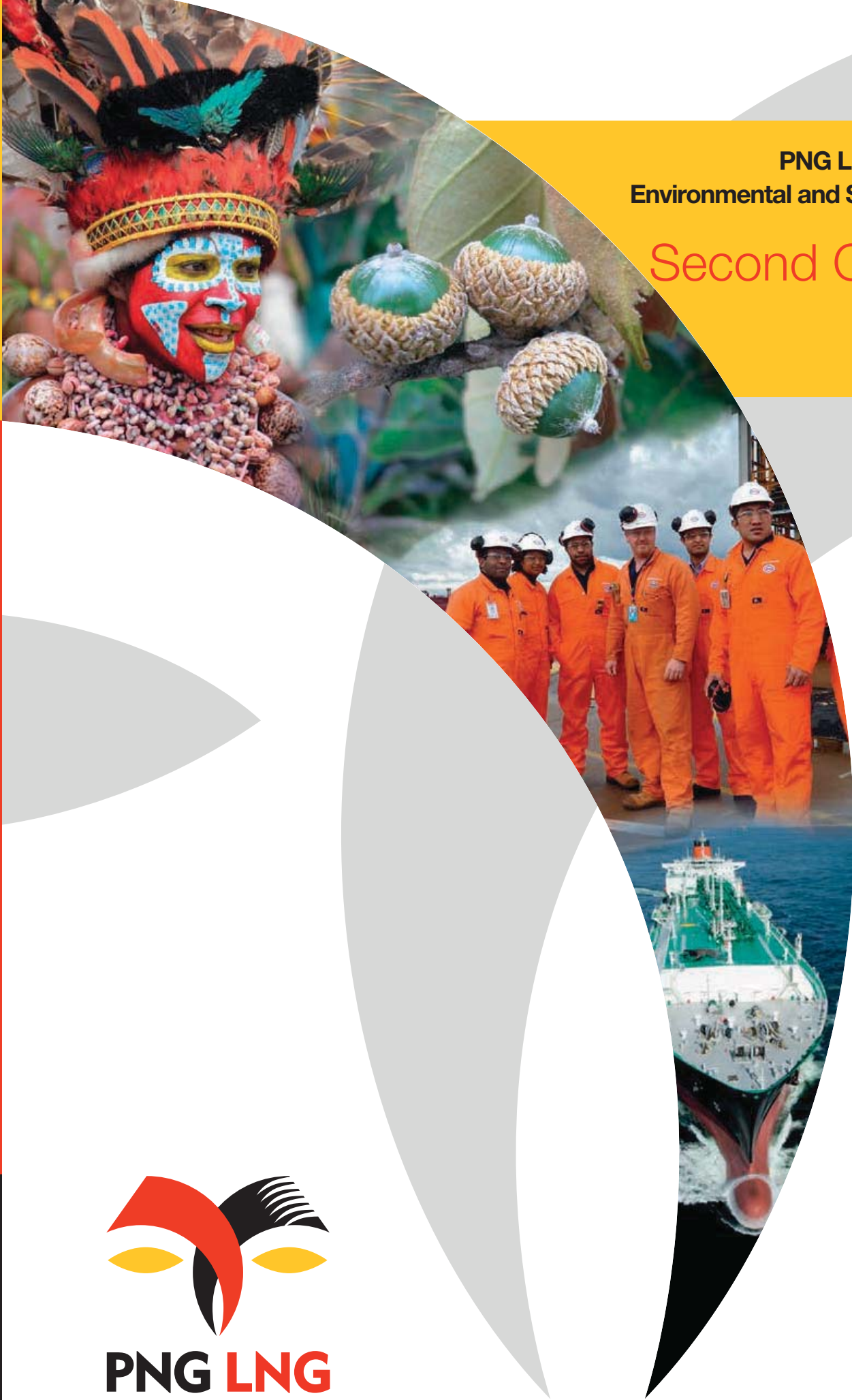


PNG LNG Quarterly  
Environmental and Social Report

Second Quarter

2013



**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 – Second Quarter 2013, reports on the Project's recent safety, construction, 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 on the Project website, [www.pnglng.com](http://www.pnglng.com). Printed copies are also available.

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## PARTNERING TO DRIVE ENVIRONMENTAL OUTCOMES

**“The Project is proud to be working together with Papua New Guinean communities, suppliers and our many government and non-government stakeholders to implement programs that lead to good environmental outcomes.”**



- Decie Autin, Project Executive, Esso Highlands Limited

The Papua New Guinea Liquefied Natural Gas (PNG LNG) Project (the Project) is increasingly working with its stakeholders, including local suppliers, on programs intended to deliver good environmental outcomes. For example, the LNG Plant site boosted its recycling capability with the appointment of a second approved Papua New Guinean scrap metal recycler.

This is the fourteenth PNG LNG Quarterly Environmental and Social Report, which provides updates about the Project's environmental, construction, safety, health, security and social progress. 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 of PNG (Kroton) Limited, Santos Limited, JX Nippon Oil and Gas Exploration Corporation, Mineral Resources Development Company Limited and Petromin PNG Holdings Limited, and their affiliates.

### Environmental performance

Contractor waste management practices are achieving high standards across Project sites. This is the result of sharing lessons learned and using innovative reuse and recycling options, such as the patented Ecoflex system, which recycles end-of-life tires in road base, erosion control and retaining walls. While the Project aims to recycle materials and minimize waste, in some instances this is not possible. In these cases, the Hides Waste Management Facility is also beginning to realize its potential as the focal point for non-recyclable waste. During this quarter, the Project began to transfer non-recyclable waste from temporary storage to the Hides Facility for appropriate disposal, with more than 75 tonnes of stored waste received at the Facility so far.

The Project's strong commitment to protecting native fauna and flora was the focus of a multi-stakeholder meeting during this quarter to review and fine tune the Biodiversity Strategy. The meeting brought together representatives from the Project, the Papua New Guinean Government

and the University of Papua New Guinea, along with other stakeholders, to discuss the progress of the Project's biodiversity offset program. It was the last formal consultation to be undertaken by the Project as part of the development of the Biodiversity Offset Delivery Plan. The Project is now finalizing the Plan.

To minimize the construction footprint in the remote Homa Ridge area, during this quarter, the Project implemented innovative teleferic pipeline installation techniques. These techniques enable pipes to be carried uphill on a metal cable high above the ground. Teleferic installation is used in areas where there are steep hills or ridges, or where the terrain impedes vehicular access. The process minimizes the Project footprint because it allows a narrower Right of Way (ROW) width due to the reduced number of construction vehicles needing access to these areas.

In areas where the Project footprint has disturbed native vegetation, we are implementing a program of reinstatement works. With completion of construction at Komo Airfield, the contractor's focus was on reinstatement activities, with more than 29 hectares of land reinstated by the end of the quarter. In addition, 192 kilometres of the onshore pipeline ROW has been reinstated.



***The Hides Waste Management Facility is the focal point of waste management activities***

## Construction

A milestone was achieved with drilling of the first production well complete. Another key achievement was the start of pipeline welding on the Hides gas gathering pipeline system.

## 1<sup>st</sup> production well completed

Key construction highlights are outlined in Table 1.

**Table 1 – Contracts and construction highlights**

Contract	Contractor	Major activities during the second quarter 2013
LNG Plant and Marine Facilities (EPC3)	Chiyoda and JGC Joint Venture	Commissioning activities progressed on Train 1. Pneumatic testing completed on both LNG tanks. First water produced from the LNG Plant site's permanent desalination unit.
Hides Gas Conditioning Plant and Hides Wellpads (EPC4)	CBI and Clough Joint Venture	Completed construction of all storage tanks. Received and set multiple oversized equipment loads from Komo air operations.
Onshore Pipeline (EPC5A)	SpieCapag	Completion of over 320 kilometres of mainline welding, 231 kilometres of pipeline hydrotesting and 192 kilometres of ROW reinstatement. Commenced pipeline stringing and welding on the Hides gas gathering pipeline.
Komo Airfield (EPC5B)	McConnell Dowell and Consolidated Contractor Group Joint Venture	Air operations commenced. Commenced construction demobilization activities.
Associated Gas Development	Various	Completed commissioning of the second triethylene glycol unit at the Kutubu Central Processing Facility. Commenced commissioning on the new triethylene glycol unit at the Gobe Production Facility.
Drilling	Nabors Drilling International Limited	Completed drilling on the first of eight production wells.
Permanent Facilities Compound	Leighton (PNG) Limited	Progressed earthworks in preparation for construction of the permanent compound offices and associated service facilities.



*Drilling of the first of eight production wells is complete at Wellpad B*

## Safety, health and security

The LNG Plant site achieved a record 48 million hours worked between the first quarter 2012 and the second quarter 2013 without a Lost Time Incident. Much of this success is attributed to the site's Incident and Injury-Free® (IIF®) program, which achieved its own milestone with the graduation of the 13,000<sup>th</sup> worker during this quarter. The IIF® program was introduced in the first quarter 2012 to provide workers and supervisors with insights and tools to better understand how their own attitudes and actions, as well as the attitudes and actions of others, impact safety in the workplace.



*IIF® event held at the LNG Plant site*

Another safety milestone was recorded during the quarter with the 1,300<sup>th</sup> worker completing the Project's Safety Champions initiative. This initiative continues to prove successful, attracting high levels of interest among workers from various teams and contractor management alike. For example, nearly 300 contract security workers have participated in the initiative, representing over 20 percent of the Safety Champions across the Project.

The Hides Area Traffic Safety Committee proposed two community development initiatives to help pedestrians cross a busy intersection adjacent to the entrance of the Hides Gas Conditioning Plant site. These initiatives involve a dedicated walkway and barriers to separate people and vehicles, and will also help prevent children from accessing the roadway.

During this quarter, the Project sponsored a second World Health Organization malaria microscopy slide-reading course, following the success of the course conducted in the first quarter 2012. A World Health Organization specialist conducted the five-day course for microscopists the Project either employs or uses. Twelve participants achieved a World Health Organization accreditation.

The international Independent Scientific Advisory Board and the Lender Group's Independent Environmental and Social Consultant conducted two independent reviews this quarter. These reviews were on the Project's integrated Community Health Impact Mitigation Management Program. Two major partners, the Papua New Guinea Institute of Medical Research and Population Services International implemented this Program. Both reviews concluded the Program exceeded expectations and provided a good platform for the future development of baseline health data in Papua New Guinea.

## Workforce development

With the completion of construction at some worksites, workforce numbers continue to decrease. By the end of the quarter, the total Project workforce was just under 19,300, compared with 20,270 workers in the first quarter 2013.



*Operations and Maintenance trainee Elsie Digwaleu learning on-the-job at the LNG Plant*

## ~19,300 people make up the total Project workforce

The Project is preparing the Papua New Guinean workforce for demobilization across all worksites through an ongoing program involving publications, toolbox presentations and community engagements.

Drama performances are used to help highlight the processes that Landowner Companies (Lancos) will follow to demobilize their workforces and what workers can do to proactively prepare for demobilization.



*Transition training is providing workers with necessary knowledge to help obtain meaningful employment after leaving the Project*

## Growing Papua New Guinean businesses

By the end of this quarter, the Enterprise Centre had assisted over 15,200 entrepreneurs through its various programs. The Centre had also provided the equivalent of more than 8,300 training days and over 1,200 advisory and mentoring days to Papua New Guinean businesses.

Lancos remain the focus of the Project's mentoring and business development activities. To date, the Project has spent more than 2 billion Kina (US\$956 million) on Lanco services. Of this, 398 million Kina (US\$182 million) was spent in this quarter alone.

In addition to Lancos, the Project contracts other Papua New Guinean businesses for support services such as camp rental and equipment hire.

## 9+ billion Kina spent in Papua New Guinea to date

Together, Lanco services and additional services brought the total in-country in-Kina spend to more than 9 billion Kina (US\$4 billion) for the Project-to-date.

## Social development

Komo villagers are reaping the benefits of a new community market facility along with a new Bank South Pacific (BSP) branch, which were both officially opened on June 9.

The new Komo community market facility was inspired by the growing interest of local community members who had completed the Project's Personal Viability training and wanted an avenue to generate income in their community. The market was built in partnership among the community, the Government and the Project.

The Komo community market is already proving successful with helping to empower women to improve their financial status and economic profile through the sale of baked products.

During the second quarter, more than 180 women opened savings accounts in Hides and Komo to deposit funds from the sale of produce at the market.



*Traditional performers assist with the official opening of the Komo community market facility*

A Personal Viability 'train the trainer' program was also introduced in Komo. Five local women and one man were selected for the training, which will enable them to deliver the program in Komo and surrounding areas.

Personal Viability training is intended to empower communities to drive their own development and help individuals manage their changing lifestyles. To date, more than 1,300 people have completed the training.

**1,300+** participants in  
**Personal Viability training**  
**to date**

Since construction began in 2010, the Project has provided ongoing support to schools in the Project area.

This includes the ExxonMobil Science Ambassador Program, upgrading school infrastructure, ongoing donations of school desks and educational materials, and the 'Box of Books' school library program.

During this quarter, the Science Ambassador Program was implemented in Port Moresby International School and Redscar High School.

The Program involves the use of science kits to provide students with a fun way to learn about science in the petrochemical industry.



*Science Ambassador Program materials being used to teach science at Redscar High School*

Work also began on infrastructure development projects in the Tugupawi, Malanda, Juni, Idauwi and St. Paul's primary schools in Hides, with a water tank installed in Idauwi Primary School during the quarter.

The Project committed over one million Kina (US\$457,000) during the first quarter 2013 to upgrade classrooms and student amenities at the selected schools. These schools were selected because they continued to provide consistent education services to their communities despite the deteriorating condition of their infrastructure.

## Stakeholder and community engagement

The Project is maintaining a strong community engagement program to keep communities well informed and involved in Project-related activities.

During this quarter, over 250 formal engagements were conducted with more than 650 recorded participants in 45 communities within the Project area. This brings the total number of formal engagements to over 1,250, with more than 29,500 recorded participants for the Project so far.

Another 47 communities were reached through 295 informal engagements this quarter, bringing the total number of informal engagements to more than 1,650.

Topics discussed included safety during pipeline construction and commissioning activities, as well as traffic and pedestrian safety.

The then Prime Minister of Australia, the Prime Minister of Fiji, the Governor-General of Australia, Papua New Guinean national and provincial government representatives, and numerous Heads of Foreign Missions were among more than 170 dignitaries who attended 14 advocacy workshops and LNG Plant site visits during this quarter.



*Julia Gillard, then Prime Minister of Australia, talking with Operations and Maintenance trainees*

For the year-to-date, about 1,000 people from community groups, representative stakeholder bodies and government departments have participated in educational sessions, site tours and advocacy tours of the LNG Plant. These tours share messages of the Project's environmental and social stewardship and offer a contextual understanding of the work being undertaken.

**More than 29,500  
participants in formal  
engagements to date**

By working together with communities, government, Papua New Guinean suppliers and other key stakeholders, the Project is continuing to set benchmarks across many of its activities.



## The PNG LNG Project has achieved many construction milestones and progressed commissioning activities in preparation for first LNG deliveries in 2014.

In this fourteenth PNG LNG Quarterly Environmental and Social Report, the Project reports its progress with construction, health, safety, environmental and social management activities during this quarter.

The \$US19 billion Project involves the construction of gas production and processing facilities in Papua New Guinea's Southern Highlands, Hela and Western Provinces. It includes liquefaction and storage facilities located north-west of Port Moresby on the Gulf of Papua. When completed, these facilities will have a capacity of 6.9 million tonnes per year. More than 700 kilometres of pipelines are being built to connect the facilities.

More than 250 billion cubic metres of gas are expected to be produced and sold during the life of the Project. This will provide a long-term supply of LNG to customers in the Asia Pacific region, including: the China Petroleum and Chemical Corporation (Sinopec); The Tokyo Electric Power Company

Inc.; Osaka Gas Company Limited; and the Chinese Petroleum Corporation, Taiwan. The location and elements of the Project are shown in Figure 1.1. *Appendix 1* provides information about how the contracts for Phase 1 of the Project are divided.

This PNG LNG Quarterly Environmental and Social Report is part of a series, which is publicly available through the Project's website.



Read the PNG LNG Quarterly Environmental and Social Report series at

[www.pnglng.com](http://www.pnglng.com)

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

Drilling Rig 703 commenced drilling at Wellpad C

Drilling at Wellpad C



Drilling Rig 703 at Wellpad C

**Figure 1.1**

Project elements



A Project milestone was achieved with drilling of the first drilling production well complete.

Another key achievement this quarter was the start of pipeline welding on the Hides gas gathering pipeline system.

## 2.1 Highlands area

**Figure 2.1**

Highlands area Project activities



### 2.1.1 Hides Gas Conditioning Plant and Hides Wellpads

Heavy equipment including gas turbine generators, electrical switch rooms, air compressor skids and glycol packages were installed at the Hides Gas Conditioning Plant (HGCP) this quarter.

The Hides Gas Conditioning Plant and Hides Wellpads contractor also completed construction of all storage tanks, hydrotesting and painting of the slug catcher, and the installation of the flare pipelines.

Installation of transformers also began on the Hides Wellpads.



*Slug catcher at the HGCP*

### 2.1.2 Komo Airfield

A Project milestone was reached with the landing of the Antonov aircraft at Komo Airfield. The first cargo of heavy equipment landed in May.

The Komo Airfield construction contractor began demobilization activities during this quarter.



*Runway lights at Komo Airfield*

### 2.1.3 Drilling

A drilling milestone was achieved during this quarter with completion of the first of eight production wells. Drilling Rig 702 at Wellpad B reached final drill depth to complete the first production well. At the same time, Drilling Rig 703 commenced drilling at Wellpad C.



*Drilling Rig 702 at Wellpad B*

## 2.2 Onshore Pipeline

During this quarter, the Onshore Pipeline contractor commenced pipeline stringing and welding on the Hides gas gathering pipeline.

Construction of the main pipeline also progressed well, with completion of ROW construction on the steep Homa Ridge section and on the steep slope cable-assisted pipeline work north of the Homa Ridge.

Preparation for commissioning of the Kutubu to LNG Plant pipeline progressed with the start of pipeline inerting, which involves filling the pipeline with nitrogen to remove any oxygen. This is required before introducing natural gas into the pipeline.

The Onshore Pipeline contractor has completed over 320 kilometres of mainline welding, 231 kilometres of pipeline hydrotesting and 192 kilometres of ROW reinstatement.

## 2.3 LNG Plant and Marine Facilities

The LNG Plant and Marine Facilities contractor maintained their exceptional safety performance, with more than 48 million hours worked without a Lost Time Incident. During this quarter, site works continued to focus on commissioning activities for Train 1, with mineral oil flushing of refrigerant compressors, gas turbine generator flushing, pipe testing for the amine gas generation unit, and insulation on vessels.

Pneumatic testing was completed on both LNG tanks, and perlite insulation was completed on the north LNG tank. Insulation of the south tank was nearing completion by the end of the quarter.



*The north LNG tank as seen from the top of the south LNG tank*

A bathymetric survey was completed in the jetty offshore area to confirm water depths for the LNG ships against facility design specifications. Cold insulation was also completed on the LNG jetty piping, while steel work neared completion.

## 2.4 Associated Gas Development

During this quarter, commissioning of the second triethylene glycol unit at the Kutubu Central Processing Facility was completed. With the completion of these works, the Kutubu Central Processing Facility is well positioned to supply commissioning gas to the LNG Plant in the third quarter 2013.

Structural, piping, mechanical and electrical works also progressed on the Facility's north and south tank farms. Commissioning commenced on the new triethylene glycol unit at the Gobe Production Facility.

## 2.5 Development support execution, logistics and aviation

More than 12,000 deliveries were completed between Lae and Tari for the Project-to-date. Despite road closures due to landslips, the Material Logistics team continued to exceed planned delivery targets.

## 2.6 Permanent Facilities Compound

Earthworks progressed for the Permanent Facilities Compound near Port Moresby Airport. When complete, the compound will include offices and associated service facilities for the Project's production phase.

## 2.7 Pre-construction surveys

Pre-construction surveys were conducted on supporting infrastructure such as quarries, access roads, spoil stockpile sites and areas likely to be affected by sidestepping for the onshore pipeline.

Additional re-routes identified for the pipeline ROW on the Hides Spine were also surveyed during this quarter.

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 the 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		

Survey site	Sensitivities surveyed						Status
	1	2	3	4	5	6	
<i>ONSHORE PIPELINE FACILITIES</i>							
Benaria Mainline Valve Station 1 and Quarry		☑			☑		☑
Mainline Valve Station 2 (Kilometre Point 57) and 3 (Kilometre Point 66) and Additional Workspace		☑		☑	☑		☑
Neango to Dauli Access Road at Kilometre Point 18		☑		☑	☑		☑
Angore Roads and Angore Wellpads		☑		☑	☑		☑
Paua Access Road to ROW Kilometre Point 65+560				☑	☑		✘
Hides Spine		☑		☑	☑		☑
Tagari River North Bypass Access Road to Kilometre Point 4+750				☑	☑		☑
Benaria Quarries		☑		☑	☑		✘
Pagu Quarry				☑	☑		☑

#### Environment Permit sensitivity definitions:

- 1 Protected Areas**  
Recognized 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 Bowerbird display trees or display grounds.  
d) Pandanus swamp forest.  
e) Antarctic Beech *Nothofagus* spp. forest.  
f) Areas of Antarctic Beech *Nothofagus* spp. dieback.  
g) New Guinea Big-eared Bat *Pharotis imogene* colonies.  
h) Sandalwood *Santalum macgregorii* trees.  
i) High-value conservation swamps containing juvenile fish nursery habitat.  
j) Swamps in sink holes <50 metres deep on Hides Ridge.  
k) Areas of infestations of priority weeds or pests.  
l) Mangrove stands and forest.  
m) Seagrass beds.  
n) 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.

## SAFETY, SECURITY, HEALTH, ENVIRONMENT AND SOCIAL MANAGEMENT

The Project works proactively to protect the health and safety of workers, local communities and the environment within which Project activities occur.

### 3.1 Approach

Details about the Project's approach and commitment to environmental and social management activities are provided in the Environmental and Social Management Plan (ESMP). The ESMP is supported by discipline-specific plans (as shown in Figure 3.1), which were developed from the Project's Environmental Impact Statement. These plans are all publicly available on the Project website.



Explore the plans at [www.pnglng.com/commitment](http://www.pnglng.com/commitment)

The Project also has Security, Health and Safety management plans and Regulatory Compliance Plan that complement the environmental and social management plans.

Together, these documents enable a best-practice culture across all Project activities as part of Esso Highlands Limited's commitment to supporting sustainable economic growth for Papua New Guinea.

### 3.2 Security

A key component of the security transition plan from the construction phase to the production phase is ensuring contract security service providers develop and implement safety systems that align with Esso Highlands Limited standards. To meet this need, the Project is providing local contract security personnel with training through the Safety Champions initiative. By the end of the quarter, 284 contract security workers had participated in the initiative. This group represents over 20 percent of the Safety Champions across the Project.

The Project also assisted the Royal Papua New Guinea Constabulary with delivering Voluntary Principles of Security and Human Rights training to Government security personnel assigned to the Project area.

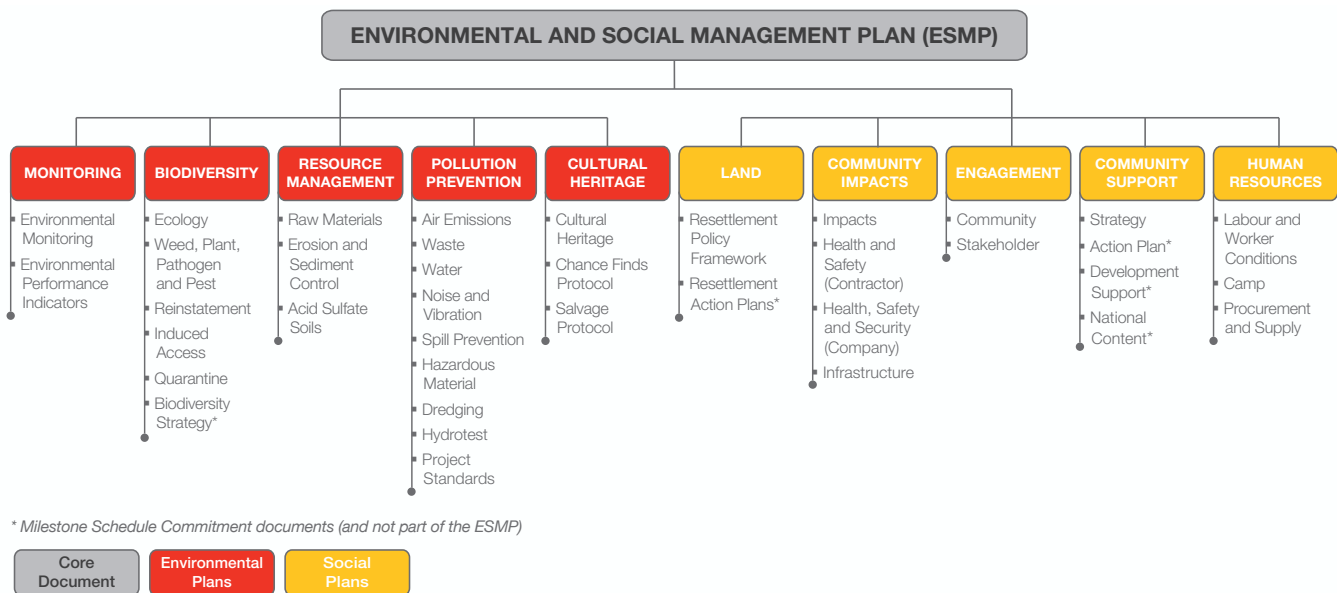
### 3.3 Revenue management

The Papua New Guinean Government continues to support greater budgetary and related assistance to the provincial and sub-provincial levels of Government, with the intention of improving Government service delivery.

In March 2013, the Papua New Guinean Parliament endorsed moving forward with the Extractive Industries Transparency Initiative (EITI).

Figure 3.1

Environmental and social management plans



Subsequently, during the EITI Global Summit held in Sydney, Australia, in May, the Papua New Guinean Treasurer and EITI National Champion Don Polye committed the country to applying for EITI candidacy by December 2013. He also committed to establishing a sovereign wealth fund to assist the Government in its long-term management of revenues from extractive industries. The EITI is a voluntary initiative that promotes improved governance in resource-rich countries through the full disclosure and verification of company payments and government revenues from oil, gas and mining. Exxon Mobil Corporation has continuously served as either a member or alternate member of the EITI board since its inception in 2002, and supports the Papua New Guinean Government's efforts to move forward with the EITI.

### 3.4 Management of Change

No Class I or II Management of Change requests were made during this quarter.

The Project's Management of Change procedure applies when changes are needed to the Project Development Plan. The Project considers safety, health, security, environmental and social management, operability and maintenance, regulatory and cost, and scheduling requirements before any change. Proposed changes are managed in accordance with change classifications. Class I changes require Lender Group review before implementation, while Class II changes involve notification in the PNG LNG Quarterly Environmental and Social Report.

### 3.5 Environmental and Social Milestone Schedule

The Project finalized the Biodiversity Offset Delivery Plan during this quarter. The Lender Group's Independent Environmental and Social Consultant (IESC) also provided feedback on the Biodiversity Monitoring Plan. The Project is incorporating the IESC's comments into an updated version of the Plan.

A second multi-stakeholder meeting was held in April to discuss the Biodiversity Strategy and update participants about the status of the Project's biodiversity offset program. More information about the meeting is provided in *Case Study One – Biodiversity multi-stakeholder meeting* and *Section 10.6 Biodiversity Strategy*.

The Project continues to develop site-specific Resettlement Action Plans as needed.

The Project's strong commitment to protecting native fauna and flora was the focus of a multi-stakeholder meeting during this quarter to review and fine tune the Biodiversity Strategy.

The Biodiversity Strategy guides the Project's management and protection of wildlife across its worksites, with an emphasis on identifying and conserving priority ecosystems.

The Project uses a range of measures under the strategy, from identifying what is important to biodiversity, avoiding impacts to those areas and, where impacts cannot be avoided, ensuring the effects are minimized.

The multi-stakeholder meeting was held over three days and brought together representatives from the Project, the University of Papua New Guinea and conservation stakeholders, to discuss the progress of the Project's biodiversity offset program.



*A presentation being delivered on Component 1 of the biodiversity offset program*



*Multi-stakeholder meeting participants*

The agenda was built around the five components of the offset program. Overviews were provided of the Project's progress in the implementation of each offset component. Each presentation was followed by an open discussion with attendees.

A roundtable discussion explored the Project's guiding principles relating to meaningful conservation transactions. The Project recognizes that the basis of successful conservation is net social gain, and that any conservation effort in Papua New Guinea will need to address the fundamental question of what a particular community/group of communities' wishes to gain from it. In all cases, the Project recognizes that a meaningful conservation transaction is key.

## Biodiversity offset program

The biodiversity offset program consists of five components:

- Component 1 – Work at the regional level to support the DEC in development of a protected area system for the Kikori River Basin.
- Component 2 – Work at the national level to support the DEC in furthering its objectives under the National Biodiversity Strategy and Action Plan.
- Component 3 – Enhancing Conservation Capacity, which involves technical capacity building for conservation through the University of Papua New Guinea in a program to be led by the Mama Graun Conservation Trust Fund.
- Component 4 – Enhancing and strengthening of one or more existing protected areas in the Kikori River Basin.
- Component 5 – Establishing one or more new community-based protected areas in the Kikori River Basin.



*Danny Samandingke from YUS Conservation Area Project participating in a discussion session*

The Project increasingly works with local suppliers while supporting their development through services provided by the Business Development team and the Enterprise Centre. Project contractors continue to use their own initiatives to support the development of local suppliers, including Lancos.

### 4.1 Supplier development

Lancos remain the focus of the Project's mentoring and business development activities as they provide key sources of labor supply in the areas of catering, camp maintenance and security. They also provide the Project with vehicle, boat and truck hire; heavy equipment rental; construction machinery; timber; wooden pallets and spare parts; and facilitate the supply of fresh produce for camp kitchens. By the end of this quarter, the Project had spent more than 2 billion Kina (US\$956 million) on Lanco services. Of this, 398 million Kina (US\$182 million) was spent in this quarter alone.

In addition to Lancos, the Project contracts other Papua New Guinean businesses for support services such as camp rental and equipment hire.

Together, Lanco services and these additional services brought the total in-country in-Kina spend to more than 9 billion Kina (US\$4 billion) for the Project-to-date.

### 4.2 Enterprise Centre

By the end of this quarter, the Enterprise Centre had assisted more than 15,200 entrepreneurs through its various programs. The Centre had also provided the equivalent of more than 8,300 training days, and over 1,200 advisory and mentoring days, to Papua New Guinean businesses.

#### 4.2.1 Business assessments and training

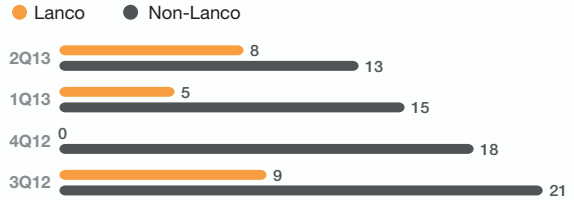
During this quarter, 21 business assessments were completed through the Centre, as shown in Figure 4.1, including four on-site assessments with businesses in Mount Hagen. The Centre also provided 28 finalized assessment reports to Papua New Guinean businesses to support their continuous improvement. To date, the Enterprise Centre has assessed 286 Papua New Guinean businesses.

A record of more than 1,200 training days was achieved in this quarter (as shown in Figure 4.2). This was attributed mainly to the growing demand for International Organization for Standardization (ISO), Employee Relations and Industrial Relations training.

During this quarter, 35 people from 19 Papua New Guinean businesses completed ISO training on food safety and auditing techniques. MYOB® bookkeeping training was provided to over 28 people, mostly from Lancos.

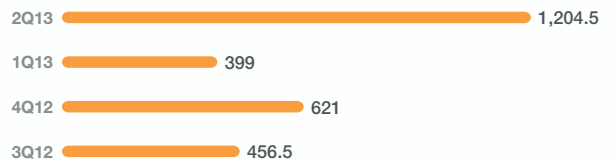
**Figure 4.1**

Number of Enterprise Centre assessments for Lancos and non-Lancos



**Figure 4.2**

Number of capacity building training days



#### 4.2.2 Advisory services

The Enterprise Centre's Financial Advisory Service supported more than 50 local companies during this quarter. The Service helps Papua New Guinean business owners gain access to finance by assessing their businesses against the standard loan criteria used by commercial banks and identifying weaknesses such as a lack of cash flow, unrealistic business forecasts or poor budgeting. Mitigation actions are recommended for any identified weaknesses.



*ISO training participants*

#### 4.2.3 PNG Supplier Database management

More than 140 people used the PNG Supplier Database online dashboard during this quarter. To date, 559 business opportunities have been posted on the PNG Supplier Database, with 1,610 suppliers contacted. The total number of contracts awarded to date is 302.

The Project proactively supports health, safety and local business initiatives intended to deliver long-term benefits to communities in the Project impact area. This includes supporting new infrastructure development for local communities.

## 5.1 Structure and relations

A set of community impact and engagement management plans, as shown in Figure 3.1, enables the Project to effectively interact with communities and manage any potential construction impacts.

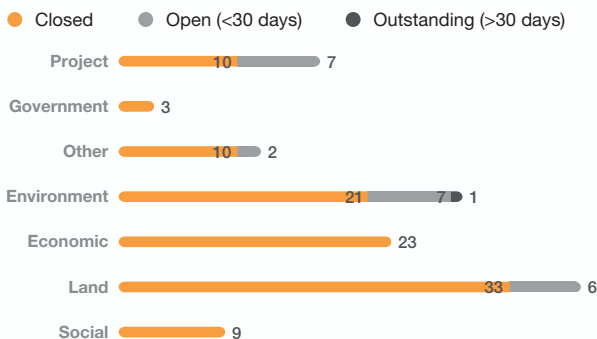
### 5.1.1 Community grievance management

There was a 21 percent increase in grievances compared with the first quarter 2013. The Project is capturing more grievances as it increases its engagement activities with communities.

A total of 132 grievances were registered and categorized in this quarter. Of these, more than 100 were closed within 30 days, as shown in Figure 5.1.

**Figure 5.1**

Number of grievances registered during the second quarter by closure status



Of the total grievances recorded during this quarter, 29 percent related to land concerns, which is a decrease from 41 percent recorded in the previous quarter. Land-related grievances primarily related to compensation claims for gardens, improvements and speculative structures. Other land concerns captured related to access and compensation agreements.

Environmental grievances registered during the quarter mostly related to erosion and sediment control regarding mudflow, landslips and sidcasting. This accounted for almost 22 percent of the grievances recorded. Most water grievances involved requests for alternate water sources. Other environmental concerns regarded cultural heritage.

More than 17 percent of grievances were for economic-related concerns. These were about demobilization activities and work and business development opportunities. Another 13 percent were concerns about Project activities, such as damage to traditional Huli ditches and fences built along the roads.

Resettlement grievances concerning speculative housing along the pipeline ROW were the predominant social grievance during the quarter, which decreased from 14 percent in the first quarter 2013 to just 7 percent this quarter. Other social issues related to community health and safety, worker conditions and engagement.

The Project closed 124 of the grievances registered during this quarter and from previous quarters, leaving 23 grievances remaining open at the end of the quarter.

### 5.1.2 Project Induced In-Migration

A Project Induced In-Migration action plan was developed for the LNG Plant site this quarter, following a desktop review conducted during the first quarter 2013. The Project is in the process of updating the migration procedures manual and developing a monitoring tool, which will be used to collect migration data.

Stakeholder engagement meetings and migration awareness-raising activities continue with the Central Provincial Administration.

### 5.1.3 Fisheries

During this quarter, fisheries surveys were completed in the Omati area and Caution Bay. Twenty-nine trained fisheries assistants from both sites supported the Project Fisheries team with conducting catch landing and mangrove use surveys in Caution Bay and catch landing surveys at Omati. There were 248 interviews conducted in Caution Bay, while 209 were conducted for the Omati area.

### 5.1.4 Social considerations for logistics activities

At the second quarterly Barging Route Waterways Memorandum of Understanding Committee meeting in June, a scope of works was presented for a classroom infrastructure project for Bisi Elementary School, and for donations of a water tank and school desks for Veraibari Community School.

The Community Development Initiatives Foundation has finalized the total scope of works for approval, allowing implementation to begin in the third quarter 2013.

## Kimsen realizes his dream

Kimsen Kibou, from the Porome tribe, is realizing his dream of becoming a medical laboratory assistant, thanks to scholarships provided through the World Health Organization and the Barging Route Waterways Memorandum of Understanding Scholarship Program.

In 2011, the World Health Organization sponsored Kimsen to attend a Rural Laboratory Assistant's course at the Divine Word University in Madang. After graduating from the course, Kimsen was awarded with Barging Route Waterways Memorandum of Understanding Scholarship Program funding to complete a Medical Laboratory Assistants Course at the Divine Word University. Kimsen has completed his coursework and will graduate as a Medical Laboratory Assistant in August 2013.

"I feel encouraged, challenged and blessed," Kimsen said. "I appreciate the opportunity I have been given through the Barging Route Waterways Memorandum of Understanding Scholarship Program funding."

Kimsen will be returning to Kikori to apply his skills at the Kikori District Health Centre which is the only serving Health Centre within these communities.



*Kimsen Kibou (second from right) and fellow students participating in a practical lesson*



*Tables for teaching staff donated to Para Primary School*



*New school desks, built by the Juni Construction Training Facility trainees, being loaded for delivery*

Meanwhile, the Koki and Badili Vocational Schools were engaged to build 80 desks for Redscar High School and Papa, Lea Lea and Boera primary schools in the LNG Plant site villages. During this quarter, 20 of the desks were built and donated to Papa Primary School.

The Project also provided 7,000-litre water tanks to each of nine schools in LNG Plant site villages to provide a clean supply of potable water for students.

## 5.2 Infrastructure, services and resources

During this quarter, students and teachers from schools in the Hides and Idauwi regions received supplies of desks, tables, chairs and stationery from the Project.

The school desks were built by trainees from the Juni Construction Training Facility, while surplus tables and chairs originally purchased for the HGCP site were donated to the teaching staff. The donations were made to the Para Primary School and Wara Elementary School in Hides, and to the Idauwi Evangelical Church of Papua New Guinea Primary School.

Another 20 school desks built by Juni Construction Training Facility trainees were also donated to Para Primary School this quarter.



*Papa Primary School students with their new desks*

Komo villagers are reaping the benefits of their new community market facility and the first BSP branch for Komo, which were both officially opened on June 9.

The new Komo market facility was inspired by the growing interest of local community members who completed the Project's Personal Viability training and wanted an avenue to generate income in their community. The market facility was built in partnership among the community, the Government and the Project. It replaces a temporary market, which was a Project-led safety initiative in 2011 to provide a safer location for street-side vendors and market goes away from busy traffic areas. The new permanent market facility is contained in a fenced area in the center of the Komo township and incorporates a bus stop at the entrance, a choice of covered and open vendor stall areas, toilets, an administration office and a secure storage area.

The market is operated under a local government/community governance program, which involves the collection of a small daily fee from market vendors. These funds help maintain the market structures and sustain operations.

The Komo community market is already proving successful with helping to empower women to improve their financial status and economic profile through the sale of baked products. During this quarter, more than 180 women opened savings accounts in Hides and Komo to deposit funds from the sale of produce at the market.



**Opening ceremony for the new Komo community market facility and BSP branch**

The Project was also involved in constructing a new building this quarter to house education and accommodation facilities for the Tari Uniting Church Women's Fellowship women's center. The center aims to provide livelihood skills such as baking, sewing, health and hygiene, literacy and religious studies to some 700 women who are members of the Tari Uniting Church Women's Fellowship.

A dilapidated water pump in Boera Village was upgraded with support from the Project, the local non-government organization Living Waters, and members of the community. The newly refurbished pump will provide a local water supply to residents near Boera Village who previously had to walk a longer distance to collect containers of water for domestic use.



**The newly refurbished Boera water pump in use**

With completion of the Komo Airfield this quarter, the contractor and local community disbanded the Komo Community Issues Committee with a traditional Huli ceremony. The Committee was established in mid-2011 to enable the contractor to engage with community leaders, keep them informed of construction activities and address community concerns. A new Komo Airfield Issues Committee has replaced the Community Issues Committee to help manage the safe transportation of cargo to the HGCP site.



**Final meeting of the Komo Community Issues Committee**

The Project continues to work with Lancos to improve village facilities along the pipeline ROW. In April, a community center was opened in Paua Village through the efforts of community workers, with materials provided by the Project. During May and June, the Project donated tools to communities from Benaria to Awatangi so they could clear and grade a 6-kilometre track to reduce their level of isolation from other regions.



*The new Paua community center*

During this quarter, the Warabia clan became the first clan group to receive a community structure from the Project's Drilling organization. The building, located near the Hides Wellpad Access Road, was built by the clan with materials and engineering expertise provided by the Project.



*The new community structure for the Warabia clan*

Plans are underway to build a second community structure for the Juni community, with the building to be located between Juni and Nogoli.

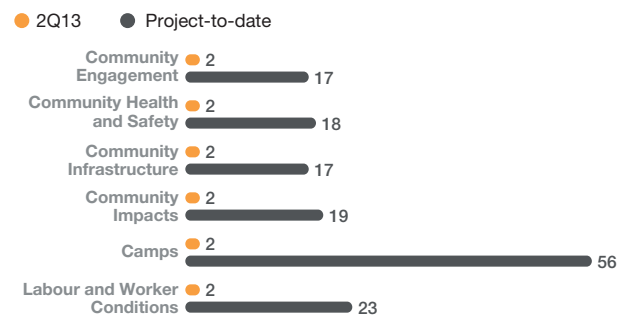
### 5.3 Verification, monitoring, assessment and audit

Project monitoring is based on commitments made in six social management plans: Community Engagement; Community Health and Safety; Community Impacts; Community Infrastructure; Camp, and Labour and Worker Conditions.

As shown in Figure 5.2, 12 monitoring events were conducted during this quarter. There was an increased effort with monitoring of community impacts to determine if construction activities had affected community services, infrastructure and safety. Another review examined recruitment selection, termination and demobilization procedures under the Labour and Worker Conditions Management Plan. An audit of camp management standards was also conducted, with checks on general housekeeping standards, camp grievances and disciplinary procedures. Monitoring events conducted this quarter were evenly distributed across all the social management plans.

**Figure 5.2**

Number of monitoring events against relevant social management plans



The Project uses three reporting tools to track its conformance with the social management plans. These are non-conformances, field observations and positive field observations.

Non-conformances are situations that are not consistent with social management plan requirements and require corrective actions.

A field observation is an observation, intervention and/or corrective action that is required to prevent a non-conformance. If not corrected in a timely manner, field observations can escalate to a non-conformance.

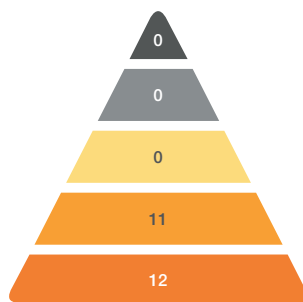
Positive field observations are identified as innovative or excellent performance against social management plan requirements.

There were 11 field observations and 12 positive field observations recorded in this quarter, as shown in Figure 5.3. Positive field observations were identified for health education, safety initiatives, cultural/behavioral education, wages, training and improved recreational facilities in worker camps. Seven of the 11 field observations recorded were closed, while four remained open at the end of the quarter, as shown in Figure 5.4. Five Severity Level I non-conformances recorded in previous quarters were closed during this quarter. No new non-conformances were raised.

**Figure 5.3**

Number of non-conformances and field observations raised during the second quarter

- Severity Level III
- Severity Level II
- Severity Level I
- Field Observation
- Positive Field Observation



**Figure 5.4**

Closure status of field observations raised during the second quarter

- Closed
- Open



## 5.4 Community health

The Project works in collaboration with Papua New Guinean health research organizations and key non-government organizations to mitigate and manage potential Project-related health impacts. The Project's integrated Community Health Impact Mitigation Management Program is the outcome of this collaboration.

The Program is comprehensive, aligned with ExxonMobil's corporate citizenship objectives, and based on a framework developed by the International Petroleum Industry Environmental Conservation Association (IPIECA) – the international oil/gas trade association. It also follows the International Finance Corporation's guidance notes on Performance Standard No. 4 Community Health, Safety and Security, and aligns with ExxonMobil's Corporate Citizenship objectives.

Two major partners, the Papua New Guinea Institute of Medical Research (IMR) and Population Services International (PSI), implement the Program.

As part of the Project's commitment to building national capacity, the IMR and PSI work with local non-government organizations to develop sustainable health services infrastructure.

During this quarter, two independent organizations (the Independent Scientific Advisory Board and the IESC) reviewed and confirmed the Integrated Health and Demographic Surveillance System (iHDSS) has established a new benchmark for monitoring potential health effects related to a large development project, and provided a good platform for the future development of baseline health data in Papua New Guinea.

### 5.4.1 Integrated Health and Demographic Surveillance System

The iHDSS was established by the IMR under the 'Partnership in Health' program with the Project. It collects population and household-level data from four key Project areas and two matched control sites to monitor and manage the Project's potential health impacts. The iHDSS data has the potential to strengthen the National Department of Health's ability to analyze critical community trends across Papua New Guinea.

Preliminary results of the iHDSS baseline health and social demographic data indicate support for the initial predictions of the Health Risk Assessment and Health Impact Assessment conducted for the Project. The IMR continues to recruit iHDSS reporters from local villages, with 25 new reporters trained from the LNG Plant site villages of Boera, Papa, Lea Lea and Porebada this quarter. This is in addition to the 154 people who have already been trained across the Project area. A census and demographic monitoring update survey to record changes in the community population was conducted in all LNG Plant site villages during this quarter.

A Project-wide vaccination coverage survey was also conducted to help IMR health researchers understand the possible associations with birth and infant mortality rates. This effort is ongoing as part of the iHDSS. This quarter, more than 400 children between the ages of one and five from the LNG Plant site villages participated in the survey. This involved an assessment of their health books with regard to neo-natal, antenatal and post-natal care and attendance. Sanitation and hygiene surveys continued in the LNG Plant site villages, with 389 households surveyed this quarter.

Additional census and demographic update surveys were undertaken in the Hides area, along with a vaccination coverage survey involving 353 children in the Haliago region.

Census and demographic update surveys were also completed in the control sites of Asaro Valley and KarKar Island. With the appointment of a physician in KarKar Island, morbidity surveillance commenced this quarter at the Goubin Rural Hospital. The IMR diagnostic laboratory at the Modilon Hospital in Madang will be used to confirm results collected from the Goubin Rural Hospital.

The Project supports the IMR's efforts to improve methods of diagnosing illness in local communities. For example, during this quarter the Project helped the IMR by providing a reliable location for the storage of specimen samples awaiting analysis in the Partnership in Health Laboratory in Port Moresby.

#### 5.4.2 Tuberculosis

Active tuberculosis case studies and household contact surveys continue at Kikori Hospital, with 20 villages randomly selected to participate this quarter from 42 villages in the Kikori Hospital catchment area. To date, over 100 villagers have agreed to join the study and 90 suspected cases were investigated during the quarter. Early results support previous reports that the Kikori region has a high incidence of tuberculosis. The study includes testing for multi-drug resistant tuberculosis in the region. Planning is also underway to extend the study to the Hiri District and villages around the LNG Plant site. The Hiri District is a key survey location due to its proximity to the LNG Plant site and the large number of workers that are drawn from local communities. Villages such as Lea Lea have traditional trade connections with Kikori.

Dr. Paul Harino, the IMR physician located at the Kikori Hospital, was awarded a Masters of Medical Science from the University of Papua New Guinea for his tuberculosis research during the quarter.

#### 5.4.3 Support to non-government organizations

PSI is delivering a range of health initiatives, with support from the Project, as part of the Enhanced Community Health Program.

For example, during this quarter over 740 people from the LNG Plant site villages received Community-Led Total Sanitation training in order to raise hygiene awareness and minimize the spread of diarrheal illness. To complement these sessions over 1,100 Water, Sanitation and Hygiene (WASH) kits were distributed to the villagers. Nineteen individuals in the community were identified and trained to serve as 'helti man' (healthy man) and 'helti meri' (healthy women) ambassadors. They will be village focal points for diarrheal management and will provide villagers with advice about the prevention and treatment of diarrheal illness.

PSI also conducted Marital Relationships Training sessions with 256 participants from Komo this quarter. The training focused on reproductive health and gender-based violence prevention.

Another 229 workers from trucking and security companies received tailored Marital Relationship Training sessions known as 'Seif Draiva' (Safe Driver) training. It covered sexual and reproductive health as well as relationship issues. The training addressed the fundamental causes (rather than the consequences) of men and women seeking concurrent sexual partners outside marriage, gender-based violence, and the breakdown of marriages and households.

## 5.5 Community safety

Locally engaged traffic controllers continue to act as the interface between community and Project traffic at populated and blind spot areas between Komo and Hides. Their role now involves supporting the cargo transport convoys moving equipment along the Construction Logistics Route to the HGCP site.

The traffic controllers are using flash cards introduced in the first quarter 2013 to help deliver safety messages to drivers and passengers.

An initiative was introduced along the Construction Logistics Route to provide a greater level of visibility and safety for the many pedestrians who regularly use the roadside to travel to schools and markets. The first phase involved a community engagement program and grass cutting on the road verge to improve driver and pedestrian visibility. The second phase consisted of clearing drainage channels and culverts. All work was undertaken by local communities living along the Construction Logistics Route.



**Cargo transport convoy with traffic controllers displaying road safety flash cards**



**A Project-led initiative is improving pedestrian safety along the Construction Logistics Route**

The Hides Area Traffic Safety Committee proposed two community development initiatives this quarter to help pedestrians cross a busy intersection adjacent to the entrance of the HGCP site. The initiatives involve a dedicated walkway and barriers to separate people and vehicles. These measures will also help prevent children from accessing the roadway at peak traffic periods.

## 5.6 Community investment

The Project aims to deliver opportunities for sustainable community development in a culturally appropriate manner.

### 5.6.1 Community Development Support Plan

The Community Development Support Plan consists of initiatives based on Strengthening Social Resilience, Local Economic Development, and Community Capacity Building and Partnerships.

During this quarter, independent auditors conducted a mid-term review of the Community Development Support Plan. The review assessed the Plan's effectiveness and provided a set of recommendations for further improvement. It involved an assessment of Plan documents, field visits and focus group interviews with community members, relevant government agencies and non-government organizations.

#### Strengthening Social Resilience

The Project continues to support local schools, with key activities this quarter including implementation of the 'Box of Books' school library program in partnership with the University of Papua New Guinea.

This program will benefit more than 50 primary schools in the Project impact area. Each school receives two cabinets filled with books, along with training for two teacher-librarians. During this quarter, teachers from six schools in Komo and 13 schools in the Kutubu/Moran area were provided with training on how to manage a library service in their school. These teachers join another eight from the four LNG Plant site villages who have already completed teacher-librarian training.

The Project continues to support infrastructure development and provide donations of desks and educational materials to schools throughout the Project area. These additional activities are outlined in *Section 5.2 Infrastructure, services and resources* and *Section 5.6.2 Strategic Community Investments*.

Personal Viability training continues to prove successful with communities in the Project area. During this quarter, a 'train the trainer' program was introduced in Komo. Five local women and one man were selected for the training, which will enable them to deliver the program in Komo and its surrounding areas. All six candidates had completed Personal Viability Level I and II training in 2012. The six candidates have been invited to attend a three-month Personal Viability Program Developer training camp at Karura Island in the Wewak province in 2014.

Personal Viability training is intended to empower communities to drive their own development and help individuals manage their changing lifestyles. To date, more than 1,300 people have completed the training.

#### Local Economic Development

Implementation of the community-led Agricultural Development Plan is progressing in the four LNG Plant site villages of Boera, Papa, Lea Lea and Porebada. The Plan aims to improve food and cash security in the villages through the development of sustainable produce. Garden tools were distributed to 188 households across the four villages and four field assistants (one from each village) were recruited to help train villagers in agricultural production. Crop distribution also continued with mango and guava seedlings, banana suckers, cassava cuttings, corn and pumpkin seeds, and carambola and citrus seedlings provided to the LNG Plant site communities for planting.

In addition, 10,000 hybrid coconut seed nuts are being germinated in the National Agricultural Research Institute nursery and will be distributed in the coming quarters.

Preparations are underway for the year-end wet season with plot selection for planting improved seedlings of coconuts and mangoes. African yams are being added in response to demand for this food crop.

#### Community Capacity Building and Partnerships

The Project is finding new ways to support community groups and individuals with building their capacity.

For example, in May a community field day was held at Komo nursery to showcase crop and animal production practices and technologies to local vegetable growers and buyers. More than 150 people attended the event, including representatives from women's groups in the Ajakare, Emberali and Ligame areas. The Deputy Governor of Hela Province and Council President of the Komo Local Level Government, Thomas Potape, was among community leaders who attended the day.



**Thomas Potape, Deputy Governor of Hela Province/Council President of the Komo Local Level Government, at the community field day**

Educational sessions were conducted on topics such as how to prepare local pig feed using fishmeal, as a high protein concentrate, mixed with sweet potato; how to grow new varieties of crops; and how to market and transport vegetables for sale.

The Project continues to educate communities about food processing, nutrition and hygiene. As part of this commitment, during this quarter 35 drum ovens were provided to households across all Project sites, bringing the total number of drums provided by the Project-to-date to 111. A local partner has been recruited to fabricate the drum ovens and ensure a sustainable supply of ovens after the Project activity ends.

### 5.6.2 Strategic community investments

Since construction began in 2010, the Project has provided ongoing support to schools in the Project area. This includes the 'Box of Books' school library program (as outlined in *Section 5.6.1 Community Development Support Plan*), ongoing donations of school desks and educational materials, upgrading school infrastructure, and the ExxonMobil Science Ambassador Program.

During this quarter, the ExxonMobil Science Ambassador Program was implemented in Port Moresby International School and Redscar High School. As part of the Program, science kits were used to provide students with a fun way to learn about science in the petrochemical industry. Both of the participating schools have expressed interest in continuing the Program in the second half of the school year.

As well as the Science Ambassador Program, the Project implemented a Science, Engineering and Mathematics program to primary and high schools throughout the Project area.



*The Science Ambassador Program underway at Redscar High School*

## Service provider appreciates livelihood improvement

The Project is increasingly engaging community members as service providers to build an ongoing sustainable supply of vegetable crops and animals for communities in the Project area.

One such service provider is Anna Minai from Nigiria Village in the Hela Province. She was the first person to be engaged as a service provider for raising seed tubers of African yams, which she sells to the Project for distribution to local communities.

Anna has invested the income she receives from payment for the tubers into raising broiler chickens. She is also cultivating peanuts, corn and vegetable crops using seeds provided by the Project.

"I am grateful to the Livelihood Restoration team for giving me the skills to make yam seed tubers to sell to other people and earn income for my family. I have also earned income from growing and selling peanuts and corn. I have saved this money and used it to start my own chicken (broiler) project. The income that I now get from my new farming activities has helped me to construct my family house," said Anna.

Prior to the Project, Anna managed a semi-permanent house and a trade store. With the money she has earned through the community-led Agricultural Development Plan, Anna is upgrading her existing store with a more permanent structure. Anna said she appreciated the skills she had gained through the training, planting materials and advice provided by the Project because it gave her the opportunity to improve the livelihood of her family.



*Anna Minai and her daughter holding an African yam*



**Dr. Jane Mogina, Biodiversity Advisor, Esso Highlands Limited, teaching geology to students at Port Moresby International School**



**Studying stones at Port Moresby International School as part of the Science Ambassador Program**

Work also began on infrastructure development projects in the Tugupawi, Malanda, Juni, Idauwi and St. Paul's primary schools in Hides, with a water tank installed in Idauwi Primary School during the quarter. The Project committed over one million Kina (US\$457,000) during the first quarter 2013 to upgrade classrooms and student amenities at the selected schools. These schools were selected because they continue to provide consistent education services to their communities despite the deteriorating condition of their infrastructure.



**A new water tank installed at Idauwi Primary School as part of infrastructure development support in Hides**

The Project continues to support programs that empower Papua New Guinean women. In April, five women who were sponsored by the Project to attend the Global Women in Management (GWIM) conference in June were also selected to attend a 'train the trainer' course in Jakarta, Indonesia in August 2013. Two of the women, Margaret Rumbuk and Marilyn Perry, attended the GWIM conference in Washington DC in June as trainers. Dobi Isaiah from Porebada Village near the LNG Plant site was also selected to attend the GWIM conference in Washington DC in June as a trainee. Another seven Papua New Guinean women have been selected to attend the next GWIM conference in Washington DC later this year.

The Centre for Development and Population Activities operates the GWIM conference.

Conference participants are mid-career women from civil society organizations around the world who are given the opportunity to network and learn from experts in both public and private sector organizations. For Papua New Guinean women, the conference gives them the opportunity to assess ideas that can help advance economic opportunities in their country. This includes strengthening skills in project and financial management, proposal writing, leadership and advocacy. Since 2009, the Project has sponsored 17 Papua New Guinean women to attend the GWIM conference.

During this quarter, the Project joined forces with a group of private sector organizations to help conserve Papua New Guinea's endangered tree kangaroo species.

Esso Highlands Limited was among organizations that donated funding toward a new tree kangaroo exhibit, which opened at the Port Moresby Nature Park in April. The exhibit is being used to help protect the Huon Tree Kangaroo *Dendrolagus matschiei* and Doria's Tree Kangaroo *Dendrolagus dorianus* species, which are both endangered. The Nature Park has successfully bred two Huon Tree Kangaroos to produce a joey, known to local school children as 'Crinkle' because of the natural kink in his tail.



**From left to right: Lawrence Stevens, PNG Sustainable Development Program; Wayne Dorgan, Chairman, Port Moresby Nature Park; Dr. Jane Mogina, Biodiversity Advisor, Esso Highlands Limited; and Cole Chestnut, Pacific Rim Constructors officially opening the new tree kangaroo exhibit**



**One of the endangered Huon Tree Kangaroos**

General Manager of Port Moresby Nature Park, Michelle McGeorge, said she was pleased with the ability of different organizations to come together and support the Park's conservation efforts. "It demonstrates that there are organizations in Papua New Guinea genuinely concerned about the plight of wildlife and conservation in the country, and with their generous support, Port Moresby Nature Park is able to provide one avenue towards community education and the conservation of these unique and fascinating animals," Michelle said.

The Project continues to work closely with local communities to identify, record and protect plants, animals and ecosystems that are unique to Papua New Guinea.

### 5.6.3 Volunteer programs

A team of 20 Project volunteers joined 30 City Mission workers to provide a fresh coat of paint to three rooms at the Port Moresby branch of the Mission this quarter.

The City Mission provides physical, emotional and spiritual help to young Papua New Guineans through practical, positive programs at the point of crisis and helps develop the skills and potential for people to become self-reliant.

The freshly painted rooms will give Mission workers and those seeking help through the Mission a more comfortable environment.

The Project has again demonstrated its support of transparency and anti-corruption efforts in Papua New Guinea by taking part in the annual Sir Anthony Siaguru Walk Against Corruption on May 26. More than 30 Project employees joined walkers from over 100 other organizations, carrying banners and wearing t-shirts calling for transparency and accountability across all levels of decision-making. The theme of this year's walk was 'Be the Change – Follow the Rules!'

Decie Autin, Project Executive, Esso Highlands Limited said the Project had participated in the Walk Against Corruption for the past three years because it reflects the Project's belief in upholding the highest standards of integrity in all operations.



**Project volunteers with City Mission workers preparing to re-paint rooms in the Mission**



**Project employees gathering for the Walk Against Corruption**



**Decie Autin, Project Executive, Esso Highlands Limited holding the banner for the Walk Against Corruption**

The Walk Against Corruption is organized by Transparency International Papua New Guinea. Participation in the walk has grown six-fold since 1,000 people made their first Walk Against Corruption in 2007.

Landowner clans receive compensation for damage and deprivation caused by the Project in accordance with requirements of the *Oil and Gas Act 1998*. Households and individuals receive compensation for physical and economic displacement through the resettlement program. The impacts of physical and economic displacement are monitored through standard of living indicators and livelihood restoration indicators respectively.

### 6.1 Compensation

This quarter, ten new In-Principle Compensation Agreements were signed for land accessed for Project construction. Four of the Agreements covered Hides facilities such as wellpads, one covered the Kopi Logistics Access Road, one was for Angore Wellpad B, two covered individual Angore spoil sites, one was for a quarry in Angore, and the last covered a quarry near Tari.

All In-Principle Compensation Agreements are in place for major assets in Hides and the Project is working on Clan Agency Agreements for all wellpads.

Four additional compensation payments were made for 9 kilometres of the pipeline ROW this quarter. With these payments, the Project has compensated for approximately 55 percent of the onshore pipeline ROW. Engagement with clans for land access continues to keep pace with construction of the pipeline ROW.

In the Upstream North area, Clan Agency Agreements were finalized and compensation paid for two spoil sites in Hides and a laydown area in Komo. In the Upstream South area, agreements were signed and compensation paid for the Kopi Scaper Station Logistics Road and the Ridge Camp Bypass Road. The Project is engaging with clans about the remaining section of the Ridge Camp Bypass Road and the Kutubu Central Processing Facility Bypass Road.

Internal clan issues are delaying the finalization of compensation payments for Komo Airfield. The Project is regularly engaging with clan leaders to facilitate a resolution of the clan issues so payments can be made.

The Project is also engaging with Tugubu subclans to finalize payments for the HGCP site, which are delayed by clan disagreements about land division.

Distribution of annual deprivation payments continued this quarter, with over 95 percent of payments completed by the end of the quarter.

The Project is engaging with the clans involved in land disputes and will finalize their payments once these issues are resolved.

### 6.2 Resettlement

The focus of resettlement activities continues to be on securing land access for the remaining sections of the proposed pipeline ROW between Kilometre Points 0 and 80. The Homa and Paua areas remain the subject of livelihood restoration activities and resettlement monitoring.

#### 6.2.1 Milestones and progress

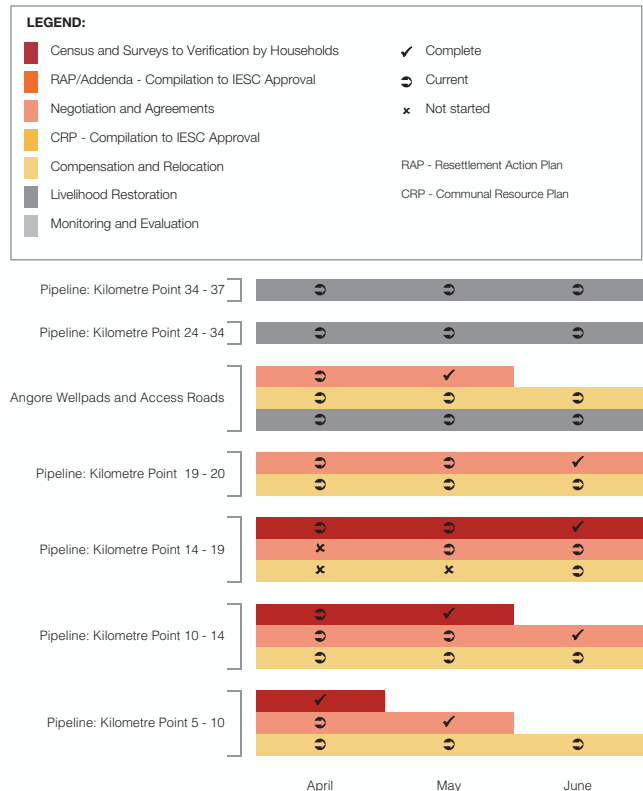
Milestones achieved this quarter included:

- Completion of census and survey activities for Kilometre Points 5 through to 19 on the pipeline ROW.
- Signing of resettlement agreements for Kilometre Points 5 through to 14, 19 to 20, and the Angore Wellpads and Access Roads.
- Completion of video surveys, and community engagement about the video surveys, for additional work spaces and quarry sites around the Angore Wellpads.

Figure 6.1 shows the status of key resettlement activities during this quarter. Twenty areas across Upstream locations are part of longer-term monitoring and evaluation and livelihood restoration phases, and as such are not shown in Figure 6.1.

Figure 6.1

Status of key resettlement activities



## 6.2.2 Highlights, achievements and lessons learned

Key activities during this quarter included:

**Livelihood restoration:** Periodic garden surveys are used to monitor the progress of established food gardens in resettled areas and determine the household food security situation across seasons. During this quarter, food garden surveys were held in households in the Homa and Paua areas, and other locations along the onshore pipeline route. The survey results indicated a positive, incremental growth in sweet potato garden sizes, including those in identified vulnerable households. At spoil storage site areas around Hides, in-migration during the Project's construction had increased household numbers. As a result, the existing supply of sweet potatoes from household gardens was considered to be inadequate for the increased population. However, in-migration is expected to cease as Project activity moves from the construction phase to the production phase, which will ease the pressure on food supply. The Livelihood Restoration team continues to monitor this area.

To provide a longer-term sustainable crop supply for resettled households, the Project has focused on providing superior quality planting materials of staple crops and other alternate cash crops. The Project has worked with model farmers to establish six screen houses in household gardens. Seedlings cultivated in these screen houses are used to build the plant supply, which is then sold back to the Project for distribution to household gardens across the Project impact area.

During this quarter, almost 30,000 cuttings from ten virus-free sweet potato varieties were supplied to resettled households and communities in Komo and Hides. In Homa and Paua, over 4,300 cuttings from three virus-free sweet potato varieties were distributed to households. So far, over 110,000 virus-free sweet potato cuttings have been distributed to resettled households and local communities in the Project impact area.

Other crops distributed to households during the quarter consisted of over 200 kilograms of peanuts, 130 kilograms of open pollinated corn, almost 900 grafted orange trees and additional cuttings, seedlings and suckers.

Demand for ducks and chickens remains high, with the supply of these birds limited by the size of the Komo breeding farm. During this quarter, the Project delivered 216 ducks and chickens to 111 resettled households and a few non-settler households in Hides and Komo.

Also in this quarter, 23 people from resettled households received Project-provided animal husbandry training on basic poultry (duck and chicken) production, while another 45 people were trained in basic pig production techniques. Another 36 people received training across both pig and poultry production. The Project's Livelihood Restoration team visited 50 households to provide them with on-site support.

**Monitoring of vulnerable individuals:** Initial assessments of 63 identified vulnerable households were completed in Hides and Komo, with ten of the assessments completed during this quarter. The status of ten vulnerable cases was reviewed, with six cases closed after Project assistance was successfully provided. The remaining four households were recommended for additional support. Eight vulnerable households received approval for water structures during the quarter.

**Komo and HGCP:** Resettlement monitoring activities focused on the Homa and Paua communities along the pipeline ROW this quarter.

**Pipeline ROW and Wellpad Access Roads:** Resettlement agreements were completed for the Angore Wellpads and Access Roads, and along the pipeline ROW from Kilometre Points 5 to 14 and 19 to 20. Signing of household resettlement and agricultural compensation agreements for Kilometre Points 14 to 19 continued.

Household monitoring resumed in Homa this quarter, after being limited during the first quarter 2013 for security reasons. Four focus group discussions, involving 70 participants, were held in Homa and Paua to assess the positive and negative impacts of resettlement and the Project in general. The survey results indicate positive progress towards the objective of restoring livelihoods. The participants' responses indicated their perceived overall quality of life improved by approximately 15 percent since the first quarter 2013. This was attributed mostly to the success of the Project's Livelihood Restoration Program and community support provided in recent months.

The Project uses a best practice approach to achieving a healthy and safe work environment, while also providing training to help prepare Papua New Guinean workers for the global workforce and for opportunities within the Project itself.

### 7.1 Development

With the completion of construction at some worksites this quarter, including the Komo Airfield, workforce numbers continue to decrease.

By the end of the quarter, the total Project workforce was just under 19,300 (as shown in Figure 7.1). Almost 7,700 workers are Papua New Guinean citizens, who comprise 40 percent of the total workforce.

The numbers of foreign nationals remain temporarily higher than that of Papua New Guineans because of the need for specialist technical skills for the current construction and commissioning stage.



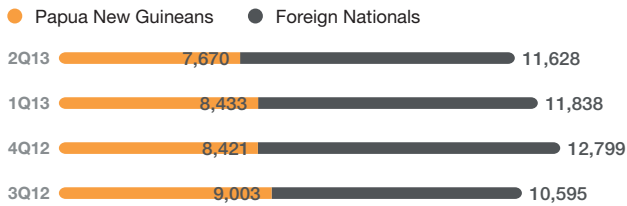
*US Ambassador North meets Juni Construction Training Facility trainees*

#### Contractor-provided training

Project contractors continue to provide new training opportunities for Papua New Guinean citizens. For example, during this quarter, LNG Plant site workers were given the opportunity to participate in a five-week sheet metal fabricator training and assessment course, as well as a three-month computer course.

**Figure 7.1**

Project workforce numbers



### 7.2 Workforce training

The Project delivers many training and graduate development programs both on worksites and through the Juni and Port Moresby Construction Training Facilities to build the skills of Papua New Guineans for future production roles.

#### 7.2.1 Construction training

By the end of this quarter, the Project had delivered close to 1.9 million hours of training; with 103,000 training hours provided during this quarter.

#### Project-provided training

In May, the sixth intake of Juni Construction Training Facility trainees graduated from their course, while the seventh and final intake of trainees commenced training at the Juni Facility.

During this quarter, the US Ambassador to Papua New Guinea, Walter North, met with the Juni Facility trainees to discuss their progress and congratulate them on their achievements.



*Workers participating in the five-week sheet metal fabricator training and assessment course*



*LNG Plant site workers learning computing skills*

## 7.2.2 Contractor workforce training

Following the launch of a series of Women's Health Awareness Programs in the first quarter 2013, during this quarter, the Project focused on topics such as family planning, sexually transmitted diseases, cancer of the cervix and Human Immunodeficiency Virus (HIV)/Acquired Immune Deficiency Syndrome (AIDS) awareness. The Programs are proving popular with over 450 people attending sessions held in this quarter.



A Women's Health Awareness Program session at the HGCP

In addition to developing comprehensive demobilization plans, Project contractors are offering training to support workers through the demobilization process. In June, the Project offered transition training to equip Papua New Guinean workers with the knowledge and skills to obtain meaningful employment after leaving the Project. By the end of the quarter, 145 people had completed the training.

## 7.2.3 Graduate programs

The first six Esso Highlands Limited engineering graduates, who started work with the Project in 2011, have become fully contributing members of the Operations Technical team in Port Moresby. Their work activities include the development of systems and programs in readiness for start-up and commissioning of the LNG Plant. The second intake of engineering graduates, who commenced in 2012, have completed over a year of their 18-month training assignment in Melbourne, Australia. They are gaining experience in the day-to-day surveillance and troubleshooting requirements of a producing affiliate. The third group of four graduates, who commenced in February 2013, started their 12-month training assignment in Australia during this quarter.

## 7.2.4 Operations and Maintenance training

The second intake of Operations and Maintenance trainees attended a one-day workshop in Papua New Guinea during their break this quarter to learn about ExxonMobil principles, values and behaviors.

During the workshop, they had the opportunity to meet with Dan Callens, Operations LNG Plant Manager, JD Bennett, Maintenance Superintendent and Neil Bennie, Operations Superintendent – Support of Esso Highlands Limited. The trainees also began their second trimester of Advanced Skills training in Malaysia. The trainees continue to increase their skills in gas compression, plant safety systems, motors control, power and distribution, process measurement and gas analysis.

The first intake of Operations and Maintenance trainees continue to progress their field familiarization through on-the-job training with experienced personnel at the LNG Plant.

## 7.2.5 Above Field workforce training

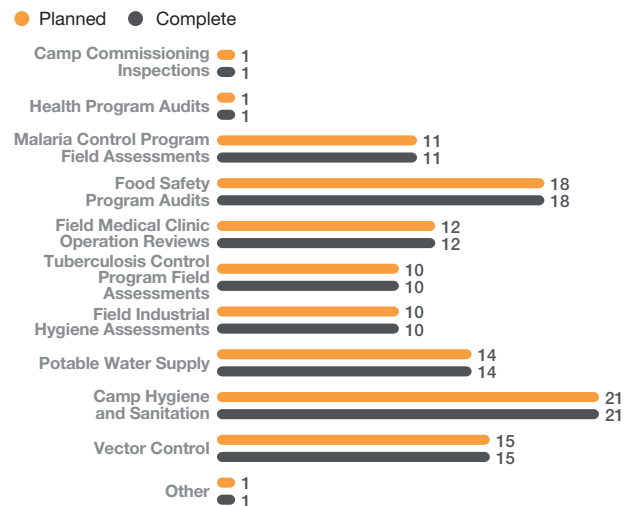
The Project has begun to build the culture of the new production organization through the development of a program called 'Em pasin bilong ExxonMobil long PNG' (The way we work in PNG). The program is undergoing the final stages of development, with educational sessions and employee communications to be implemented in coming quarters.

## 7.3 Health management

The Project focused on food and water safety, infectious disease outbreak management, clinical services and industrial hygiene. The Project also improved vector surveillance across all Project sites and successfully increased awareness of vector borne illness in Port Moresby and at the LNG Plant site. The Health team conducted an annual technical health program workshop this quarter. Project health managers and safety representatives received the latest Project health performance updates, and learning's from across the Project were shared. The annual health audit was also conducted at the LNG Plant site. All planned health activities for the quarter were completed, as shown in Figure 7.2<sup>1</sup>.

Figure 7.2

Number of planned and completed health activities during the second quarter



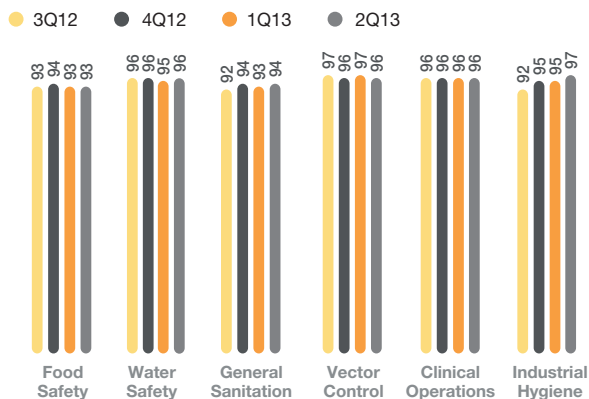
<sup>1</sup> Data adjustments may be reported by contractors after the Report is released, and as such health data may be refined between one report and the next.

### 7.3.1 Camp and contractor health support

With the mobilization of new camps for drilling operations, there was a focus on potable water safety, sanitation and clinical services in Hides area camps. Industrial hygiene was also a priority, reflecting the increase in construction and drilling activities in Hides. As shown in Figure 7.3<sup>1</sup>, health programs are maintaining their high level of compliance with Project standards.

**Figure 7.3**

Percentage of camp adherence to Project specifications by health category



### 7.3.2 Leading and lagging indicators

Leading and lagging indicators are used to monitor outcomes of the Project's health programs. The Project uses leading indicators to demonstrate proactive management of worker health.

Initiatives such as the Tuberculosis Control Program are intended to minimize the risk of exposure to tuberculosis in the worker population. Lagging indicators record actual cases of illness, which enables the Project to track the effectiveness of infection control programs. This section outlines both leading and lagging indicators for the Project's health criteria.

#### Malaria and tuberculosis

During this quarter, there were no cases of non-immune<sup>2</sup> Project workers contracting malaria in Papua New Guinea.

However, 27 malaria cases involving semi-immune<sup>3</sup> personnel were recorded, an increase from the 11 cases in the first quarter 2013. The rise may be attributed to an unseasonable increase in rain, which could have increased mosquito numbers. The Project is investigating malaria cases while implementing additional education and prevention measures.

<sup>2</sup> A non-immune individual is a person who was not born and raised (at least to the age of five years) in a location that has malaria exposure.

<sup>3</sup> A semi-immune individual is a person who was born and raised (at least to the age of five years) in a location that has malaria exposure.

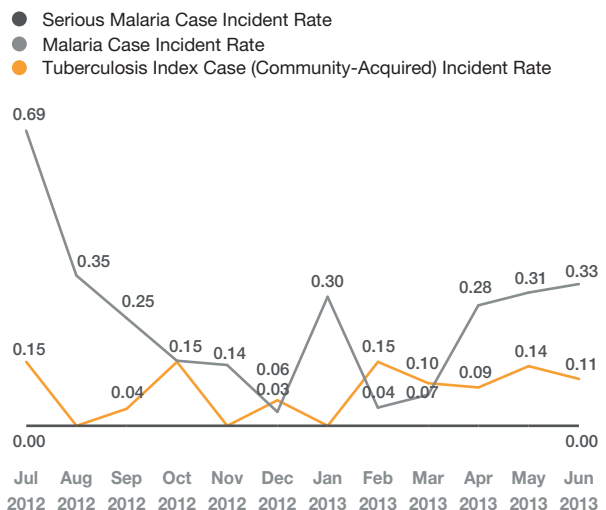
The Project is effectively managing its Tuberculosis Control Program at worksites, including early detection, isolation, diagnosis and referral off-site for the treatment of identified cases.

During this quarter, seven tuberculosis Index cases (community-acquired) were recorded. Each case was managed with isolation and referred off-site for appropriate treatment and to minimize the risk of further transmission. GeneXpert® diagnostic equipment is proving successful in quickly diagnosing individuals with active tuberculosis so they can be referred to Government treatment centers.

Figure 7.4<sup>1</sup> shows the incident trends for both malaria and tuberculosis.

**Figure 7.4**

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



#### Malaria

The Project is maintaining high worker compliance with its Malaria Control Program. Compliance this quarter was 96 percent, which is consistent with previous quarters.

During the quarter, the Project sponsored a second World Health Organization malaria microscopy slide-reading course, following the success of the first course conducted in the first quarter 2012. The five-day training and assessment course was conducted for microscopists employed or used by the Project. Instruction was provided by Ken Lilley, a World Health Organization Grade 1 specialist and Quality Manager and Scientific Officer from the Australian Army Malaria Institute. Five participants achieved a World Health Organization Grade 2 accreditation, and seven participants achieved Grade 4.

## **Tuberculosis**

The use of QuantiFERON® testing is enabling rapid and accurate diagnosis of latent tuberculosis cases across all Project sites, including in the remote Hides region.

The results show 96 percent compliance with the Tuberculosis Control Program, which is a slight increase on the first quarter 2013.

## **Food and water safety**

The Project's food safety compliance score remains steady at 93 percent. This reflects over two years of ongoing effort by the Project, contractors and caterers to achieve and maintain a high standard of food safety. Because of this effort, the Project has successfully served over 26 million meals with no recorded cases of food-borne illness.

Water safety compliance recorded a slight improvement from the 95 percent recorded for the first quarter 2013, with 96 percent compliance this quarter. There was a continued focus on providing potable water to the Hides area and along the pipeline to support the mobilization of new worker camps for pipeline work and drilling operations.

## **Camp hygiene and sanitation**

Ongoing monitoring of camp cleanliness and sanitation, particularly with hand-washing facilities, resulted in a slightly improved camp hygiene and sanitation compliance score, from 93 percent in the first quarter 2013 to 94 percent this quarter. The Project remains vigilant with monitoring hygiene and sanitation at all worker camps.

## **Vector control**

The Project has increased dengue education through toolbox talks, Safety, Security, Health and Environment Alerts, and the distribution of insect repellent and bed nets. The overall vector control compliance score remains consistent with most other quarters at 96 percent.

The Project continues to improve vector surveillance with the use of carbon-dioxide baited traps for malaria-carrying mosquitoes, and Biogents BG-Sentinel mosquito traps for dengue mosquitoes across all worksites. This has resulted in improved confidence in vector monitoring and control activities.

## **Clinical operations**

The Komo Airfield clinic site joined the Hides Integrated Clinic model during the quarter. Clinical operations compliance ratings remain consistent with previous quarters and indicate a high level of performance in clinics across the Project.

The Project is focusing on the management of controlled substances, the use of medical equipment, and tuberculosis diagnosis in all clinical operations. The compliance score for clinical operations was 96 percent this quarter.

## **Over 26 million meals served safely**

The Project's focus on food safety continues to deliver results, with no reported cases of food-borne illness in over 26 million meals served since 2011.

This success can be attributed to the Project's continued high standards of food safety, the stringent auditing of food handling and storage processes, and the ongoing assessment of all food preparation areas.

The Project remains committed to working closely with caterers and food suppliers to continuously improve worker skills in food handling, food preparation, quality control and food processing.



*Food safety standards remain high across the Project*

## **Industrial hygiene**

The Project has achieved a high industrial hygiene compliance score of 97 percent. The Health team is building on the momentum of the first quarter 2013 with a continued focus on hazardous materials management, radiation and welding safety, and respiratory and hearing protection use across Project sites.

During this quarter, a health assessment was conducted to assess noise at worksites with high levels of activity, with the aim of mitigating industrial hygiene risks as work progresses at the LNG Plant site and the HGCP. The Health team is working closely with contractors to monitor and implement the minor improvement opportunities identified by the assessment.

## **General illness events**

Six dengue cases were reported by Esso Highlands Limited this quarter, with four cases being Project-related, and two being Production-related. Two chikungunya cases were reported this quarter, with both cases being Production-related. Chikungunya is a vector-borne virus with symptoms similar to dengue. Both cause fever, severe joint pain and headache.

All of the dengue and chikungunya cases were deemed to be community-acquired as vector surveillance indicated negligible vector presence at the relevant worksites.

The Project continues to monitor typhoid cases in communities surrounding Project worksites to ensure no impact to the Project workforce. Typhoid is a bacterial disease transmitted through the ingestion of contaminated food or drink.

### Medevacs and medical transfers

Twenty medevacs took place this quarter. All of the events were for non-work-related personal health conditions.

Also during this quarter, 154 medical transfers were performed. Three transfers were due to work-related injuries, while the remaining 151 were for non-work-related personal health issues. All individuals requiring a medical transfer are referred to a third party medical practitioner.

### 7.3.3 Other strategic initiatives

The Project recognized World Malaria Day on April 25 with toolbox talks presented to workers, along with the distribution of bed nets, insect repellent and educational brochures to the Papua New Guinean workforce. The Project also hosted a lunch for workers at the Port Moresby Project office to increase awareness about malaria transmission, prevention, testing and treatment.

Desktop drills for infectious disease outbreak management were conducted at the LNG Plant site and in the Hides area during this quarter to simulate the response at both sites to a large-scale outbreak of norovirus. Noroviruses are a group of viruses that frequently cause intestinal infection. They are highly infectious and may cause outbreaks in settings such as schools, workplaces and hospitals. The lessons learned from the drills will be applied to minimize the risk of infectious disease outbreak at Project sites.

A performance review was conducted of the Project's clinical service provider. The contractor achieved a high performance rating.



**Project personnel at Moro B Camp with malaria awareness brochures distributed as part of World Malaria Day activities**

## 7.4 Safety management

The LNG Plant site achieved a record 48 million hours worked without a Lost Time Incident between the first quarter 2012, and this quarter. Much of this success is attributed to the site's IIF® program, which achieved its own milestone with the graduation of the 13,000<sup>th</sup> worker during this quarter. The IIF® program was introduced in the first quarter 2012 to provide workers and supervisors with insights and tools to better understand how their own attitudes and actions, as well as the attitudes and actions of others, impact safety in the workplace.

Another safety milestone was recorded during the quarter with the 1,300<sup>th</sup> worker completing the Project's Safety Champions initiative. This initiative continues to prove successful, attracting high levels of interest among workers and contractor management alike.



**A graduating class of Safety Champions**

In preparation for the transition from the construction phase through commissioning to production, the Project is developing comprehensive work management systems. These systems are designed to safely and efficiently manage operational hazards related to energized equipment and the introduction of hydrocarbons at impacted worksites.

The work management systems address the planning and control of safety-critical activities, such as hot work performed near hydrocarbons and working near energized equipment, as well as the management of simultaneously performed tasks and operations. As part of this approach, the Project is implementing work management system supervisor and worker familiarization training. Construction teams supporting work in operational areas will also receive additional training to ensure they understand potential operational hazards in the commissioning and operational phases.

During the quarter, all worksites conducted an assessment to ensure the most critical safety controls associated with mechanical lifting and rigging operations were effective, working as intended, and continually improving. Assessment results will be distributed in the third quarter 2013 so teams can share best practice behaviors.

## Commitment to safety

The Project's commitment to fostering and maintaining a safe work environment includes recognizing outstanding Safety Champions. During this quarter, two trainers from the LNG Plant and Marine Facilities contractor were officially recognized for their contribution to the site's Safety Champion program. LNG Plant site Safety Advisors, Joel Acabado and Akim Empaga, were recognized for successfully training 302 of the 518 Safety Champions at the site.

"Their commitment to safety and to teaching others how to maintain an incident and injury free workplace is commendable and, on behalf of everyone on-site, we thank them for their valuable contributions," Construction Manager Atwell Goins said.



Atwell Goins, Construction Manager (left) and Decie Autin, Project Executive (right) present recognition awards to Akim Empaga and Joel Acabado in appreciation of their efforts with developing Safety Champions at the LNG Plant site

The Project continues to systematically analyze incidents considered to be 'higher potential'. Higher potential incidents are those where a severe injury, such as a debilitating, life-altering complication, or fatal injury, could have occurred if circumstances surrounding the incident were slightly different. Higher potential incident trends are addressed through Project-wide improvement and prevention initiatives. The Project also uses Incident Review Committees and Safety, Security, Health and Environment Alerts to share lessons learned from higher potential incidents across work teams.

### 7.4.1 Leading indicators

The Project continues to exceed participation targets for core safety processes. During this quarter, Job Safety Analyses achieved 120 percent of target, while Observations and Interactions recorded 150 percent of target. Participation levels for Job Safety Analysis and Observation and Interaction processes are indicated in Figures 7.5<sup>4</sup> and 7.6<sup>4</sup>.

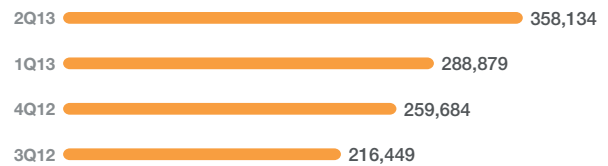
Figure 7.5

Number of Job Safety Analyses conducted by quarter



Figure 7.6

Number of Observations and Interactions conducted by quarter



### 7.4.2 Lagging indicators

Project incident rates continue to improve as shown in Figure 7.7<sup>4</sup>. Work hours are shown in Figure 7.8<sup>4</sup>.

Figure 7.7

Project incident rates by quarter

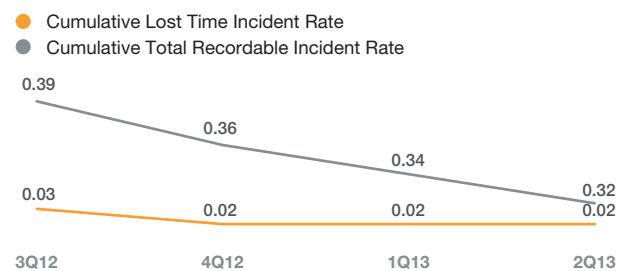
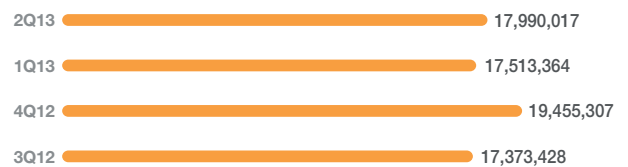


Figure 7.8

Project work hours by quarter



NOTE: Project-to-date work hours totalled 146,808,706.

<sup>4</sup> 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.

## Top Hides workers recognized

During this quarter, the Project recognized many Hides workers for the significant contribution they made. The following workers were among those recognized for their commitment to safety and their ability to seamlessly progress through roles with increased responsibility and technical expertise:

### Mathew Matialu

Mathew joined the HGCP team three years ago. He has demonstrated outstanding performance in construction training and worker safety, which resulted in his rapid progression to becoming a qualified backhoe operator.



*Mathew Matialu a backhoe operator at the HGCP site*

### David Yangobe

David demonstrated a strong learning ability, scoring above 98 percent in his first written exam. He has also excelled in his role as a crane operator on-site, enabling his rapid progression to operating larger machines.



*David Yangobe in his crane at the HGCP site*

### Willi Kili

Crane operator Willi Kili was recognized as an excellent worker for his exceptional skills with large machinery, and for his outstanding safety record.



*Willi Kili on-the-job at the HGCP site*

## 7.5 Worker welfare and conditions

The Project is maintaining its high standards of worker welfare and conditions, which are meeting commitments made under the Labour and Worker Conditions Management Plan and the Camp Management Plan.

An industrial relations health check survey was conducted at Komo Airfield, with the contractor achieving a 98 percent score. This contractor's result demonstrates that industrial relations and human resources systems are well established and being maintained.

### 7.5.1 Camps

The Hides Main Camp continues to set a high benchmark for standards of cleanliness, with a focus on facilities management including waste systems, kitchen, dining and accommodation. The camp management subcontractor is improving rubbish removal from the site and raising worker awareness about the health and safety benefits of maintaining a neat and tidy workplace.



*The Hides Main Camp dining room sets a high standard of cleanliness*

### 7.5.2 Labor and worker conditions

With completion of construction at Komo Airfield, the contractor began demobilization activities by implementing their Workforce Demobilization Plan. The Plan, which is the result of engagement conducted with all stakeholders during the previous two quarters, has enabled demobilization to progress smoothly at the site.

As part of the Komo Airfield demobilization, each local worker receives a comprehensive package including all final entitlement payments; a certificate of service stating their position and period of employment; certificates of any training courses they completed during their employment; and gifts to symbolize their role in construction of the Komo Airfield.

The Project continues to prepare the Papua New Guinean workforce for demobilization activities across all worksites through an ongoing campaign involving publications, toolbox presentations and community engagements. Drama performances are used to help highlight the processes that Lancos will follow to demobilize their workforces and what workers can do to proactively prepare for demobilization.



*One of the Komo Airfield demobilization ceremonies conducted this quarter*

Verification, monitoring, assessments and audits are used to ensure Project activities conform to environmental commitments outlined in the ESMP.

### 8.1 Verification

During this quarter, the Project Field Environmental team reviewed their core responsibilities to align with the Project's progression from construction to operational activities. Toolkits used by the Field Environmental team were updated to ensure templates, guides, monitoring locations and schedules were applicable to commissioning and production activities.

Water quality sampling protocols were reviewed during this quarter, with refresher training conducted by external consultants. As more emphasis is placed on in-situ monitoring, the consistency and accuracy of testing methods was reinforced to Project workers. The Project also reviewed testing protocols.

### 8.2 Monitoring

The Project conducts ongoing monitoring through its Field Environmental team and individual contractors, in accordance with area-specific management plans. Monitoring conducted in this quarter is outlined in the following sections.

### 8.3 Assessments and audits

Project verification and monitoring is supplemented by contractor's own assessments and audits. For example, audits conducted by the LNG Plant and Marine Facilities contractor during the quarter included the fifth internal audit of subcontractors, followed by a corporate audit by contractor management.

The Onshore Pipeline contractor arranged for an external audit against *ISO14001:2004 Environmental Management Systems* by an internationally recognized standardization and compliance organization. The preliminary report of the audit indicated that no non-conformances were found.

The Papua New Guinean Department of Environment and Conservation (DEC) visited Project sites in May. All DEC delegations, including the Minister of Environment and Conservation, John Pundari, were positive with regard to the Project's contribution and impact.

In June, the IESC conducted its ninth site visit. The report from the IESC's eighth visit, in October 2012, is published on the Project website.



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

### 8.4 Incidents, non-conformances and corrective action

#### 8.4.1 Incident summary

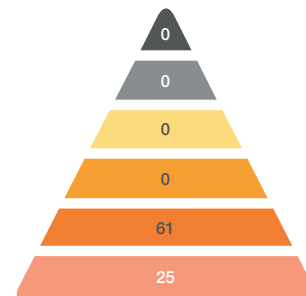
During the quarter, 61 environmental incidents, all classified as Severity Level <0, were recorded. Most related to minor hydrocarbon spills (average spill <10 litres), along with one chemical spill of coolant and two wastewater spills (<3 litres). There were also two non-spill incidents, one for land clearance and one for debris slide. No environmental incidents equal to or greater than Severity Level 0 were reported, so the Project was not required to notify the IESC or the DEC.

Also during this quarter, 25 near misses were recorded, with increased drilling activity contributing to 21 of these. These related primarily to spills; however, the impermeable drilling pads used were able to contain spilled materials. Investigations were undertaken to determine and correct the causes of all incidents and near misses. Figure 8.1<sup>5</sup> shows incidents classified by severity, while Figure 8.2<sup>5</sup> groups incidents by their cause.

**Figure 8.1**

Number of environmental incidents during the second quarter by Severity Level

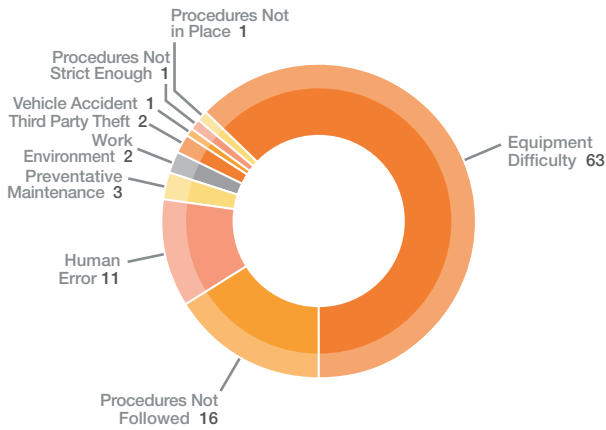
● Severity Level 3    ● Severity Level 2    ● Severity Level 1  
● Severity Level 0    ● Severity Level <0    ● Near Miss



<sup>5</sup> Data adjustments may be reported by contractors after the Report is released, and as such conformance data may be revised in the future.

**Figure 8.2**

Percentage of environmental incidents during the second quarter by causal factor



### 8.4.2 Non-conformance and field observation performance

Non-conformances and field observations are part of the Project's verification of environmental performance. A field observation requires intervention and/or corrective action to prevent it from becoming a non-conformance. A non-conformance is a situation inconsistent with ESMP requirements. Good environmental practices are shown through positive field observations.

The Project recorded 56 positive field observations during this quarter. These related to the application of management plans for erosion and sediment control, water management, and spill prevention and response.

The Project raised 152 field observations and three Severity Level I non-conformances. Most field observations related to waste, erosion and sediment control, spill prevention and response management.

Two Severity Level I non-conformances were raised for exceeding the approved Project boundary. One was outside the ROW width and the other for an unapproved access track related to a contractor who cleared areas outside the standard 30-metre ROW. Corrective actions included revised demarcation of boundaries and awareness-raising, such as toolbox talks, to reinforce that areas must only be cleared within the approved worksite boundaries.

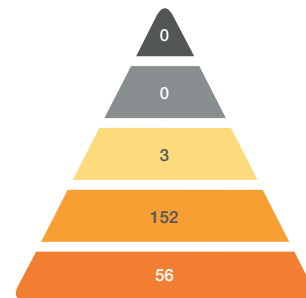
The third Severity Level I non-conformance involved contracting a non-Project approved third party for offsite sewage disposal. The use of the third party ceased and waste is being stored until an appropriate solution is developed.

All environmental non-conformances and field observations from this quarter are outlined in Figure 8.3<sup>5</sup>, while Figure 8.4<sup>5</sup> shows the closure status for non-conformances and field observations.

**Figure 8.3**

Number of non-conformances and field observations during the second quarter by Severity Level

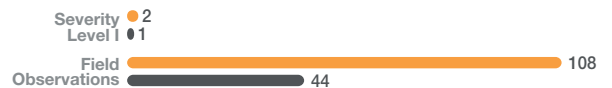
- Severity Level III
- Severity Level II
- Severity Level I
- Field Observation
- Positive Field Observation



**Figure 8.4**

Number of environmental non-conformances and field observations during the second quarter by closure status

- Closed
- Open



The Project and its contractors implement proactive measures to prevent and/or minimize pollution at every worksite.

## 9.1 Air emissions

Project air emissions during this quarter were limited to dust from roads and earthworks, equipment and incinerator exhausts and greenhouse gas emissions.

Dust from drilling operations is controlled through key work areas being built on compacted limestone capped with interlocking plastic matting. This method helps eliminate dust from exposed earthworks. Dust on exposed roads and transit areas is controlled by spraying water from trucks, using approximately 3,000 barrels of recycled water from drill cuttings this quarter alone.

At the HGCP site, the permanent industrial incinerator was operational by the end of the quarter. The temporary construction incinerators were put on standby for contingency purposes. Once stabilization of the permanent incinerator is complete, a stack test will be conducted to monitor air emissions.

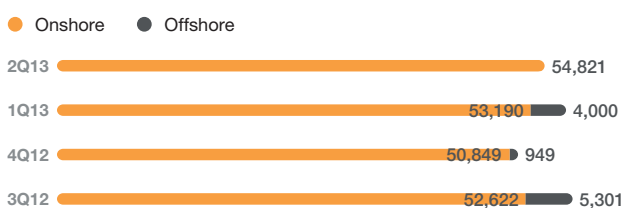
Contractors at other worksites continue to monitor their incinerator performance. The Project maintains a verification register of incinerator performance that records monitoring parameters such as temperature, smoke observations and odors.

Greenhouse gas emissions fell this quarter, due to completion of offshore works. Emissions are calculated based on direct fuel use. Indirect sources, such as purchased electricity, are not included. The Project's onshore and aviation fuel use equated to a greenhouse gas emissions value of 54,821 tonnes of carbon dioxide equivalent. The completion of marine operations meant there were no emissions generated by offshore activity.

Figure 9.1 shows the Project's direct 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, 2012.

The LNG Plant site continues quarterly monitoring of atmospheric air quality at four on-site locations, with all remaining well below the Project's criteria.

## 9.2 Noise and vibration

The Project's noise criteria are applicable to permanent facilities but not temporary construction activities. However, construction contractors monitor noise as part of general environmental management.

For example, at the HGCP site, boundary noise monitoring was conducted during May and indicated that noise criteria would not have been exceeded at the nearest sensitive receptors.

Noise and vibration monitoring was also conducted during blasting at a quarry near Kobalu. Blasting was not a continuous activity (up to five blasts in total) and a blasting safe zone of 400 metres meant that minimal impacts from noise and vibration were experienced at sensitive receptors.

By the end of the quarter, the Project recorded no unresolved noise grievances.

## 9.3 Waste management

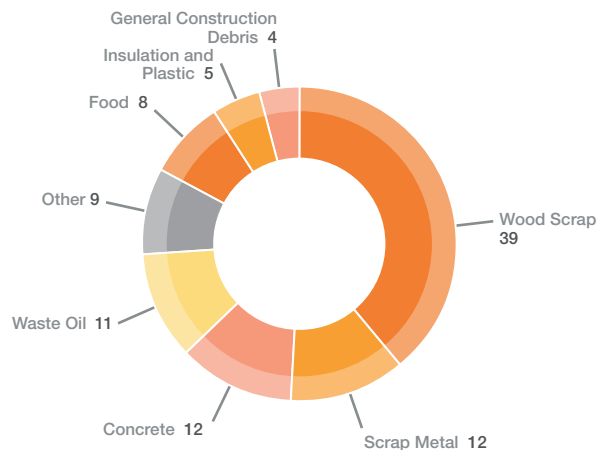
Contractor waste management is continually improving across the Project. This is the result of sharing lessons learned and the introduction of innovative reuse and recycling options, as discussed in *Case Study Two – Project leaves a clean, green footprint*.

Wood scrap generated most of the Project's waste this quarter, as illustrated in Figure 9.2, followed by scrap metals, concrete wastes and waste oil. Most oil is reused or recycled by the Project. For example, more than 140,000 litres of waste oil from activities along the onshore pipeline and at Komo Airfield was sent to a local sugar refinery for reuse in factory boilers. At the LNG Plant site, more than 100,000 litres of waste oil was exported to Australia for processing to a base oil that is used to produce new products. Solid waste disposal methods used by the Project are shown in Figure 9.3.

Landfill operations are progressing at the Hides Waste Management Facility, with effective recycling activities resulting in the generation of less waste for landfill disposal than projected. The Hides Waste Management Facility is reusing treated drill cuttings to protect the landfill liner from puncture, which removes the need to extract aggregate from a quarry. Typical landfill operations involve the use of soil for capping in between layers of refuse. At the Facility, incinerator ash, rather than viable soil, is used between refuse layers.

**Figure 9.2**

Percentage of solid waste during the second quarter by type



NOTE: Waste types with values of 2% and under have been combined in the category of 'Other'.

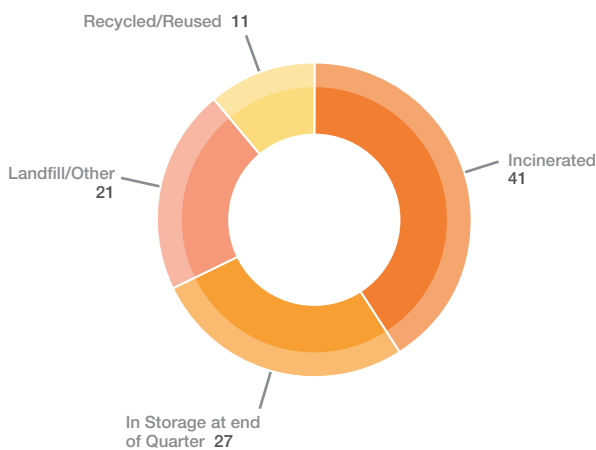


**Monto Vetiver field near the Hides Waste Management Facility**

In June, 21 tonnes of non-restricted ash and 54 tonnes of other stored waste were sent for disposal at the Facility. Selected incinerator ash is being mixed with soil and used in reinstatement of the Gobe Camp 3 platform. This process allows for the beneficial use of a waste product and a reduction in the volume of waste taking up landfill space. Leachate analysis confirmed that the ash was safe for disposal and complied with Project standards.

**Figure 9.3**

Percentage of waste during the second quarter by disposal method



Following a risk assessment on the potential disposal of incinerator ash in the first quarter 2013, leachate testing of stored ash continued this quarter. The design of the Hides Waste Management Facility includes a reed bed system that filters water, nutrients and heavy metals from the leachate. Monto Vetiver *Vetiveria zizanioides* grass is used because of its robustness and proven record for effectively treating leachate. By the end of this quarter, water monitoring results showed that the Monto Vetiver field and leachate ponds were proving effective with treating leachate from the landfill.

Groundwater monitoring around the landfill was also conducted this quarter, with no change to baseline data recorded

The Project began to transfer stored waste to the Hides Waste Management Facility for disposal.

Drilling operations are successfully reusing base oil recovered from the drill cuttings processing unit that was commissioned in the first quarter 2013. During this quarter, 1,614 barrels of base oil recovered from the drill cuttings were reused to make non-aqueous fluid mud, which is also used in the drilling process.

To minimize tire waste, the Project is using a patented Ecoflex system that recycles end-of-life tires in road base, erosion control structures and in retaining walls. More information is provided in *Case Study Two – Project leaves a clean, green footprint.*



**Construction of permanent lined drain at the Komo Airfield using Ecoflex units**



Tires reused as Ecoflex units and then filled with aggregate to provide erosion control structures

The LNG Plant site boosted its recycling capability with the appointment of a second approved Papua New Guinean scrap metal recycler. The recycler collects scrap metal and ships it to a processing facility in Indonesia. The additional capacity has enabled just over 1,300 tonnes of scrap metal to be processed in the first half of 2013, compared to just over 800 tonnes for the full year of 2012. A camp bulletin was distributed to LNG Plant site workers during the quarter to remind them about the importance of good waste management practices.



Disposing of ultra-violet lights removed from wastewater treatment plants

### 9.3.1 Wastewater

A specialist wastewater process engineer was appointed during this quarter to integrate wastewater treatment plant operations, surveillance and response throughout the Upstream area. As part of this process, independent assessments were conducted of wastewater treatment facilities. Recommendations from the assessments included the need for improvements in equipment and design, as well as sampling and analysis. The Project has adopted these recommendations and is improving wastewater operations with better resource and materials use, and more timely response to operational needs.

**Plant Site Camp News**  
11 April 2013

**Put waste in the right place - in the bin, not on the ground**

The Project puts a lot of time and money into keeping its people and the environment safe. While it has provided the resources to ensure proper housekeeping, maintaining a clean and safe site is everyone's responsibility. Keeping the environment free from litter is important for a number of reasons.

Not only is garbage unsightly, it also attracts rodents, snakes and mosquitoes.

Cigarette butts can start fires, and we all know that containers can become places for mosquitoes to breed.

This is why the Project provides bins in all the right spots for people to dispose of their rubbish.

Help us keep this site safe. If you see someone littering, take the 5S approach and intervene.

Remind them that by putting their garbage in the bin, they are contributing to everyone's safety on site.

If you see some rubbish on the ground, take the time to put waste in its proper place - in the nearest garbage can.

Show our pride in the Plant Site and help keep it clean for the future of all Papua New Guineans.

Camp bulletin highlighting waste management practices



Suppliers performing annual maintenance checks on wastewater treatment plants

A field water laboratory was established at Juni to centralize wastewater analysis. A specialist report of Esso Highlands Limited-operated camps made recommendations for physical changes - for example, meters, wasting tanks, filters - and to improve process controls - chlorine dosing, biomass management, filter change frequency, blower control. The Project is implementing recommendations as needed.

## Tests keep check on treated water

Papua New Guinean workers Serah Pyawa and Samson Hombeyawi are learning the ropes at the vital Juni field water laboratory, which keeps a close watch on the quality of water from Upstream area treatment plants.

The laboratory can quickly identify, from discrepancies in discharged water, whether improvements are needed at the treatment plants.

Site Health Advisor Kerry Graham said both Serah and Samson were showing enormous potential, and with further training would provide valuable input into environmental management well into the future. Their training included taking and testing field samples of water discharged from the treatment plants.

The Juni laboratory analyzes drinking water and effluent from all Project camps in the Upstream area. "It undertakes basic physical, chemical and bacterial analysis, and the immediate results provide a good picture of the efficiency of treatment plants. Anomalies in the treatment plants are identified and action plans implemented to rectify inefficiencies immediately," Kerry said.

The Juni field water laboratory supports the Project's firm commitment to environmental responsibility.



Samson Hombeyawi and Serah Pyawa at the Juni field water laboratory

Along the onshore pipeline, annual maintenance was conducted on all wastewater treatment plants. Sludge removed from the plants was dried for incineration. Recommendations were made for the management of systems when camp populations are low and for wastewater treatment plant transportation during demobilization.

At the LNG Plant site, all wastewater treatment plants continued to perform in accordance with Project specifications.

## 9.4 Hazardous materials

Hazardous materials are avoided wherever possible. The Project particularly avoids materials that are subject to international bans or phase-outs. There were no materials subject to bans or phase-outs reported on any Project site in this quarter.

## 9.5 Spill prevention and response

The Project's spill rate rose slightly compared with the first quarter 2013, which recorded the lowest spill rate since January 2010. Even with the slight increase, the Project-to-date spill rate continues to improve. An increase in small spills was recorded along the onshore pipeline as a result of hydraulic hose failures. An analysis into the types of failures occurring identified specific hydraulic hoses and connections as a direct cause. Increased maintenance was conducted on the identified equipment.

In June, diesel overflowed at the LNG Plant site while being filled by a fuel truck. The level indicator on the storage tank was incorrectly calibrated and registered less volume than was in the tank. The diesel was contained within the tank containment bund and salvaged for reuse. Absorbent materials cleaned up any remaining diesel on the concrete floor. Contaminated materials were sent to the LNG Plant Waste Management Facility for appropriate disposal.

Spill response training and drills continue across the Project. For example, at the HGCP site, spill response is regularly covered in inductions and toolbox talks. The site also has a specific Spill Response team. During this quarter, the Onshore Pipeline contractor conducted a simulated spill response involving the overfilling of a service truck waste oil tank on Tagari Access Road. The drill tested response times from the work crew and confirmed that adequate spill response equipment was in place. The Drilling organization conducted seven drills this quarter, including simulations of hydraulic hose failure and spillage from chemical drums. In each of the drills, worker roles were rotated so everyone obtained a full understanding of the overall spill response procedure.



Gau Heau, Field Environmental Officer checks spill response kit contents

## 9.6 Dredging and offshore trenching

All offshore operations were completed in the first quarter 2013, so no dredging or offshore trenching occurred during this quarter.

## CASE STUDY TWO

# PROJECT LEAVES A CLEAN, GREEN FOOTPRINT

**Project contractors are setting benchmarks for innovative waste management, ensuring minimal impact on the environment and maximum reuse of materials wherever possible.**

As part of its commitment to recycling and reuse, the Project is helping Papua New Guinean waste disposal companies to meet international standards, so they can process Project waste and compete for other contracts in the Asia-Pacific region.

Inventive disposal systems have been developed for used oil, scrap metal, timber, old tires, containers, drilling cuttings and wastewater.

Former Project waste is also being used in road safety, land reinstatement works, soil fertilization and as building material and fuel for local communities.

One example is the Project's innovative reuse of old tires, which minimizes the need to incinerate them.

Large heavy-haul tires are being used as buffer walls along high risk sections of road at Hides Hill, providing a safety fence to prevent vehicles going over the steep embankments.

Other tires are being recycled by the innovative Ecoflex system and reused in infrastructure projects.



**Construction of a drain using Ecoflex units at the Komo Airfield**

The Project is also using innovative wastewater management methods, involving an effective reed-bed filtration system to filter water, nutrients and heavy metals from landfill leachate.

In relation to water quality, a field water-testing laboratory has been established at Juni to keep a close check on the quality of discharge from the Project's wastewater treatment plants in the Upstream areas and to quickly identify when remedial action is needed.

### Old tires serve as substitute construction material

The Project is turning its used tires into eco-friendly construction material. The move is a smart solution to the need for environmentally sensitive disposal of more than 5,000 industrial tires.

Ecoflex, a proven system for converting end-of-life tires into civil construction material, is being used by the Project to turn waste tires into materials for road base, erosion control structures and retaining walls.

The Ecoflex patented system involves cutting tires in a way that prevents metal leachate and maximizes the structural strength of the material when it is filled with aggregate.

The DEC has affirmed the benefits of the system along with environmental authorities in Australia and the United States.

William Saavedra, Komo Airfield Environmental Advisor, said the use of Ecoflex units enabled the Airfield to effectively dispose of bulky tire waste and provide durable erosion and scouring prevention in permanent drains.

"With this system we can turn the tires into a useful, low cost construction material providing long-term benefits for the Project and the environment.

"Providing a new use for end-of-life tires has enabled the Project to reduce its carbon footprint and the amount of landfill required for construction waste, and also minimizes the need for new material (such as rock mattresses) to be used in the construction of drains," he said.



**A used tire being prepared for cutting with the Ecoflex system**

## CASE STUDY TWO

# PROJECT LEAVES A CLEAN, GREEN FOOTPRINT

Used oil is another major waste product from the Project and its disposal is closely managed to avoid spills. Waste oil is often reused as either fuel for the Ramu Sugar Refinery in Papua New Guinea, or shipped to Australia as a hazardous material to be recycled into a useful oil product.

Since 2012, the Project has provided 600,000 litres of waste oil to Papua New Guinean companies as fuel oil, and a further 200,000 litres to Australia for recycling.

The Project is also enlisting the services of Papua New Guinean companies to support recycling efforts. For example, scrap metal from Project sites is recycled by Papua New Guinea Recycling Limited. Since 2012, more than 500,000 tonnes of scrap metal has been recycled.

Timber from the Project is another product recycled in the local communities, who use it as fuel and, where appropriate, as a building material. So far, 1,700 tonnes of wood has been distributed to 12 villages along the Project's construction footprint.

Additionally, treated drill cuttings and ash have found a use as cover material for the Hides Waste Management Facility, rather than using viable soil. The state-of-the-art Hides Waste Management Facility is the focal point of waste management activities across the Project.

Water from drilling operations is also treated and reused in applications such as vehicle washdown areas.



*The Hides Waste Management Facility is the focal point of waste management activities*

Bio-organic solid wastes, such as fruit and vegetables, also play a role as compost to fertilize topsoil for use in reinstatement activities.

### Waste meets the crusher

As part of the Project's integrated waste management approach, purpose-built machinery is employed to manage specialized wastes.

For example, the Project has a drum crusher machine that can crush drums of up to 220-litre capacity within 60 seconds and reduces the volume of drum waste by 90 percent.

The machine has multiple operational modes including drilling and compacting. Drums are cleaned with the use of absorbent pads to minimize water use. All wastewater from the process is discharged into sedimentation ponds.

The drum crusher is just one of the many task-specific machines enabling the Project to meet its ESMP commitments.



*The drum crusher at the Hides Waste Management Facility*

Senior management are driving the Project's ongoing commitment to the highest standards of waste management and is practiced in all workplaces. Managers encourage innovation and input from workers and nearby residents to find better ways of avoiding, reducing and reusing waste materials.

The protection of Papua New Guinea's wealth of biodiversity resources is a key activity for the Project. All Project activities are governed by management plans covering biodiversity-related aspects, which encompass both construction management and longer-term monitoring.

### 10.1 Ecological management

The Onshore Pipeline contractor completed pipeline crossings of three rivers in the sensitive Lake Kutubu Wildlife Management Area – the Kaimari, Tage and Tugibu rivers. Best practice behaviors were reinforced, with no environmental issues recorded for the crossings.

In areas where there are steep hills or ridges, or where the terrain impedes vehicular access, teleferic installation techniques allow pipes to be carried uphill on a metal cable high above the ground. The Project began using these techniques this quarter along the challenging Homa Ridge ascent at Kilometre Point 59 and on the 34 degree slope at Kilometre Point 102. Teleferic installation also minimizes the Project footprint because it allows a narrower ROW width, due to the reduced number of construction equipment and vehicles needing access to these areas. Trees used as winch anchors were selected by a tree specialist and then covered by rubber sheets to avoid damage to the bark.



**A pipeline segment being transported using the teleferic cable**

Daily checks for trapped animals continued during trenching, lowering and backfill activities for the pipeline. Training, including toolbox talks, was conducted on these and other topics, such as awareness-raising on the Project wildlife management policy (no hunting, no fishing, and no collection of flora or fauna) and the need to work within demarcated limits. The Onshore Pipeline contractor also provided ecological management training to 74 Papua New Guinean workers and 13 expatriate workers during this quarter.

A breeding display site (also known as a lek) for an unidentified Bird-of-Paradise species was found at Kilometre Point 27 during the quarter. Signage was installed to protect the site from disturbance and prevent the collection of plants.

Seven Pesquet's Parrots *Psittirichas fulgidus* were observed near Kilometre Point 27. This species is noted as 'Rare' under the *Fauna (Protection and Control) Act 1966*, and as 'Vulnerable' on the International Union for Conservation of Nature Red List of Threatened Species. It is restricted to hill and lower montane forest and feeds only on a select few species of fig. Studies for the Environmental and Social Impact Assessment noted that the species is tolerant of habitat disturbance, as evidenced by its abundance around existing oil facilities, but it is very sensitive to hunting. The bird's feathers are used for ornamentation, particularly in ceremonial headdresses, in much of the Papua New Guinean Highlands and, in some areas; the skin is used as a bride price.



**A toolbox talk emphasizing trench inspection for trapped animals**

A Guinea Ground Boa *Candoia aspera* snake was sighted near Kilometre Point 21. This is a short, thick-bodied, largely nocturnal ground-dwelling snake, sometimes called the 'lazy snake' or 'sleepy snake' by Papua New Guineans due to its lethargic nature. It is widely distributed across Papua New Guinea.

Another unidentified species of small brown snake, measuring approximately 50 centimetres long, was rescued and released into nearby bushes during clearing of the Tagari Access Road horizontal direction drill site. Moths sometimes offer an interesting sight at Project worksites, as shown in *Case Study Three – Amazing moths*.

A pod of four Short-beaked Dolphins *Delphinus delphis* was seen at the north side of the LNG jetty, along with a single Short-beaked Dolphin.

In response to fish deaths in Lake Kutubu in late December 2012, the DEC has established a taskforce to assist communities in the area. Final results from the DEC investigation are expected to be released in the third quarter 2013. The DEC has confirmed this event was not related to Project activities.



*The unidentified species of brown snake rescued at the Tagari Access Road horizontal direction drill site*

## 10.2 Quarantine management

Contractors are working in accordance with National Agriculture Quarantine and Inspection Authority requirements, which enables them to reduce the level of re-fumigation required on cargo entering Papua New Guinea.



*A quarantine inspection*

For the year-to-date, 600 Project consignments were transported to Papua New Guinea, with 57 percent inspected and only 3 percent requiring re-fumigation. This is a decrease from the 11 percent of consignments requiring re-fumigation at the end of 2012.

The National Agriculture Quarantine and Inspection Authority has implemented new fumigation procedures for contractors who require re-fumigation on all their consignments. For these contractors, fumigation occurs at the point of entry instead of the point of origin to save time and money.

The Project is working with the Authority on a process of continuous improvement with regard to re-fumigation levels and is providing data for improved risk analysis of imports and clearance processes.

## 10.3 Weed, plant pathogen and pest management

The third independent annual weed review was undertaken during this quarter by Biotropica Australia Proprietary Limited, a consultancy specializing in tropical ecosystem management. Biotropica evaluated the effectiveness of the Project's Weed, Plant Pathogen and Pest Management Plan, and the implementation of contractors' weed management programs. It involved inspections of 36 locations between Port Moresby and the Hides Ridge, which cover over 75 percent of the ROW and access roads. Contractor weed management plans and weed control records were inspected as part of the review.

### Weeds training

The HGCP and the Hides Wellpad Access Road are at the gateway to the ecologically valuable Hides Ridge area. The introduction of new species into the Hides Ridge area could pose a significant threat to the unique and sensitive species that live there. Weeds occur in high concentrations in the wider Hides communities and pre-construction surveys have found limited numbers of weed species and concentrations on the lower area of the Hides Ridge. The Project is committed to preventing Project-related activities from introducing new weeds to worksites or on the Hides Ridge, and preventing the spread of weeds already present.

In April, the Project hosted Nigel Tucker, a tropical weeds and reinstatement expert from Biotropica Australia Proprietary Limited, to conduct specialized weeds identification training on the weeds in the Hides area, with personnel from across the pipeline construction teams. This training was undertaken to support existing weeds monitoring and control programs implemented by construction contractors and aligned with the weeds identification manual produced in 2012. The session focused on understanding the rationale for classifying some weeds as Priority 1, the importance of their control and hands-on fieldwork.

Participants included personnel from Esso Highlands Limited, the Drilling organization, construction contractors and subcontractors imperative in the success of the weeds monitoring and control programs across Hides.

"The training will improve our current weeds monitoring program and further enhance our ability to identify and control priority weeds in the area," Colman Otmar, Field Environmental Advisor for the Hides area said.



*Nigel Tucker (third from right), training instructor from Biotropica Australia Proprietary Limited with training participants*



**Priority 1 weed *Lantana Lantana camara***



**Priority 2 weed *Water Primrose Ludwigia hyssopifolia***

Three more weed species were recorded, but all were pre-existing. There were three instances of weeds entering a new management zone. The review also found that some sites experienced a community shift. The Project will consider the nine recommendations from the review team for implementation in the coming quarters.

During this quarter, herbicide spray machinery and non-residual herbicide was used for the control of Siam Weed *Chromolaena odorata*, Anglestem Willow Primrose *Ludwigia leptocarpa* and Spiked Pepper *Piper aduncum*. Specialist personnel were contracted to control the Anglestem Willow Primrose, but Siam Weed and Spiked Pepper were also targeted.

Monthly monitoring is continuing at the Kikori River to Mubi River Quarantine Zone to ensure it is clear of Priority 1 weeds, and to identify other known invasion points (car parks, camp margins and the like). Distribution of the Weeds Identification Manual to contractor personnel continued across the Project, along with weeds management training for Project and construction contractor environmental personnel. The importance of using the Hides Permanent Vehicle Washdown Facility was reinforced during training of the main pipeline lowering crew. An average of 60 vehicles a day were treated at the Facility this quarter. The filtration units and seed traps at the Facility are continuously monitored and periodically cleaned, with trapped seeds incinerated.

At the Komo Airfield facility, 30 washdown certificates were issued for pieces of equipment treated during this quarter.



**Herbicide spraying equipment**



**Control of Anglestem Willow Primrose using non-residual herbicide**

No Priority 1 weed outbreaks were recorded across onshore pipeline worksites during the quarter.

Contractors continued to conduct their own audits and weed control measures, with the LNG Plant and Marine Facilities contractor undertaking a joint site visit with the Project to review weed management procedures.



**Equipment being washed at the Hides Permanent Vehicle Washdown Facility**



**Removal of trapped seeds at the Hides Permanent Vehicle Washdown Facility**

### 10.4 Induced access

The Project has not opened any new access roads for onshore pipeline activities. Security checkpoints are being maintained at the Kikori River Bridge, Mubi River Bridge and the Homa Ridge Access Road.

The Production team continued reviewing requirements for road access to key infrastructure along the onshore pipeline ROW. The review indicated a number of temporary access roads built by the Onshore Pipeline contractor would need to be retained.

Induced access impacts associated with each road have been assessed and long-term measures to control access along these roads have been considered. Formal requests for access will be made by the Production team through the Management of Change process.

Final access requirements and controls will be included in the environmental management plans developed for the production phase.

The Hides Gas Conditioning Plant and Hides Wellpads contractor controls admittance to the Hides Wellpad Access Road through worker inductions and site identification cards.

### 10.5 Reinstatement

The LNG Plant and Marine Facilities contractor and the Project conducted a joint assessment this quarter to evaluate reinstatement progress at the flare area. Mitigation measures, such as compaction of slopes and spreading of topsoil to enhance natural revegetation, were identified and implemented.

Reinstatement activities along the onshore pipeline included re-establishment of drainage lines and watercourses, topsoil management, and implementation of permanent erosion control measures. To date, 192 kilometres of the onshore pipeline ROW has been reinstated.



**Kilometre Point 127 before (top) and after (bottom) reinstatement**

**Kilometre Point 152 before (top) and after (bottom) reinstatement**

Final reinstatement and erosion control works were completed between Kilometre Points 92 and 166. Reinstatement was also completed along the road between the Kopi Scraper Station at Kilometre Point 266 and the Omati River landfall at Kilometre Point 293.

Additional reinstatement works progressed from the Kopi Scraper Station north to Kilometre Point 259, across the Moro swamps and Tibi Fault crossing at Kilometre Point 85, and along Kilometre Points 166 to 173, to complete outstanding areas in the Mubi River to Kantobo region.

The Onshore Pipeline contractor used 90 tonnes of bio-organic solid wastes, such as fruit and vegetables, as compost to improve the fertility of topsoil in reinstatement activities and to assist with vegetation regrowth. Monitoring of final reinstatement, permanent erosion control and natural regeneration of the ROW continues to be a focus for the Onshore Pipeline contractor. Regeneration between Kilometre Point 272 and Kilometre Point 266 was seen to be successful to the point where brush clearing was required on the pipeline route to install marker posts.

With completion of construction at Komo Airfield, over 29 hectares of land were reinstated during this quarter.

While the Komo Main Camp and Timalia nurseries continue to supply stock for revegetation, 3,500 kilograms of Japanese Millet *Echinochloa* spp. seed, 2,500 kilograms of Carpet Grass *Axonopus compressus* seed and 20 tonnes of fertilizer was purchased for reinstatement work. Topsoil was mixed with sludge from the Komo Main Camp wastewater treatment plant to also act as fertilizer. Work also began for reinstatement of Timalia Quarry. Parts of the Quarry will be reinstated, while three areas will remain open for local use in accordance with land access agreements with the community. During this quarter, an additional 36 Papua New Guinean workers were recruited to assist with Timalia Quarry reinstatement efforts.

## 10.6 Biodiversity Strategy

Following an initial multi-stakeholder meeting in October 2011, another multi-stakeholder meeting was conducted during this quarter on the Biodiversity Strategy. The meeting was held to update participants about the status of the Project's biodiversity offset program. Attendees included representatives from government, non-government organizations and the United Nations Development Programme. Details of the workshop presentations and discussions are given in *Case Study One – Biodiversity multi-stakeholder meeting*.



**Biodiversity Strategy multi-stakeholder meeting**

Humble moths are not normally considered the most interesting of creatures but Papua New Guinea is home to some of the world's most amazing species.



*Lyssa patroclus* – one of the many amazing species of moth found in the Project area

The Angel Moth *Lyssa macleayi*, which is common in the Project area, is an example of a group of Papua New Guinean moths capable of polymorphism (one species that can appear in two or more guises). The phenomenon enables the moth to avoid predators by camouflaging itself to the environment.

Polymorphism is typical in moths. It is seen between individuals of the same population, between the two sexes, between geographically separated populations and between generations flying at different seasons of the year. It includes mimicry, in which an edible species gains a survival advantage by resembling an inedible species. Mimics can fly alongside non-mimics in a particular species population.



Wing detail of the Atlas Moth *Attacus atlas* showing the shape of a snake's head complete with an artificial 'eye'

Studies in Papua New Guinea have suggested that increasing the range of appearances is a mechanism used by moths to maintain high population numbers and avoid competition with other species.

Many of the moths found in the Project area show polymorphism and many are well camouflaged against their resting backgrounds as a predator avoidance strategy.

Some Kikori River Basin moths rest upside down, such as the Angel Moth, and are bark-patterned to blend in on tree trunks. These species also have a sinister image such as a dark eyespot, a nose spot, or ear spots superimposed on their wings. It is thought these patterns specifically evolved to frighten away birds.

Some of the most remarkable moths of the region have spider and insect images superimposed upon the dominant color pattern. Such moths tend to be either bark or leaf-resting species.

One explanation of why these moths have these particular images on their wings is that they are trying to camouflage themselves within the overall bark (or leaf) substrate, upon which a small, fast-moving spider or insect is resting. Birds learn that true moths tend to be slow to take off during the day, and have nice, fat-filled bodies for eating. However, a fast-moving small spider or tiny praying mantis – the images found on certain unique moth species – will not fetch such a large reward and therefore are not as tempting to birds.

Papua New Guinea supports around 10,000 species of macromoths (larger moths), with the Kikori River Basin hosting many of the species.



An array of moths attracted to a light

## CASE STUDY THREE AMAZING MOTHS

A recent moth survey at Mount Sisa in the Kikori River Basin recorded 812 different moth species. Individual sites had a highly endemic moth fauna restricted to each site, and there was little overlap in species between sites.

Studies for the Project's Environmental and Social Impact Assessment also noted a high diversity of moth species. For example, the Veiru Creek Catchment and Lower Swamp Forests are considered to have over 600 moth species, while the isolated volcano of Mount Bosavi is believed to support more than 900 moth species.

Among moths living in Papua New Guinea is the world's largest moth – the Hercules Moth *Coscinocera hercules* – although some sources consider another Papua New Guinean resident, the Atlas Moth, as the world's largest moth species.

The Hercules Moth has a wingspan of up to 25 centimetres and the males have feather-like antenna, as well as false eyes to confuse predators. After egg-laying, the females die because they have no mouth parts, so are unable to eat. The spectacular pale-blue caterpillars can grow to a length of 12 centimetres. They feed on leaves of several rainforest trees but prefer the Bleeding Heart tree *Omalanthus nutans*.



Close up of antenna of Hercules Moth



Male Hercules Moth

A selection of other moths from the Project area is shown below.



Family: Drepanidae

Family: Geometridae



Family: Geometridae

Family: Pyralidae

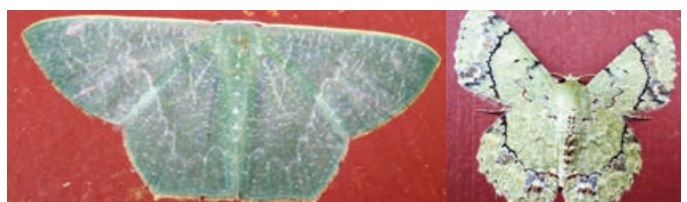


Family: Geometridae

Family: Erebidae



Female Hercules Moth



Family: Geometridae

Family: Geometridae

To preserve the social, economic and cultural value of Papua New Guinea's precious resources, the Project sustainably manages its use of quarry materials, timber, water and soils.

### 11.1 Water management

#### 11.1.1 Usage

The Project uses water for domestic camp needs and construction activities, including dust suppression. During this quarter, an estimated 177,300 kilolitres of freshwater was extracted from ground and surface water sources. At the LNG Plant site, approximately 626,000 kilolitres of seawater was used to supply the desalination plant that generates freshwater for the LNG Plant.

Water extraction volumes remain within permitted limits, with no additional water extraction permits obtained during this quarter.

A new water abstraction point was established at Taniba stream to supply water for Awatangi Quarry Camp 7, near Kilometre Point 24 along the onshore pipeline. Following successful water sample analysis, the abstraction point became operational, with precautions to regulate the pump rate at less than 10 percent of the flow volume of the stream, and with the use of a screen at the end of the hose to prevent entrapment of aquatic life.

The volume of water used by each extraction source is illustrated in Figure 11.1<sup>6</sup>. Figure 11.2<sup>6</sup> shows water use by type.

#### 11.1.2 Quality

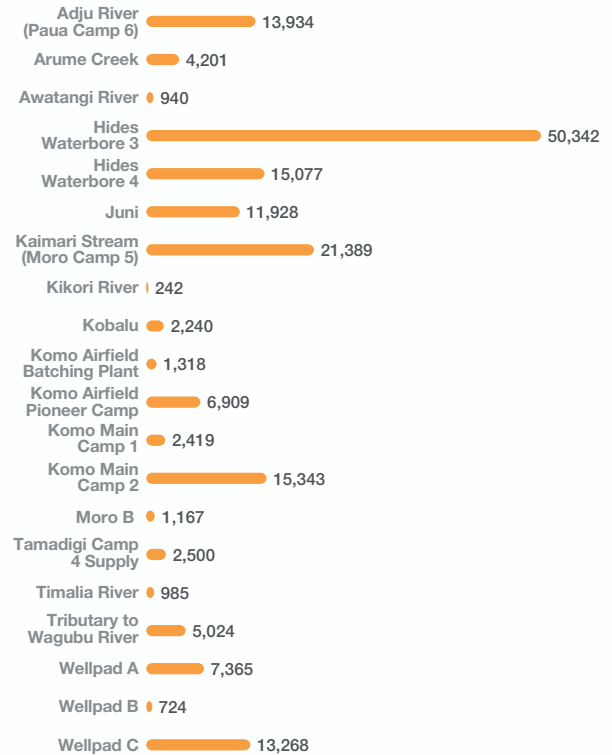
Water quality monitoring of ground and surface waters continued throughout the Project during the quarter. The aim of monitoring is to detect any changes that have the potential to result in an environmental impact.

Surface water monitoring focused on locations where the onshore pipeline construction activities crossed watercourses. For example, monitoring at the Mandali and Lawe river crossings in the Homa area found increased turbidity during the pipeline installation. This occurred only for a short duration and within a limited mixing zone. Particular attention was paid at Tugibu River and Kaimari River as both flow into Lake Kutubu. Monitoring results indicated there was no significant alteration to the physical water quality due to the construction activities.

Onshore pipeline horizontal directional drilling activities at Kilometre Points 89 to 90 continued this quarter, with some drilling mud released to surface waters.

**Figure 11.1**

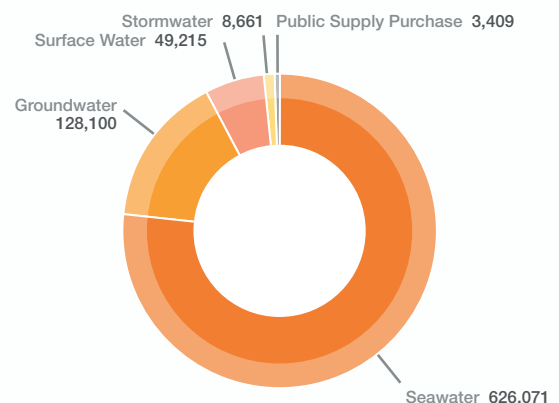
Volume (kilolitres) of water used during the second quarter by extraction source



NOTE: Seawater, stormwater and purchased water are not included in this Figure. Water use for the LNG Plant site is not shown in this Figure as the site's water usage is from desalinated seawater.

**Figure 11.2**

Volume (kilolitres) of water used during the second quarter by type



The amount reaching the Kaimari River was considered to be insignificant and caused no noticeable rise in turbidity at the Kaimari Bridge crossing. Turbidity levels are continuously monitored in the water bodies that drain into Lake Kutubu.

<sup>6</sup> Water usage adjustments may be reported by contractors after the Report is released.



**Installation of sediment booms and curtains prior to pipeline installation across the Tugibu River**

At the HGCP site, some areas that were unable to be sampled in the first quarter 2013 due to insufficient water run-off could be sampled during this quarter. This included gathering baseline data for creeks at Angore and Tagari.

The Project also conducted weekly in-situ testing for all creeks within the construction footprint. All sampling results were recorded in the Project's water quality database. Generally, results for areas undergoing earthworks had elevated turbidity. In response, the Project implemented additional erosion and sediment control devices.

In response to a landowner grievance, the Project conducted inspections of the Anga and Kangapu creeks at Angore. The inspections found that drainage from the Project worksite did not extend into these creeks and water clarity was actually impacted by community members using the water source to wash their laundry, and from existing road runoff. As a result of these findings, the grievance was closed.

At the LNG Plant site, significant rainfall in April caused elevated turbidity in three sediment ponds, however, levels were lower than background level stormwater run-off. The alkalinity in two ponds was also slightly higher but these ponds are lined with alkaline coral rocks. Levels returned to normal after the rainfall abated. Surface water quality monitoring, both upstream and downstream of the LNG Plant site, continues to demonstrate no measureable impacts from the LNG Plant site stormwater.

By the end of this quarter, hydrotesting was completed for over 222 kilometres of the 294-kilometre main onshore pipeline. No chemical dosing was required and dewatering was completed without erosion concerns. Water samples were sent to a laboratory in Port Moresby for testing in accordance with the Hydrotesting Management Plan and Project Environment Permit requirements. No hydrotesting was conducted at the LNG Plant site during the quarter.

## 11.2 Raw materials

The Project sources quarry materials for construction activities from existing (either operating or previously abandoned) third party quarries where possible, in preference to opening new quarries. Timber is sourced through Project-approved local suppliers or from a reputable external source.

During this quarter, the Onshore Pipeline contractor reopened the existing Pagu Quarry on the Highlands Highway in Tari. An assessment was also undertaken of a greenfield quarry near the Benaria River. However, this quarry did not progress based on assessment findings that considered the hydrology, the quality of the material and extraction effort required. Assessment of another greenfield quarry near Angore began in the quarter.

At the HGCP site, raw materials were obtained from existing quarries, so no new quarries were opened this quarter.

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 second quarter**

Area/quarry name	Volumes extracted (cubic metres)
LNG Plant site	66,615
Hides	38,081
Komo	87,553
Onshore Pipeline	255,480

Less than 80 cubic metres of timber was purchased from Project-approved sources during this quarter.

## 11.3 Erosion and sediment control

Erosion and sediment control measures are installed for both temporary construction and as permanent measures as part of reinstatement works. At the Homa Ridge ascent, permanent measures involving matting the entire slope and berms are proving effective with erosion and sediment control.

Extensive temporary measures were required in the northern volcanic soils along the onshore pipeline during the quarter. Planning and monitoring continues in this area in an effort to reduce erosion, sedimentation and the potential for landslip. The northern region also presents terrain with narrow ridges where sidecasting is required to access the ROW. For example, at the Hides Ridge, planning of sidecasting efforts includes avoidance of previous landslide areas, mapping of sensitivities such as sinkhole swamps and determining the extent of sidecasting works.

The Project has conducted mitigation work, including geotechnical and construction engineering reviews, to minimize the risk of debris slip in high-risk areas of the ROW footprint. Much of the terrain in which Project activities occur is extremely challenging and can be prone to instability. This was experienced during this quarter when two small debris movement events occurred following heavy rainfall along the Homa to Benaria Ridge line. One of the debris movement events was initiated by the reactivation of a pre-existing landslide. Nobody was hurt in either event. The Project is conducting ongoing mitigation works to prevent further debris slip events, including appropriate maintenance of ROW drainage.

Awareness-raising and education about the importance and function of erosion and sediment control measures continues with communities along the onshore pipeline route. To mitigate any damage to temporary erosion control measures, the Project has established three erosion control crews to maintain the ROW behind both the backfill crew and the clear and grading crews.

With some workers transitioning to onshore pipeline activities, a Field Environment Handbook is distributed through toolbox talks to inform workers about their environmental responsibilities while in the field.

#### 11.4 Acid sulfate soils

No construction activities required the monitoring of acid sulfate soils during this quarter.

As the Project progresses, it remains vigilant with regard to the protection of the rich cultural heritage resources of Papua New Guinea and implementation of the Chance Finds Protocol.

During this quarter, the Onshore Pipeline contractor reiterated the requirements of the Chance Finds Protocol with workers, while front-end clearing crews were reminded to continuously look out for any cultural sensitivities. Awareness-raising activities also covered the type of cultural heritage resources that may be found. Thirty-three members of the main lowering crew received training about cultural heritage sites, including the need to prevent damage and to appropriately manage construction waste. Cultural heritage training was also provided to another 48 Papua New Guinean workers and five expatriate workers.

The Onshore Pipeline contractor focused cultural heritage monitoring on tree felling, clearing and grading, trenching, blasting, quarry abstraction and camp platform construction activities. Clearing and grading activities were concentrated along the Homa to Benaria Ridge, which has little history of previous settlement and hence a reduced likelihood of chance finds.

### 12.1 Pre-construction surveys

The Project undertakes surveys before construction activities commence to identify sites that may require preservation, or the development of mitigation measures in partnership with local landowners. No sites required protection and monitoring this quarter.

### 12.2 Salvage excavations

One Chance Find at the Tagari Access Road (Henopi 2) was deemed to be of potential cultural heritage significance and was subject to excavation. Recovered items included a stone mortar, a stone club and two spiritual stones. These items are typical of the cultural heritage finds across the Huli area. The Project encouraged local owners to seek assistance from the Papua New Guinea National Museum and Arts Gallery to further manage their cultural heritage site and items. The excavations showed the site to be of low significance.

### 12.3 Incidents of disturbance to known cultural heritage sites

Two near miss incidents occurred during the quarter. In the first incident, two potential cultural heritage sites were disturbed during early construction works at Kilometre Point 6 due to an approved re-alignment of the Tagari Access Road. The site is of low significance and no artifacts were found.



*The Henopi 2 site undergoing salvage excavations*



*An excavated pit at the Henopi 2 site*

An archaeologist conducted a pre-clearance surface scan of known cultural heritage sites in the vicinity and reiterated to construction crews the need to review clearing permits prior to the commencement of work.



*Archaeologist consulting near the Tagari Access Road*

Secondly, during tree felling around a demarcated cultural heritage site, trees fell around and into the site. No other ground disturbance occurred. The site is in the middle of a spoil mound and is an oral tradition site of low significance. In response to the near miss incident, toolbox talks were given to supervisors and earthworks and chainsaw crews on appropriate cultural heritage management.

## 12.4 Chance finds

The Project conducts inspections to identify the presence of chance finds before ground disturbance activities can commence. Chance finds recorded this quarter are shown in Table 12.1. Most sites were considered of low archaeological significance and avoided or successfully mitigated. The exceptions were the Henopi 2 site and two sites that will be further evaluated for archaeological potential.

**Table 12.1 – Chance finds during the second quarter**

Location of find	Type of find
Komo Airfield	Tanged blades (4).
	Axe heads (2).
	Spirit stones (2).
Tagari Access Road	A grave of six people.
	Stone artifact (stone club) and ritual stone ('Liru-kui').
	Graves of two people from Aroma clan.
	Single grave (3).
	Two graves.
	Ritual stone called 'Ni Habane', which means egg of the sun.
	Oral testimony of grave site.
	Oral testimony of communal burial site.
	Oral tradition site of former burial site.
	Oral testimony of former burial site (4).
Stone artifact, mortar ('Ni-tangi', which means hat of the sun), found within a 'Malihama' traditional dancing ground.	
Oral tradition site (3).	
Henopi 2 (see Section 12.2 Salvage excavations).	
'Liru-kui' sacred stone significant to Tani clan.	

A single late-Pleistocene to early-Holocene (18,000 to 10,000 years before present) stone axe was found during a pre-construction assessment this quarter. Weighing about 400 grams, the axe was 12.5 centimetres long and 4 centimetres wide at the ventral surface. Its distal was broken, indicating it was used by humans. A 'Liru-kui' sacred spirit stone was also found on a pioneering track of the main onshore pipeline ROW at Kilometre Point 5. It is of significance to the Tani clan.

The Komo Airfield contractor handed over Chance Finds to the Project in preparation for demobilization activities.



**Stone axe found at the Angore Wellpad Access Road**



**The 'Ni-tangi' mortar found within a 'Malihama' traditional dancing ground at Tagari**



**A stone club found at Tagari**

The Project and its contractors proactively engage with Papua New Guinean communities to build and maintain relationships based on trust, collaboration and mutual understanding.

### 13.1 Government

All levels of government, community members and other stakeholders are kept informed of Project activities through targeted engagement activities.

#### 13.1.1 People processes

The Papua New Guinean Government continues to support sustained process improvements, which enable efficient permit and visa processing times for the Project. During this quarter, the Papua New Guinean Department of Labour and Industrial Relations, as well as the Industrial Relations and Immigration and Citizenship Services Authority, focused on clearing backlogs in work permits and work visa exemptions, renewals and extensions for key Project contractors and subcontractors.

#### 13.1.2 Materials and tax

Papua New Guinea's Customs Service continues to expedite the clearance of Project cargo into Papua New Guinea. The 2009-2012 audit review on the 'exemption of duties' has been completed by PNG Project Services and is under review by the Customs Service. The review aims to confirm that goods imported into Papua New Guinea by the Project and its contractors are consumed within the Project in line with the Gas Agreement. An audit of goods imported into the Project during the first quarter 2013 was also completed and submitted to the Customs Service for review.

#### 13.1.3 Infrastructure and Government support

During this quarter, the Project assisted Papua New Guinea's Department of Works with engineering support for emergency repairs to the Highlands Highway following a landslip in the Chimbu Province caused by heavy rainfall. Project engineers also assisted the Department of Works with on-site supervision of contractors, which minimized closure of the Highway to less than five days. In addition, the Project supported the Department with repairs to bridges in the Southern Highlands Province.

In the Hela Province, the Project provided the Hela Provincial Government with engineering design and execution planning for the upgrade of the Tari to Komo section of the Highlands Highway. The Hela Government plans to upgrade this section of the Highway in the third quarter 2013.

#### 13.1.4 Advocacy

The then Prime Minister of Australia, the Prime Minister of Fiji, the Governor-General of Australia, Papua New Guinean national and provincial government representatives, and numerous Heads of Foreign Missions were among more than 170 dignitaries who attended 14 advocacy workshops and LNG Plant site visits during this quarter.

The advocacy workshops provided participants with an update on numerous aspects of the Project including: construction progress; community development programs; and national content initiatives, such as the training and development of local workers and suppliers.

For the year-to-date, about 1,000 people from community groups, representative stakeholder bodies and government departments have participated in educational sessions, site tours and advocacy tours of the LNG Plant. These tours share messages of the Project's environmental and social stewardship and offer a contextual understanding of the work being undertaken.



*Her Excellency Quentin Bryce, Governor-General of Australia, during a visit to the LNG Plant site*



*Central Provincial Government representatives at the LNG Plant site*

### 13.1.5 Benefits assurance delivery

During this quarter, the Project helped the Papua New Guinean Department of Petroleum and Energy establish a continuous Government presence in the Upstream area. The Project also helped the Department facilitate its clan vetting program, which will enable the Government to determine the appropriate distribution of Project royalties and benefits.

The Project facilitated a visit from the Department of Commerce and Industry Minister with Angore landowners to raise awareness about business development grants.

## 13.2 Communities

The Project is maintaining a strong community engagement program to keep communities well informed and involved in Project-related activities.

### 13.2.1 Engagement activities

Over 250 formal engagements were conducted during this quarter, in 45 communities in the Project area, with over 650 recorded participants. This brings the total number of formal engagements to more than 1,250, with more than 29,500 recorded participants for the Project-to-date. Another 47 communities were reached through 295 informal engagements, bringing the total number of informal engagements to more than 1,650 for the Project-to-date. Topics discussed this quarter focused on safety during pipeline construction and commissioning activities, as well as traffic and pedestrian safety.

#### Hides and Komo

With the increase in traffic between Komo and Hides this quarter, the Project increased traffic and pedestrian safety messaging to communities, schools, roadside markets and pedestrians along the Construction Logistics Route.

Ongoing community engagement regarding drilling activities has resulted in fewer drilling-related concerns being raised in the Hides area.

#### Pipeline (north and south)

As construction of the pipeline rapidly progresses, the Project has increased safety messaging around pipeline activities. During this quarter, safety messaging focused on pipeline purging activities, pipeline teleferic cable construction, and safety around pipeline construction sites. Traffic and pedestrian safety messages were incorporated in all pipeline engagement activities.

## LNG plant site

In partnership with teachers from elementary and primary schools near the LNG Plant site, the Project created a series of 13 worksheets to educate students about the dangers of mosquitoes and their role as carriers of vector-borne illnesses. Lessons about mosquito-borne diseases were provided in each school before 20,000 copies of the worksheets were distributed to school children throughout the area.



*A lesson about mosquito-borne diseases being conducted at Porebada Primary School*



*Students with awareness worksheets at Porebada Elementary School*

The Project was involved in educating elementary school students from the LNG Plant site villages about health and hygiene practices. During these engagements, teaching materials such as Toea Health and Hygiene Activity Packs and Toea t-shirts were distributed to the students.



School children from Lea Lea Elementary School in their Toea t-shirts



Toea Health and Hygiene Activity Packs being distributed at Boera Elementary School

### Issues identification

As shown in Figure 13.1, economic issues continued to dominate this quarter representing 36 percent of all issues received. Economic issues raised related to business opportunities, employment, community development and strategic community investments.

### 13.2.2 Media

In April, Esso Highlands Limited Managing Director, Peter Graham, provided attendees of the Australia Papua New Guinea Business Forum in Port Moresby with information about the Project's infrastructure investments.

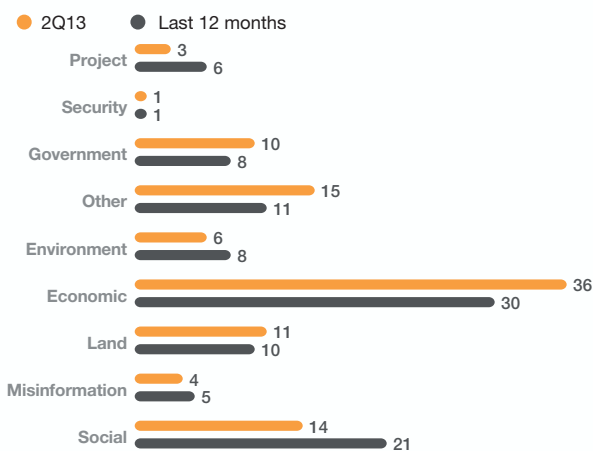
Peter Graham also provided updates about Project activities through his monthly newspaper column, which is published in English in the *Post Courier* and *The National*, and in Tok Pisin in the *Wantok Nius*. During this quarter, he highlighted how the Project is investing in Papua New Guinea and discussed numerous environmental initiatives involving the Project.

The latest edition of the *PNG LNG Toktok*, a four-page supplement for local newspapers, highlighted health initiatives in which the Project is involved.

The Project's thirteenth PNG LNG Quarterly Environmental and Social Report – First Quarter 2013 covering activity from January to March 2013 was published on the Project's website. Hard copy versions of the report were made available to many Project stakeholders.

Figure 13.1

Percentage of issues received by issue category



There was an increase in issues recorded for compensation claims for areas such as gardens and domestic animals, rather than land access.

Increased safety messaging with communities resulted in 14 percent of issues being raised about community health and safety.



Read the Quarterly Environmental and Social Report series at [www.pnglng.com](http://www.pnglng.com)

The Report's Executive Summary was published in Tok Pisin and English in national newspapers such as the *Post Courier*, *The National*, the *Sunday Chronicle* and *Wantok Nius*.

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BSP	Bank South Pacific
DEC	Papua New Guinean Department of Environment and Conservation
EITI	Extractive Industries Transparency Initiative
ESMP	Environmental and Social Management Plan
GWIM	Global Women in Management
HGCP	Hides Gas Conditioning Plant
IESC	Lender Group's Independent Environmental and Social Consultant
iHDSS	Integrated Health and Demographic Surveillance System
IIF®	Incident and Injury-Free®
IMR	Papua New Guinea Institute of Medical Research
ISO	International Organization for Standardization
Lanco(s)	Landowner Company (Companies)
LNG	Liquefied Natural Gas
PNG	Papua New Guinea
PSI	Population Services International
ROW	Right of Way

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**Table A1.1 – Summary of contractors and work scopes**

Contract	Description of work scope
Upstream Infrastructure Clough and Curtain Brothers Joint Venture	<ul style="list-style-type: none"> <li>Infrastructure upgrades supporting main construction activities in the Gulf Province and Southern Highlands Province.</li> <li>Camps for Esso Highlands Limited and to support construction activities.</li> <li>Construction of a landfill site at Hides.</li> <li>Bulk earthworks for the HGCP and Hides Wellpads.</li> </ul>
LNG Plant Early Works Curtain Brothers Papua New Guinea Limited	<ul style="list-style-type: none"> <li>Upgrade of existing road from Motukea Island to LNG Plant site.</li> <li>New Bypass Road (re-routing of existing public road, which transects with the LNG Plant site).</li> </ul>
Telecommunications TransTel Engineering	<ul style="list-style-type: none"> <li>Installation of a telecommunications system to support construction and production.</li> </ul>
Offshore Pipeline Saipem	<ul style="list-style-type: none"> <li>Construction and installation of the offshore pipeline from Omati River landfall to LNG Plant landfall site.</li> <li>Pipeline tie-in at Omati River landfall and shore crossing at the LNG Plant landfall site.</li> <li>Installation of near-shore Fiber Optic Cable in the Omati area.</li> </ul>
Offshore Fiber Optic Cable Alcatel-Lucent Submarine Networks	<ul style="list-style-type: none"> <li>Installation of the offshore Fiber Optic Cable from the Omati delta to the LNG Plant landfall.</li> </ul>
LNG Plant and Marine Facilities Chiyoda and JGC Joint Venture	<ul style="list-style-type: none"> <li>LNG facility engineering and construction, including LNG process trains, condensate storage tanks, LNG storage tanks, utilities, permanent accommodations, heliport, and telecommunications.</li> <li>Marine facilities including the jetty and LNG/condensate export berths.</li> </ul>
Hides Gas Conditioning Plant and Hides Wellpads CBI and Clough Joint Venture	<ul style="list-style-type: none"> <li>Engineering and construction of the HGCP processing facilities and associated wellpads, including permanent accommodation and maintenance facilities.</li> </ul>
Onshore Pipeline SpieCapag	<ul style="list-style-type: none"> <li>Installation of the onshore gas and condensate pipelines, and associated valve and metering stations.</li> <li>Installation of the pipelines for the Hides gathering system including flowlines, spinline, utility lines, and associated power and telecommunications cables.</li> </ul>
Komo Airfield McConnell Dowell and Consolidated Contractor Group Joint Venture	<ul style="list-style-type: none"> <li>Airfield and supporting infrastructure.</li> </ul>
Associated Gas Development Various	<ul style="list-style-type: none"> <li>Upgrades and modifications to Kutubu Central Processing Facility and Gobe Production Facility including gas dehydration, metering, and condensate handling.</li> </ul>
Nabors Drilling International Limited	<ul style="list-style-type: none"> <li>Drill and complete 11 new wells.</li> </ul>
Permanent Facilities Compound Leighton (PNG) Limited	<ul style="list-style-type: none"> <li>Construction of offices and associated service facilities.</li> </ul>

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







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