in-depth review of measures to assist and support contractors with improving wastewater operations. Meanwhile, external consultants undertook a review of all Project wastewater and water monitoring (refer to *Section 11.1.2 Quality*), which resulted in action plans to improve performance where required. For example, logistical delays for transporting water samples to laboratories were resolved by increasing in-situ monitoring and analysis of real time indicators. This enables any decrease in plant performance to be quickly identified and managed. As a result, detailed action plans were prepared to improve performance where required. Verification of wastewater operations will continue into the second quarter 2012.

Plate 9.4 – Wastewater verification monitoring

In addition to Project and external monitoring, contractors are actively addressing wastewater treatment plant performance. For example, the Upstream Infrastructure contractor has overhauled all their wastewater treatment plants, including replacing the membrane filtration cartridges, adding inline filters to feed lines to prevent fouling of pumps, and cleaning out excess sludge. Treated effluent is discharged through a rubble pit and then filtered through vegetation. The contractor was also involved in site education on the impact of disposing of inappropriate wastes through the water treatment system.

During the quarter, monitoring by the Komo Airfield contractor detected elevated levels of fecal coliforms. In response, the wastewater treatment plant was completely desludged and chlorine dosage reviewed, which ensured the effluent met Project specifications.

The Onshore Pipeline contractor is monitoring worker camp numbers to check adequate wastewater treatment plant units are installed at each location. For example, a second unit was installed at Kopi Shore Base in response to the need for an additional facility.

In addition, the Onshore Pipeline contractor has assessed third party facilities to identify opportunities for improving environmental performance. Vendor representatives were employed to overhaul all transferred wastewater treatment plants as part of camp change management.

During this quarter, the Hides Gas Conditioning Plant and Hides Wellpads contractor instigated a process and hydraulic design check by their wastewater treatment plant vendor. Following the review, an extra 9,000-litre tank was installed to increase the peak flow storage capacity of the plant. This is expected to remedy water quality and balance tank overflow issues.

The water taskforce, established in the fourth quarter 2011 to address water-related construction impacts and community grievances, as well as to proactively identify Community Development Support projects, began working closely with contractors during this quarter. Contractor representatives are assisting the taskforce by conducting surface water in-situ testing and bacteriological counts in watercourses that may be impacted by Project-related activities.

9.4 Hazardous materials

The Project aims to avoid the use of hazardous materials, especially those that are subject to international bans or phase-outs. During this quarter, no materials subject to bans or phase-outs were reported to be on any Project site. The main activities conducted this quarter regarding hazardous materials included:

- Containment measures working successfully for the Offshore Pipeline contractor when pump equipment breakages led to three spills of polyurethane coating. All spills were contained onboard and pumps were modified to prevent reoccurrence.
- Outcomes of the Drilling Fluids Management Risk Assessment conducted in the fourth quarter 2011 are being integrated into the Drilling Foam Management Plan for use when drilling commences later in the year.
- Addressing the safe transport of chemicals as part of a Project-wide campaign on ground transport and the prevention of spills.

Plate 9.5 – SSHE Alert on spill prevention

Plate 9.6 – Ground transport spill prevention posters in English and Tok Pisin

9.5 Spill prevention and response

The spill rate for this quarter continues to show improvement from 2011. Despite an increase in work hours, the number of spills decreased from 139 spills in the first quarter 2011 to 64 spills during this quarter. This achievement was marked by the publication of a SSHE Alert summarizing the spill prevention past and future keys to success.

A Project-wide campaign on ground transport spill prevention was undertaken this quarter, sharing learnings from previous incidents through multi-lingual posters and toolbox talks. The campaign provided ground transport spill examples from the Project, discussed the primary causes of those spills and provided instructions on appropriate packing, restraint and inspection of chemical and hydrocarbon transport loads.

The Upstream Infrastructure contractor conducted a dedicated hazard identification assessment (known as a HAZID) for the transfer of fuel to and from fuel bladders that were transported via helicopter from Moro to Hides. A total of 34 bladders (transporting approximately 120,000 litres of diesel) were successfully filled at Moro and dispensed into the Hides fuel farm without incident.

The Upstream Infrastructure contractor also held a workshop demonstrating how to use a new floor sweep absorbent product containing micro-organisms that assist in breaking down hydrocarbons.

Meanwhile, the LNG Plant and Marine Facilities contractor completed a second oil spill response audit, including inspection of all subcontractors' spill response kits and fuel or used oil storage facilities. Certificates of excellence were presented to three outstanding subcontractors.

A number of response drills were undertaken during the quarter including:

- Two spill response drills conducted by the Upstream Infrastructure contractor.
- An emergency response drill scenario involving both an oil spill and injury at the LNG plant site. The drill tested the emergency preparedness system, coordination and response times, telecommunication systems, the capacity of the workforce to respond to specific types of incidents and deployment of the oil spill containment boom in water.
- An oil spill response drill conducted by the Offshore Pipeline contractor onboard an offshore installation vessel in February. The drill tested both the theoretical knowledge and practical skills of the Incident Response team.

Plate 9.7 – Demonstration on the use of biologically active absorbent material in spill response

9.6 Dredging and offshore trenching

During this quarter, dredging was undertaken by one vessel in the Omati River to maintain adequate river depths for offshore installation vessels. Environmental monitoring of dredging activities, initiated in the fourth quarter 2011, also continued. This aims to validate the environmental assessment of the three-month dredging program for the Omati River against the predicted pre-construction assessments.

Monitoring activities completed during dredging comprised:

- In-situ water quality sampling at various depths upstream and downstream of the dredging vessel to record levels of dissolved oxygen and turbidity.
- Water samples, taken upstream and downstream from dredging operations, sent for laboratory analysis for physical, chemical and biological water quality parameters.
- Aerial and water level photos for analysis of any sediment plume.
- Marine fauna observations (see *Section 10.1 Ecological management*).
- Monitoring of fish entrapment in vessel equipment.

The monitoring results were consolidated into an Environmental Monitoring Report delivered during the quarter. The analyses found that all water quality parameters were within ranges previously recorded during pre-construction baseline sampling, and there was no marked or sustained reduction in dissolved oxygen levels downstream of the dredging operations. There were some instances of elevated turbidity values that may have been dredging-related, but they did not exceed background turbidity levels and were not sustained over time or distance, with water quality returning to normal within three days.

Aerial photographs showed that plumes from dredging and sidecasting were visible for about three to four boat lengths (300 to 400 metres) from the vessel before merging, as expected, with background turbidity. The results of the water level photographs demonstrate limited visual disturbance to the Omati River during operations when viewed at the surface water level.

Over the course of the dredging period, there were no observations of fish entrapment in the dredging vessel equipment or sightings of marine species, upstream or downstream of dredging operations.

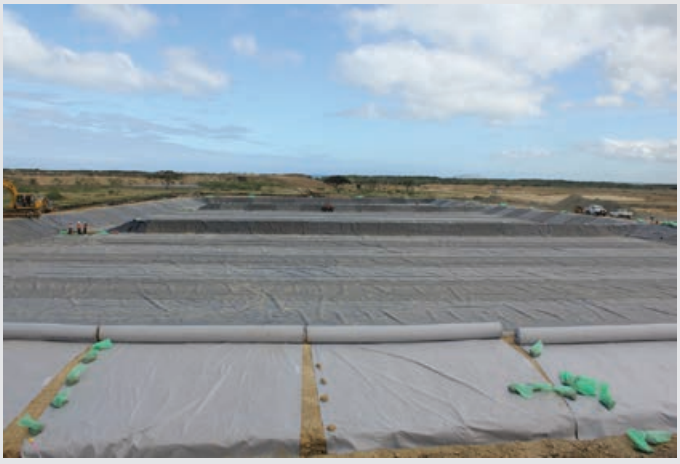
CASE STUDY TWO

Managing waste responsibly

Waste management is central to Esso Highlands Limited's commitment to operate the Project in a way that minimizes pollution to air, land and water.

An important achievement this quarter was the official opening of the LNG plant site landfill, following six months of design and engineering work. The event was marked with a tree planting ceremony in early March, involving senior members from all Project teams, who planted the first of 130 native Candle Trees *Garcinia latissima* around the landfill boundary.

The landfill spans three hectares in total and is located in a remote, fenced area of the LNG plant site loading facility. It comprises five containment cells – three for construction waste and two for operations waste – and meets the stringent requirements of the United States Environmental Protection Agency and the International Finance Corporation, as well as Papua New Guinean regulations.



Construction of the landfill showing the containment cells

Monitoring and separating waste

Project-related waste includes a range of materials with the potential to impact the environment, such as plastics, paper, cardboard and general camp refuse, scrap metals, timber, construction debris, waste oils and batteries.

All waste from the LNG plant site is sorted and separated to minimize disposal at the landfill. Currently, wood, metal and batteries are recycled and recycling options for high density plastics, paper, cardboard and tires are being investigated. Waste that is destined for landfill is taken to a weighing station, and waste types are monitored via a tracking system. Where appropriate, materials are treated in the Waste Management Equipment Shelter, which features equipment such as a drum washer, drum compactor, plastic bottle shredder, plastic compactor and mercury lamp crusher.

Protecting air, land and water

The LNG plant site landfill has been engineered to include a range of environmental controls and protection measures that minimize the LNG plant site's environmental footprint. For example, its design incorporates a robust containment system that covers and encapsulates waste, insulating it from wind, rain, dust and vermin.

Controls for stormwater management and groundwater protection, landfill gas emissions and odors have been built in. There is a system for collecting and treating the gases, such as methane, that can be produced by landfill sites and impact the environment and surrounding communities. Protecting ground and surface water in the vicinity of the landfill site is another priority. Leachate arising from waste decomposition is captured and treated via a physical barrier and collection system, is then further treated at the LNG plant site's wastewater treatment plant and then transferred to on-site sediment ponds.

The system's design also decreases the amount of leachate generated by reducing storm and surface water inflow into the waste. Monitoring wells have been installed around the site to assess whether the landfill is having an effect on the water quality and groundwater depth. At the end of March, six groundwater monitoring wells had been installed, with a further five planned this year for waste cells, which will be used during the operations phase.

Minimizing our footprint

"We are very pleased with the design and operation of this waste management facility. This landfill ensures the proper final disposal of wastes generated from our construction and subsequent production activities. It also demonstrates our commitment to environmental protection and efforts to minimize our footprint."

Yow-Yeen Lee, Senior Project Manager, Esso Highlands Limited planting a tree with Upstream Infrastructure contractor Site Director Isamu Kuroda

10 Biodiversity

The Project implements management and monitoring measures to minimize the impact of construction activities on Papua New Guinea's valuable biodiversity resources. For example, the Biodiversity Strategy for the Upstream area includes a Biodiversity Offset Delivery Plan to maintain the ecological intactness of this area, conserve priority ecosystems and to protect focal habitats and account for residual impacts. The Project's performance is measured against a Biodiversity Monitoring Plan.

10.1 Ecological management

The Onshore Pipeline contractor commenced preliminary construction activities (brush clearing) within the Lake Kutubu Wildlife Management Area. Construction constraints associated with these works were explained to workers during kick-off meetings and reinforced through daily toolbox talks. At Kaimari Quarry, work activities to provide fill material for Moro Camp 5 were also monitored.

Sightings of wildlife continue along the onshore pipeline ROW. For example, several snakes and monitor lizards were observed between Kilometre Point 143 and 144. In addition, a python was rescued from the accommodation barge for the Omati River landfall works. Birds identified by the Onshore Pipeline contractor during construction activities included the: Vulturine Parrot *Psittrichus fulgidus*, Raggiana Bird-of-Paradise *Paradisea raggiana*, Blyth's Hornbill *Rhyticeros plicatus*, Eclectus Parrot *Eclectus roratus*, Beautiful Fruit Dove *Ptilinopus pulchellus* and Palm Cockatoo *Probosciger aterrimus*. Several pythons were relocated off the ROW between Kilometre Point 221 and 226 during final restoration activities, while one python was moved at Kilometre Point 201. Another python was rescued during ROW clearing and grading at Kilometre Point 135.8. A ROW spotter rescued an unknown species of bandicoot from a water pool at Kilometre Point 160 and released it into the bush. Fish and eels were observed in pools on the ROW between Kilometre Point 191 and 197, indicating adequate water quality.

A cave known to house bats at Kilometre Point 143 was monitored during nearby onshore pipeline construction activities, with no indication of disturbance to the animals.

Meanwhile, the Upstream Infrastructure contractor displayed information about the Tree Kangaroo *Dendrolagus* spp. and Echidna *Zaglossus* spp. on notice boards to increase worker awareness.

Marine mammal observations as part of the Caution Bay ecology survey continued during this quarter. Two pairs of Bottlenose Dolphins *Tursiops truncatus* were sighted on two occasions and four Indo-Pacific Humpback Dolphins *Sousa chinensis* observed on one occasion. Full survey results will be reported subsequently.

Training is an important element for ensuring the protection of biodiversity resources. For example, training on the prohibition on hunting and wildlife consumption was provided by the Komo Airfield contractor to the quarry and construction crews, while the Upstream Infrastructure contractor delivered training on faunal management.

In another initiative, the Project is supporting the Piku Conservation Project, which is focused on raising awareness about the unique threatened Pig Nosed Turtle species. Refer to *Case Study Three – Piku gets a helping hand for additional information*.

Plate 10.1 a-b – Pythons rescued during reinstatement activities

Freshwater ecological monitoring

The Freshwater Ecology Monitoring Program forms part of the Project's Environmental Monitoring Plan and has the following objectives:

- Pre-construction: To characterize freshwater ecological conditions prior to construction and provide standard indices of the freshwater ecological conditions against which future conditions can be compared.
- Construction and post-construction: To characterize freshwater ecological conditions and compare these to pre-construction conditions.

Together, with data collected in 2010, the 2011 data establishes a solid baseline dataset to use in the ongoing monitoring of aquatic habitats in the Upstream area during construction of the pipeline, HGCP and Komo Airfield. Samples taken across the two years have contained over 160 ranks of biological classification (identified to genus or species level when possible), and have revealed strong patterns in biogeography in the upper Hegiggio/Tagari catchment. Some sites support exceptionally diverse assemblages and provide habitat for highly specialized animals. This knowledge of the natural (or current) state of the rivers provides a foundation for assessing impacts to riverine ecosystems in the Upstream area. Most sample sites showed no evidence of impacts, with sites maintaining similar assemblages between 2010 and 2011.

10.2 Quarantine management

The Project is in the process of updating the Quarantine Procedure and Quarantine Management Program for contractors and subcontractors. This will formalize definitions of non-conformances, near misses and incidents, as well as the associated reporting and corrective actions required.

10.3 Weed, plant pathogen and pest management

The Priority 1 weed, Bamboo Piper *Piper aduncum* was found at the HGCP and was manually removed. The contractor undertook a Bamboo Piper awareness campaign on-site that included posters, tabletop notices in the canteen and toolbox talks to support early identification of any other occurrences of the weed. The area is being monitored for any reoccurrence of this species, which was not recorded in the HGCP pre-construction survey report. However, local reports identify that this species is common in the area. Also at the HGCP, two Giant Canes *Arundo donax* were identified, with one removed at one location and one herbicide sprayed at the second location. Weeds occurring on the earthen batters at the HGCP were sprayed with herbicide.

During this quarter, the permanent Hides Vehicle Washdown Area for the Wellpad Access Road began operating. Quick reference guides in English and Tok Pisin were developed for use at the new facility and washdown attendants were trained. No weeds, which had not been previously identified in the pre-construction survey reports, were found this quarter along the Wellpad Access Road past the Hides Vehicle Washdown Area.

A weed survey conducted by the Onshore Pipeline contractor between the Mubi River and the Kikori River crossings and along the Gobe Spurline identified priority weeds including: Wandering Zebrina *Tradescantia zebrina*, Bamboo Piper, Siam Weed *Chromalaena odorata*, Elephant Grass *Pennisetum purpureum,* Snake Weed *Stachytarpheta jamaicensis*, Tropical Kudzu *Pueraria phaseoloides*, Kans Grass *Saccharum spontaneum*, and Mile-a-Minute Weed *Mikania micrantha*. These weeds were managed by hand pulling, slashing and digging of rootstock with materials incinerated after drying on-site. Preventive inspections and monitoring of cleared areas continues as part of weed management activities. Such inspections revealed that re-invasion of some of the controlled areas had occurred, with sections that had been chemically treated showing less re-invasion than mechanically/manually controlled sections. White Leadtree *Leucaena leucocephala* was observed encroaching on to previously controlled portions on the northern banks of the Mubi River and may require control by herbicide spraying.

In the fourth quarter 2011, the Onshore Pipeline contractor noted an outbreak of Singapore Daisy *Sphagneticola trilobata* on the access road near Kilometre Point 271. A survey was undertaken in the Omati area to determine the source of the species, since it was previously only recorded in the Hides area and Project equipment had not reached the Hides area from Omati. Singapore Daisy was also found along the road to the Omati logging village, along with another invasive weed – Siam Weed. These weeds have colonized extensive portions of the roadside as well as the campsite deserted by the Turama Forestry Industry. It is believed that part of a plant must have been attached to machinery traversing between the former logging camp and the access road. Both weeds, however, show invasion capacity and are being eradicated as a precautionary measure, even though Siam Weed is outside Project worksites.

Permanent vehicle washdown area to stop weeds spreading

A new permanent vehicle washdown facility is helping minimize the spread of weeds and the transfer of pathogens from a populated area, which includes villages near the HGCP site, to the more remote Hides Ridge area near the wellpads.

Since operations commenced in February, more than 3,500 washdown certificates were issued through the new facility, which replaces a temporary fixture at Kilometre Point 3.5. Quick reference guides in English and Tok Pisin were also developed for the facility and the attendants were trained in its use.

Importantly, an external auditor has confirmed that the Project's mitigation measures are working, reporting that there has been no establishment or outbreak of weeds or pathogens in the remote Hides Ridge area as a result of Project activities.

Location of the Hides Vehicle Washdown Area

Hides Vehicle Washdown Area in use

Plate 10.2 – Siam Weed collected in bags ready for incineration

Meanwhile, the Komo Airfield contractor continues weed control through manual removal and spraying.

Toolbox talks on weed management were provided to crews working around the Gobe, Kantobo, Tamadigi and Omati areas by the Onshore Pipeline contractor this quarter. Training was also given by both the Upstream Infrastructure contractor and Komo Airfield contractor on the management of weeds collected from the ROW and worksites.

The Upstream Infrastructure contractor also undertook visual inspections for dieback, while the Onshore Pipeline contractor prepared reports of previous dieback studies for discussion at a workshop planned for the second quarter 2012. An expert was mobilized to Papua New Guinea to undertake an analysis of soil samples for Cinnamon Fungus *Phytophthora cinnamomi*, which causes dieback. The IESC audit commented that the Project was undertaking leading research into Cinnamon Fungus.

The construction of a vehicle washdown bay also began at the HGCP site and a washdown facility will be installed at Timalia River Borrow Pit. The Upstream Infrastructure contractor issued more than 5,100 vehicle washdown certificates during the quarter in the Hides area – while the Komo Airfield contractor treated 25 vehicles.

10.4 Induced access

During this quarter, assessments of existing roads in the Hides, Angore and Benaria regions were undertaken to determine current access to the northern section of the onshore pipeline ROW corridor. Plans to upgrade and, in some cases, extend existing roads to the ROW corridor have now been developed. Pre-construction surveys for these roads were also completed, and the results tabulated to form the baseline for these regions. Any additional roads requested by the Onshore Pipeline contractor will be compared against this baseline so that potential induced access impacts may be assessed, and appropriate mitigation measures developed.

One short access road (less than 50 metres long) was established this quarter linking to the onshore pipeline ROW at Kilometre Point 137, near Tamadigi Village. This road minimizes heavy traffic traversing a particular swampy section of the ROW and helps protect a stream used by Tamadigi villagers.

Security checkpoints are being maintained at the main junctions linking onshore pipeline access roads to existing community roads and monitoring of Project roads is showing they are used exclusively by Project-related traffic. For example, at the Wellpad Access Road, the Upstream Infrastructure contractor is controlling access through the use of worker inductions and identification cards.

A review of the need for permanent vehicle access to certain above ground facilities continued during this quarter, with induced access and in-migration aspects being key factors in the decision-making process. In particular, requirements for permanent vehicle access to the main interface, between the offshore and onshore pipelines, located close to the Omati River landfall were examined and vehicle access will not be required. The construction access track in this section of the ROW has since been removed and the area reinstated.

10.5 Reinstatement

The IESC noted that good progress was being made with reinstatement works at Omati, Kaiam to Gobe, off-ROW sites and at the Komo Airfield.

The Project is in the early stages of developing a reinstatement register, which is a comprehensive list of sites and reinstatement responsibilities, including those not to be reinstated to demonstrate that each site has been considered. The aim is to effectively manage the reinstatement process across all worksites, including post-reinstatement monitoring and maintenance. For each site, the register will include:

- Whether it will be reinstated.
- What type of reinstatement will occur, for example, full, boundary, site stabilization.
- Handover date 1.
- Handover recipient 1, for example, subcontractor to major construction contractor.
- Handover date 2.
- Handover recipient 2, for example, construction contractor to Project operations.
- Transition risk through handover, if applicable.
- Transition roles and responsibilities – monitoring/ maintenance.

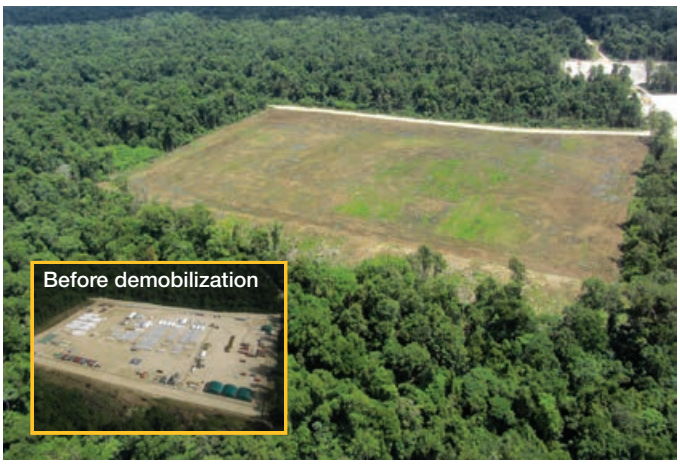


Plate 10.3 – Reinstatement of Kopi Camp 1

Plate 10.4 – Completed reinstatement of a former access track in the Komo Airfield area

Final reinstatement activities were completed at several sections of the ROW by the Onshore Pipeline contractor this quarter. These reinstatement works include re-contouring and re-application of topsoil, with logs placed at the end of roads and the ROW to prevent driving or parking on reinstated areas.

Final reinstatement was also completed at Kopi Camp 1 platform, Pinnacle Quarry Kilometre Point 274 and laydown area and Pinnacle Quarry Kilometre Point 276. Clean-up of the horizontal direction drill platform on the north side of the Kikori River crossing was completed pending tie-in and fiber optic cable conduit pulling operations. Walkthroughs with Project and contractor representatives were undertaken to agree erosion control measures and monitoring is being undertaken of all reinstatement activities.

The Upstream Infrastructure contractor continued collecting local seeds for use in reinstatement, while hand casting of seeds occurred at various worksites. A permit to import Japanese Millet *Echinochloa* spp. and Carpet Grass *Axonopus compressus* seed from Australia for use in reinstatement was obtained from the Papua New Guinean National Agriculture Quarantine and Inspection Authority. Japanese Millet posters were developed by the Upstream Infrastructure contractor and provided to their logistics group in Lae to raise awareness about appropriate transport, storage and handling of the species. In the meantime, vegetation cover continued to develop on the topsoil stockpile following the spreading of locally sourced grass seeds and planting of local species in the fourth quarter 2011.

Ongoing works at the Timalia and Komo Main Camp nurseries by the Komo Airfield contractor covered soil bagging, collection of wild plants, sorting plants into boxes according to species and size, and weeding. Plants at these nurseries are being grown for use in reinstatement. Small areas of land for both permanent and ancillary works were reinstated this quarter. Topsoiling, installing soil stabilizing jute matting and revegetation with stabilizing grasses was also completed at Komo Main Camp batters and some of the Airfield batters, which are now being monitored for plant growth. Re-contouring to original topography, topsoiling, seeding and fertilizer application was completed along one of the Komo Airfield site access routes.

10.6 Biodiversity Strategy

A key component of the mitigation hierarchy in the Project's Biodiversity Strategy is the implementation of avoidance and mitigation measures during construction. These measures are further detailed in several environmental management plans, for example, the Ecological Management Plan; the Quarantine Management Plan; the Weed, Plant Pathogen and Pest Management Plan; the Induced Access Management Plan and the Reinstatement Management Plan.

A Biodiversity Working Group has been formed to steward implementation of the Project's Biodiversity Strategy. This is a multi-disciplinary group, comprising Project personnel, representatives from stakeholder companies and independent advisors. The Working Group formally commenced its activities this quarter and includes a Steering Committee and a Technical Advisory Group. Also during this quarter, the Biodiversity Working Group Protocol document, which is designed to govern the operation of the Working Group, was finalized.

Development of the Biodiversity Offset Delivery Plan continued during this quarter with draft submission scheduled for the second quarter 2012.

During this quarter, Conservation International provided final recommendations to the Project in relation to the technical rationale for offset selection, scope offset areas and activities, assessment of potential partners, scoping of offset implementation feasibility and advice regarding offset funding mechanisms. These recommendations are currently being reviewed and incorporated into the Biodiversity Offset Delivery Plan.

CASE STUDY THREE

Piku gets a helping hand

Papua New Guinea's threatened Pig Nosed Turtle species (Piku) is getting a helping hand thanks to a conservation project receiving funding support from Esso Highlands Limited.

The Piku Conservation Project is focused on raising awareness about this unique species, which is in decline due to over-harvesting of the turtles and their eggs by local communities. Piku Conservation Project leader, Dr. Carla Eisemberg from the Institute for Applied Ecology at the University of Canberra, Australia, has enlisted the help of students from the Papua New Guinea Institute of Biological Resources to encourage local communities to change their behavior and protect this threatened species.

What is a Piku?

Piku is the name given by the people of the Kikori delta of Papua New Guinea to the Pig Nosed Turtle *Carettochelys insculpta*. This species is only found in the southern rivers of the island of New Guinea (Papua New Guinea and West Papua) and the main rivers of Australia's Northern Territory.

The Pig Nosed Turtle is distinct due to its pig snout-like nose. It is of scientific interest because it is the last remaining species of a once widespread family of turtles. It also shares features with marine turtles and may represent a link to the evolution of freshwater turtles as they moved into the ocean. To the people of the Kikori, the turtle is prized for its meat and eggs, which represent a great source of protein. However, over-harvesting means that turtle numbers are in decline and the Piku is now listed in the International Union for Conservation of Nature Red List of Threatened Species as 'Vulnerable' with a high risk of extinction in the wild.

Piku – the Pig Nosed Turtle

A Piku hatchling at Wau Creek

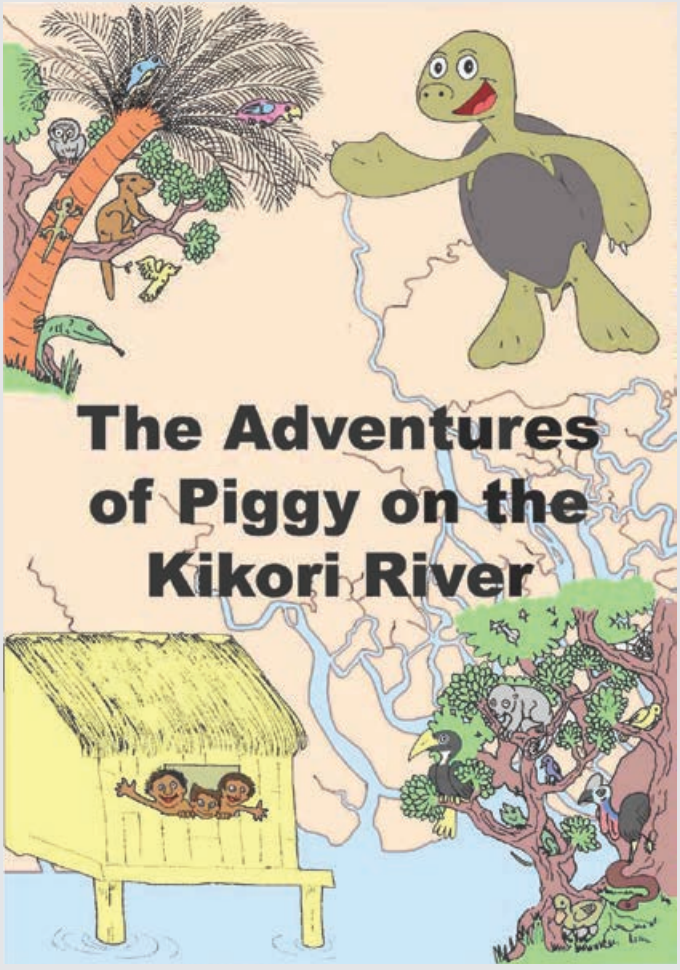
The Piku has been in dramatic decline during the past two decades as a result of growth in human populations and the increased number of villages establishing on riverbanks. This has led to over-harvesting of turtles and eggs. Also, the introduction of technologies such as outboard motors have impacted turtle habitat. As part of raising awareness about the decline in turtle numbers, the Piku Conservation Project team is working with local schools to distribute conservation messages to children.

Working with local schools to distribute conservation messages

CASE STUDY THREE

Piku gets a helping hand

This work has resulted in the production of a short children's book and a series of radio plays about the adventures of a Pig Nosed Turtle called Piggy. These stories and plays are being developed in English and local languages (such as Tok Pisin and Motu) for distribution to schools and through local radio stations.



Children's book produced as part of the Piku Conservation Project

The Conservation team is also working with landowning communities to protect beaches and sandbanks and prevent people from taking turtle eggs during turtle nesting periods. One conservation area was established at a location called Wau Creek, where an increase was noted in the number of surviving turtle nests when compared with previous years. Further conservation areas will be established during subsequent phases of the Piku Conservation Project.

Hatchling release at Wau Creek

Moving into the second quarter 2012, the Piku Conservation Project is focused on conducting a teachers' workshop to provide training on how to pass turtle conservation information on to school students. The Conservation team will also monitor the distribution of the children's books and broadcasting of radio plays to make sure that Piku's message is getting to communities.

What the experts have to say

"The challenge is to show that, through such conservation measures, landowners can generate a cash income and, as rangers, create meaningful employment for their family."

Dr Carla Eisemberg, University of Canberra, Australia

"Local villagers in the Kikori region are able to change their behavior towards the conservation of turtles. But we need to provide other sources of income and employment for them if we expect them to change long-held beliefs and practices."

Professor Arthur Georges, University of Canberra, Australia

11 Resource Management

The Project aims to use all natural resources, such as water, timber, quarry materials and soils, in a way that is sustainable and recognizes their social, economic and cultural value to the people of Papua New Guinea.

11.1 Water management

11.1.1 Usage

During this quarter, all extraction volumes were within the annual limit set in the Project Environment Permit and no additional water extraction permits were obtained.

Across the Project, a total volume of 126,311 kilolitres of freshwater and 325,789 kilolitres of seawater were extracted for use for drinking, domestic camp needs, dust suppression and construction-related activities during this quarter. Surface water extraction has decreased since 2011 and been replaced with Project-dedicated groundwater sources. However, as a result of growing construction activity in the Hides area in particular, total water usage has increased as expected across the Project.

The volume of water used by each extraction source is shown in Figure 11.1 and a breakdown of water used by water type is shown in Figure 11.2.

11.1.2 Quality

The Project conducts water quality testing and monitoring of surface waters, groundwater and seawater surrounding Project activities. Test results are compared with baseline studies, undertaken before construction, as well as guideline criteria adopted by the Project. Any changes detected that may have a potential to impact the environment are proactively managed.

External consultants, the Project Verification team and contractors all undertake water sampling. Sampling of surface waters, groundwater, seawater and hydrotest water are detailed in this section. Water quality sampling of wastewater treatment plants is reported in *Section 9.3.1 Wastewater*, and water pumped from excavations is referred to in *Section 11.4 Acid sulfate soils*.

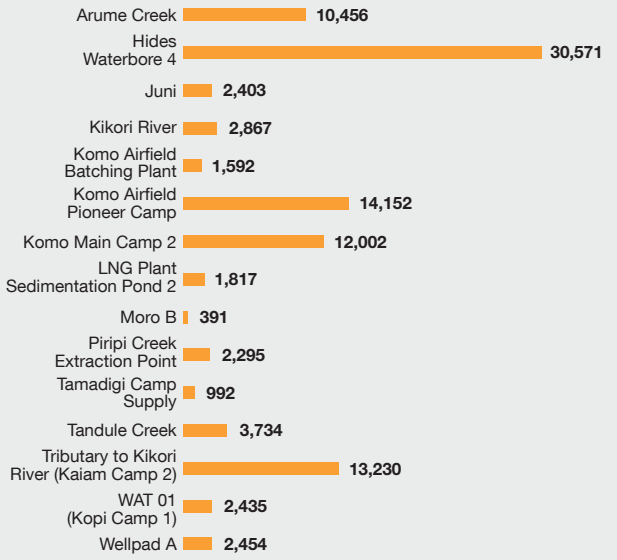
Following 2011 baseline freshwater ecology monitoring surveys and data analysis, an independent consultant delivered their report this quarter. Together with data collected in 2010, this establishes a solid baseline dataset to use for the ongoing monitoring of aquatic habitats in the Upstream area during construction of the pipeline, the HGCP, and the Komo Airfield.

An independent consultant was also contracted to review all upstream water quality data collected to date. The key objectives were to consolidate all surface water quality data and review and interpret this data at a regional scale. Since construction commenced, over 1,700 surface water samples have been collected and analyzed.

Overall, the review has provided a 'health check' on a regional scale of the many monitoring programs being implemented by each contractor and the Project Verification team.

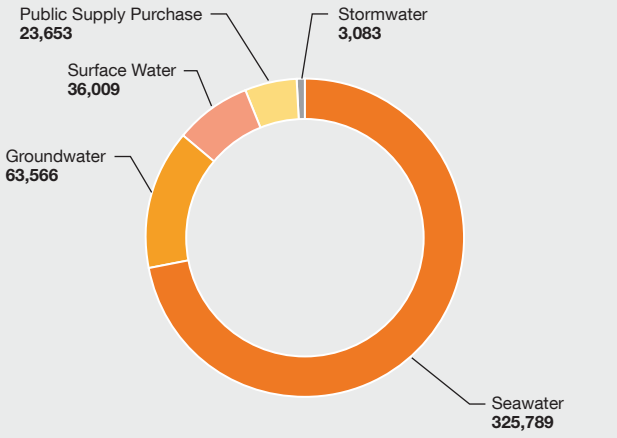
The Project and the contractor Verification teams continue undertaking both scheduled water quality sampling and spot checks to measure water quality in the Project impact area. A new innovation in water turbidity control has been implemented at the LNG plant site, refer to *Case Study Four – New technology solves an old problem* for further details.

Figure 11.1 – Volume (in kilolitres) of water used in the first quarter by extraction source[5]



NOTE: Total seawater usage for the quarter is 325,789 kilolitres.
Water usage adjustments may be reported by contractors after the Report has been released, and as such volumes may be refined between one Report and the next.

Figure 11.2 – Volume (in kilolitres) of water used in the first quarter by water type



The second construction phase Marine Monitoring Program also continued during this quarter, with offshore fieldwork undertaken in Caution Bay to test water quality, sedimentation and record marine ecology observations.

5 Water usage for the LNG plant site is not shown in this Figure as the site's water usage is from desalinated seawater.

This Program also included sampling undertaken during construction of the Caution Bay jetty and after installation of the pipeline across the shoreline.

Water quality data from construction monitoring is compared with physical and chemical guidelines set out in the Environmental Monitoring Plan (specifically the seawater criteria). The data is also compared to the baseline marine environmental conditions, collected during the development of the Project Environmental Impact Statement and pre-construction water quality monitoring surveys.

The water monitoring component of the Program includes sampling for total suspended solids and in-situ measurement of characteristics including turbidity, temperature, salinity and dissolved oxygen. All water quality parameters met the water quality criteria outlined in the Environmental Monitoring Plan. The results of the February sampling found turbidity and total suspended solids were low and generally similar to, or in some cases lower than, pre-construction values. Salinity levels were generally lower than recorded during the August 2011 survey, possibly as a result of the increased rainfall prior to the February survey and the mixing of freshwater in the upper layers.

Plate 11.1 – Caution Bay marine water quality sampling

A report on monitoring of dredging in the Omati River was also issued during this quarter, with findings presented in *Section 9.6 Dredging and offshore trenching*.

11.2 Raw materials

During this quarter, aggregate was recycled from road and wellpad construction and also selected from pinnacles located within 1-kilometre of the pipeline corridor, limiting the requirement to source material from quarries.

One new quarry in the Hides area was opened with remaining materials sourced from existing quarries.

Table 11.1 shows the volume of quarry material extracted by the end of the quarter.

Table 11.1 – Quarries in use and extracted volumes during the first quarter

Area/quarry name	Volumes extracted (cubic metres)
LNG plant site (2 suppliers)	372,272
Hides (4 quarries)	141,855
Komo (1 quarry)	50,598
Onshore Pipeline (4 quarries)	72,300

Small volumes of timber have been required for Project construction activities, and only 857 cubic metres have been purchased to date. This quarter, the Onshore Pipeline contractor reused logs cleared from the ROW for temporary bridge installations and timber rip-rap, where practical.

Plate 11.2 – Timber cleared from the ROW being reused as timber rip-rap

Road building leads to recycling

Road construction crews at the Wellpad Access Road have optimized the recovery of excavated material, conserving excess aggregate for use in construction activities at the HGCP site.

During excavation work for the Wellpad Access Road and wellpads, the construction crew found a significant amount of limestone, suitable for use as road base. Rather than disposing of the surplus material at the abstraction site by the standard method of side casting, it was decided to transport, crush and stockpile it for use at the HGCP site. Collecting the limestone reduces spoil generated and, therefore, the footprint caused by the road construction.

As of March, more than 165,000 cubic metres of this limestone has been used in the construction of HGCP earthworks, and existing quarry sites have been converted into laydown storage areas.

11.3 Erosion and sediment control

Erosion and sediment controls continue being installed and maintained across the Project by dedicated crews, who monitor and tailor control devices according to individual site conditions. For example, streams that are traversed by the ROW and serve as a main drinking water source were noted and mitigation measures applied to reduce disturbances to these aquatic habitats. Installation of rock and soil berms and grass filters were recommended at stream crossings during pipeline installations from Kilometre Point 190 to Kilometre Point 174. As a result of these mitigation measures, no medium- to long-term negative impacts to the waterway and downstream users were identified.

Plate 11.3 – Permanent erosion control structure protected with jute matting on the ROW

The Onshore Pipeline contractor recruited a geotechnical engineer to assist with activities such as permanent erosion control and reinstatement, as well as pre-construction drainage assessments and mitigations. Joint inspections between the Project and contractor resulted in the tailored design of erosion control measures for numerous sections of the pipeline.

Erosion and sediment control remains a focus at the Komo Airfield given recent heavy rain events, and changes in topography, stream diversions and soil stockpiles. Considerable progress has been made with erosion control in reinstatement, where works are finalized and stabilization of batter chutes has been undertaken.

Erosion and sediment control devices constructed from locally sourced materials have been successful in sediment control and are not targeted for theft. The sediment control fences are made from stakes and branches cut from the construction footprint and made into ladders placed on their side, which are then stuffed with cleared vegetation such as grasses and undergrowth.

Plate 11.4 – Stabilization of batter chutes and installation of check dams

11.4 Acid sulfate soils

Testing for potential acid sulfate soils at the LNG plant site occurred during deep excavations required for the installation of the fire water pipeline. No significant pH changes were noticed during the dewatering process.

Field pH testing on the Omati River landfall continued this quarter. The results were within the acceptable range to avoid the formation of acid sulfate soils. Where low pH readings were recorded, mitigation measures, such as backfilling anchor wall spoil stockpiles, were undertaken. Follow-up pH measurements confirmed that the previously low pH had returned to the normal range.

CASE STUDY FOUR

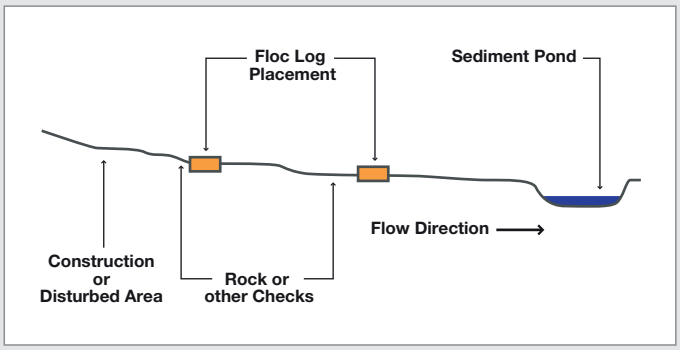
New technology solves an old problem

A simple-looking, little block is being used to solve a big problem on the Project's construction sites.

Floc Logs or blocks have been introduced to help manage the turbidity of stormwater in the LNG plant site sediment ponds prior to the waters' release off-site.

Floc Logs prior to installation

A Floc Log is a soil-specific tailored block that contains a blend of non-toxic water treatment components and molecules, which act to bind together soil and clay or chalk fines, so they will settle out leaving clear water. The blocks are installed downstream of construction sites prior to water entering sediment ponds (as shown in the schematic) to improve the treatment of stormwater run-off.



Floc Log installation schematic

More than 60 types of this particular Floc Log have been specially formulated for the soil and water chemistry of the relevant geographical area they are to be used in. For example, the Floc Logs being used at the LNG plant site have been specially designed to suit the site soils.

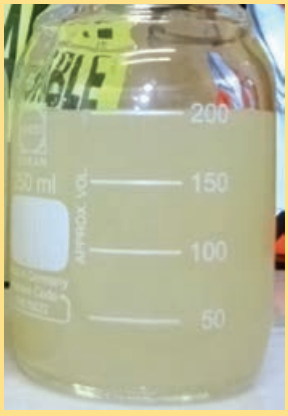
Traditionally, flocculants are liquid and need to be mixed with water, which is not always practicable around earthworks. The use of the Floc Log eliminates the need for dosing and mechanical mixing.

The Project's LNG Plant and Marine Facilities contractor has successfully used the blocks on a project in Russia and has recognized the advantage of using them for the Project.

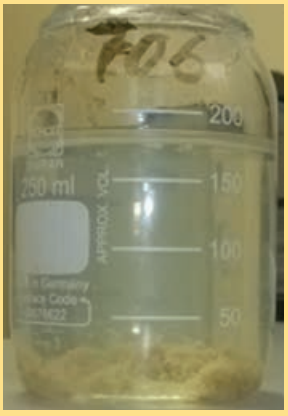
After installation at the inlets to all five LNG plant site sediment ponds, water samples demonstrated a significant drop in turbidity.

Following the success of the blocks at the LNG plant site, the Project is sharing this technology with other construction contractors across all Project sites.

Site-specific sedimentation tests showing sediment before and after Floc Log use



Sample before mixing Floc Log solution



Sample 60 minutes after mixing 10 millilitres of Floc Log solution

12 Cultural Heritage

The Project respects the culture and history of communities located in the Project impact area and implements measures to manage known cultural heritage resources including chance finds. Known sites are either subject to salvage activities or protection from disturbance by construction activities. The Project monitors ground disturbance activities and manages chance finds in accordance with a protocol agreed with the Papua New Guinean Government and in close communication with local communities.

Training continued during the quarter as part of the management of potential cultural heritage impacts. For example, the Onshore Pipeline contractor provided the brush clearing crews active between Kilometre Point 24 and 143 with training on cultural heritage sensitivities. This training emphasized the significance of cultural heritage to the landowners and the connection they have with their cultural sites. Additional training was provided on the Chance Finds Protocol, the chance finds transfer process and the importance of preserving and documenting all cultural heritage sites in accordance with the mitigation measures identified during pre-construction surveys.

Plate 12.1 – Dr. Andrew Moutu, Acting Director, National Museum and Arts Gallery; Nick Araho, Project Archaeologist, Esso Highlands Limited; Alois Kuaso, Curator of Modern History and Archaeologist, Senea Greh, Historian and Curator, and Peter Wangi, Photographer, all from the National Museum and Arts Gallery during handover of chance finds

Plate 12.2 – Project and contractor archaeologists assessing a chance find

Further chance finds discovered at Komo Airfield were transferred to the Papua New Guinea National Museum and Arts Gallery during the quarter. Refer to *Section 12.4 Chance finds*.

In order to streamline the identification, documentation and preservation of chance finds, a working session was held between archaeologists from the Onshore Pipeline contractor and the Project. The aims of the session, which were successfully achieved, were to ensure that contractor archaeologists had an understanding of the types of cultural heritage sites and items that could occur along the onshore pipeline ROW and be able to identify and appropriately document artifacts. The Project archaeologist was satisfied with the level of competency of the contractor archaeologists.

Material collected during the three-month HGCP archeological salvage program is awaiting analysis by Monash University, Melbourne, Australia, pending an agreement with the University.

12.1 Pre-construction surveys

Pre-construction surveys identify cultural heritage sites that require preservation, or the development of mitigation measures in partnership with local landowners.

Previously identified cultural heritage sites are being managed in accordance with the recommendations of the relevant pre-construction survey. Clans not represented during the pre-construction surveys were consulted by the Onshore Pipeline contractor's archaeologist to determine if they knew of any additional cultural heritage sites.

The Onshore Pipeline contractor continued cultural heritage site verification and demarcation from Kilometre Point 128 to 170.3, at Kilometre Point 24 and along Kilometre Point 87 to 97 prior to worksite clearing. Cultural heritage sites previously demarcated between Kilometre Point 173.6 and Kilometre Point 290 have been closed-out as they are no longer affected by construction activities. The sites demarcated and monitored for disturbance are listed in Table 12.1.

Table 12.1 – Cultural heritage sites monitored during the first quarter

Location	Site description
Kilometre Point 142	Sleeping cave.
Kilometre Point 143	Spirit pool/lake.
Kilometre Point 143	*'Kekenoparti cave'*.
Kilometre Point 149	Stone flakes.
Kilometre Point 150	*'Karisinana'* ancestral village.
Kilometre Point 153	*'Baiwara'araumarisa'/'baiwara'araumahaii'* healing pool oral tradition site.
Kilometre Point 153	*'Mafeka 2'* water filled doline oral tradition site.
Kilometre Point 154	*'Mafeka 1'* water filled doline oral tradition site.
Kilometre Point 154	*'Mafeka 3'* water filled doline oral tradition site.
Kilometre Point 155	*'Awa'* cave inhabited by the spirit *'Daso'*.
Kilometre Point 155	*'Bono'* oral tradition site (three palms belonging to the spirit *'Daso'*).
Kilometre Point 155	*'Mapiya'* ephemeral stream associated with the spirit *'Daso'*.
Kilometre Point 158.4	*'Marupe hai'* spirit water.

12.2 Salvage excavations

No salvage excavations were undertaken in the quarter.

12.3 Incidents of disturbance to known cultural heritage sites

No incidents of Project-related disturbance to known cultural heritage sites occurred during this quarter.

12.4 Chance finds

Monitoring of construction activities for chance finds continued during this quarter. The Onshore Pipeline contractor focused on initial earthworks (topsoil stripping) along the ROW between Kantobo and Manu, along with off-ROW sites and topsoil removal at the Tamadigi campsite.

Chance finds recorded this quarter are shown in Table 12.2.

Table 12.2 – Chance finds during the first quarter

Location of find	Type of find
Komo Airfield	*'Ayaka-Tigi'* ceremonial ground *'malihama'*
	'Mumu' site
	Tanged blade
	Waisted blade
Onshore pipeline ROW	Artifact scatter
Tamadigi campsite	Chert flakes (11)
HGCP	Stone tool (2)
	Chert/flake (2)
	Waisted stone blade
	Waisted tanged blade

There were a number of interesting chance finds this quarter. For example, an 'Ayaka-Tigi' ceremonial ground is the location where clan members from the Wabiago subclan of the Tagima clan congregated during special occasions such as pig-killing ceremonies, dance festivals and village discussions. Ceremonial sites incorporated a number of features, including wooden structures, a traditional ceremonial dance ground ('malihama') and, in this case, a 'mumu' pit. A 'mumu' pit is a traditional earth oven using hot stones to cook meat and other foodstuffs. It consists of a shallow hole in the ground, not more than 50 centimetres deep and at least 1 metre wide. Cultural practices at the site were abandoned some decades ago with the land later being used for agricultural purposes. Subsequently, the location was fallow until late 2010 when a homestead and garden were established. The agricultural use of the site and loss of cultural heritage importance has reduced its cultural significance and, as such, no site-specific mitigation measures were recommended. However, the area will be subject to cultural heritage monitoring during earthworks at the Komo Airfield site.

An artifact scatter found on the onshore pipeline ROW was considered to be a tool making site. An area of approximately 10 metres by 5 metres was found to contain a moderately dense scatter of 16 flaked artifacts, including two tools made of flint and a silica rich mineral (silcrete). Based on the results of a study on a similar site in 2010, the assemblage was deemed to be of low significance. The artifacts were collected and a trained spotter is monitoring the site during ROW clearing and grading works.

Plate 12.3 – HGCP chance find – waisted tanged blade

13 Stakeholder Engagement

The Project and its contractors aim to develop lasting positive relationships with communities based on trust, mutual understanding and collaboration and are committed to ongoing engagement with Papua New Guinean communities across the Project impact area.

13.1 Government

The Project is committed to ensuring all levels of government are kept informed of Project activities as construction progresses.

13.1.1 People processes

During this quarter, more than 1,500 work permits and visas were approved within the target time of ten working days. This has been achieved through strong support by Papua New Guinea's Department of Labour and Industrial Relations and Immigration Services.

13.1.2 Materials and tax

In January, Esso Highlands Limited trained logistics coordinators in new procedures for cargo clearance, with additional training planned for the second quarter. Key deliverables, a work plan and timings were also agreed between Esso Highlands Limited, the Papua New Guinean Customs Service and the third party provider, which was engaged to support the Customs Service.

13.1.3 Infrastructure and Government support

The Project continues supporting the Papua New Guinean Department of Works with repairing the Highlands Highway and bridges, specifically in areas that require urgent attention to keep the road open for all users. These areas include Tindom Hill, Hides Hill and road sections near Magarima and Chimbu, which were damaged by recent heavy rainfall. In addition, construction of a temporary causeway that replaces the collapsed Alua River Bridge located near Tari in the Southern Highlands Province was completed this quarter.

Meanwhile, the dedicated multi-disciplinary Highlands Highway Area team established in the fourth quarter 2011 is assisting the Government to implement a program for landowners to participate in minor bridge repair and maintenance work for the bridges between Mendi and Hides.

The Project and its contractors also provided technical assistance to the Department of Works and the Natural Disaster Relief Operations Committee related to rebuilding a 200-metre section of the Highlands Highway near the Hides and Komo villages that was damaged by the landslide at Tumbi.

In addition, the Project is working with the Department of Works to develop a training program for engineers and local contractors on the installation of pre-assembled bridges. These types of bridges are commonly used in Papua New Guinea and designed for easy and quick installation using minimal personnel and equipment. The one-month training course is scheduled to begin in April 2012.

13.1.4 Advocacy

The Project's 2012 Advocacy Workshop program commenced in February, with participation by key representatives from the National Capital District Provincial Government and the Department of Petroleum and Energy. As part of the program, LNG plant site engineers provided participants with a tour of the sites' construction area to help them understand the technical scope of the Project.

More advocacy workshops are planned during 2012 to enable government representatives to view construction progress at the LNG plant site.

13.1.5 Benefits assurance delivery

During the fourth quarter 2011 and this quarter, the Papua New Guinean Government convened Expenditure Implementation Committee meetings for the delivery of infrastructure projects through Infrastructure Development Grants. The Government also paid the 2011 Infrastructure Development Grant funds into trust accounts, which will be administered by provincial governments and the Secretary of Finance.

During this quarter, the Department of Petroleum and Energy deployed field officers in Upstream South (Gobe and Kantobo) and Upstream North areas to manage issues and grievances that require government action. The Project is meeting regularly with the Department of Petroleum and Energy to help address Project-related issues as they arise.

13.2 Communities

Fostering relationships based on open dialogue and mutual understanding is essential to developing effective working relationships with communities located near current or future project activities. Throughout its work, the Socioeconomic team aims to remain sensitive and responsive to community concerns, perceptions and expectations.

13.2.1 Engagement activities

During this quarter, the Socioeconomic team completed 67 formal engagements reaching over 700 participants from 20 different communities. In addition, 33 informal engagements were conducted with 17 communities. This means that more than 570 formal engagements, reaching over 27,500 participants and 1,100 informal engagements have been recorded by the Project-to-date.

With Project construction activities continuing both in the Upstream area and at the LNG plant site, engagements are covering a wide range of Project-related topics. In some instances, topics are revisited to alleviate any anxiety or misinformation while in other engagements, Project information is new. Engagements this quarter included information sessions with village elders about recruiting candidates for the Juni Construction Training Facility, pedestrian safety, and safety along the ROW.

Hides and Komo

With the Hides Gas Conditioning Plant and Hides Wellpads contractor and the Drilling contractor continuing to mobilize, along with ongoing construction of the Komo Airfield and ongoing training at the Juni Construction Training Facility, activity is increasing in the Hides/Komo area. Constant interaction to inform communities of Project activities in a timely manner remained a focus for the Socioeconomic team, and just over half of planned community engagements took place in the Hides/Komo area this quarter. In particular, the Project recognizes the need to constantly reiterate safety messages to communities, especially relating to pedestrian safety and driver awareness. The Socioeconomic team has also been delivering road safety messaging to schools in the surrounding areas along with supplies of the Toea children's books provided by the Project.

Plate 13.1 – Engagement session with students at Habono Elementary School in Hides

Plate 13.2 – Project update meeting at Nogoli

Pipeline (North and South)

During the quarter, engagements were conducted with communities located in areas where the Project is preparing to commence work. These included information about the nature of the work, the expected duration, safety (particularly around the ROW) and the grievance process, as well as a general update on the Project. The recruitment process, benefits and expected behaviors of workers were also addressed.

Plate 13.3 – Awareness session at Awatangi, along the pipeline ROW

Engagements in the Omati area continue, to ensure local communities are aware of the Offshore Pipeline contractor's activities and the grievance process as well as safety messaging.

During this quarter, 25 engagements with more than 1,200 participants were registered.

LNG plant site

Focused engagements with communities local to the LNG plant site are continuing, with an emphasis on pedestrian safety. Other sessions covered fisheries activities, cultural awareness programs, and Project updates. Schools were also engaged in safety awareness activities with Toea books provided to students.

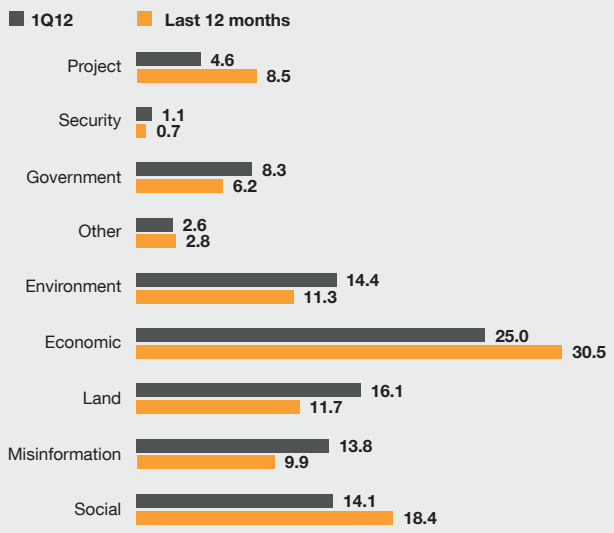
The Socioeconomic team also facilitated meetings to enable community members to express concerns around the Papua New Guinean Government's decision to declare Caution Bay an extension of the port of Port Moresby, and concerns about the positioning of navigational aids. As an outcome, meetings were facilitated between PNG Ports Corporation Limited, the National Maritime Safety Authority and community delegates to ensure a thorough understanding of permit requirements and design specifications surrounding their concerns. The Socioeconomic team facilitated community consultations in an effort to address concerns relating to the location of navigation aids.

Around the LNG plant site, 21 formal engagements were conducted reaching approximately 2,000 participants this quarter.

Issues identification

As shown in Figure 13.1, economic concerns accounted for 25 percent of all issues recorded during the quarter, and this remains the most common issue category for the last 12 months.

Figure 13.1 – Percentage of issues received by issue category



The Project aims to work proactively with communities, to ensure concerns, issues and misunderstandings are addressed prior to them becoming grievances. For example, concerns around water supplies in the Upstream South area have been noted and members of the Field Environmental team have met with the Socioeconomic team to identify responses ahead of any grievances being lodged.

Community interest in and concerns about the Project continue to be welcomed. These also help the Socioeconomic team identify the communications required to ensure communities are well informed about the Project.

13.2.2 Media

The Project's eighth PNG LNG Quarterly Environmental and Social Report covering activity during October to December 2011 was published on the Project website as well as in hard copy for distribution to a wide network of stakeholders.

Read the Quarterly Environmental and Social Report series at
www.pnglng.com

Additionally, the Executive Summary was distributed in Tok Pisin and English through a suite of national papers including the *Post Courier, The National, Pacific Business Review, Wantok Nius,* and the *Sunday Chronicle*.

The Project's *PNG LNG Toktok* was also widely distributed, and a media workshop was held for local journalists, which included a visit to the LNG plant site.

14 Acronyms

AIDS	Acquired Immune Deficiency Syndrome
CDI	Community Development Initiatives
ESMP	Environmental and Social Management Plan
HGCP	Hides Gas Conditioning Plant
HIV	Human Immunodeficiency Virus
IESC	Lender Group's Independent Environmental and Social Consultant
iHDSS	Integrated Health and Demographic Surveillance System
IMR	Papua New Guinea Institute of Medical Research
Lanco(s)	Landowner Company (Companies)
LNG	Liquefied Natural Gas
PNG	Papua New Guinea
PSI	Population Services International
ROW	Right of Way
SSHE	Safety, Security, Health and Environment

APPENDIX 1 – Project Contractors and Work Scopes

Table A1.1 – Summary of contractors and work scopes

Contract	Description of work scope
Upstream Infrastructure Clough Curtain Brothers Joint Venture	• Infrastructure upgrades in support of main construction activities in the Gulf Province and Southern Highlands Province. • Camps for Esso Highlands Limited and to support construction activities. • Construction of a landfill site at Hides. • Bulk earthworks for the HGCP and wellpads.
LNG Plant Early Works Curtain Brothers Papua New Guinea Limited	• Upgrade of existing road from Motukea Island to LNG plant site. • New Bypass Road (re-routing of existing public road, which transects with the LNG plant site).
Telecommunications TransTel Engineering	• Installation of a telecommunications system to support construction and operations.
Offshore Pipeline Saipem	• Construction and installation of the offshore pipeline from Omati River landfall to LNG Plant landfall site. • Pipeline tie-in at Omati River landfall and shore crossing at the LNG Plant landfall site. • Installation of near-shore fiber optic cable in the Omati area.
Offshore Fiber Optic Cable Alcatel	• Installation of the offshore fiber optic cable from the Omati delta to the LNG Plant landfall.
LNG Plant and Marine Facilities Chiyoda and JGC	• LNG facility engineering and construction, including LNG process trains, condensate storage tanks, LNG storage tanks, utilities, permanent accommodations, heliport, and telecommunications. • Marine facilities including the jetty and LNG/condensate export berths.
Hides Gas Conditioning Plant and Hides Wellpads CBI Clough Joint Venture	• Engineering and construction of the HGCP processing facilities and associated wellpads, including permanent accommodations and maintenance facilities.
Onshore Pipeline SpieCapag	• Installation of the onshore gas and condensate pipelines, and associated valve and metering stations. • Installation of the pipelines for the Hides gathering system including flowlines, spineline, utility lines, and associated power and telecommunications cables.
Komo Airfield McConnell Dowell and Consolidated Contractor Group	• Airfield and supporting infrastructure.
Associated Gas Development Various	• Upgrades and modifications to Kutubu Central Processing Facility and Gobe Production Facility including gas dehydration, metering, and condensate handling.
Nabors Drilling International Limited	• Drill and complete 12 new wells and execute two workovers.
Permanent Office and Housing Company (to be determined)	• Construction of office accommodation and housing to support the operation of the facilities.

Esso Highlands Limited acknowledges the aforementioned contractors for their respective contributions to the development of this PNG LNG Quarterly Environmental and Social Report.

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