

Esso Highlands Limited



Papua New Guinea LNG Project

**Community Health, Safety and Security  
Management Plan - Production**

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## ACRONYMS

ACRONYM	DESCRIPTION
AIDS	Acquired Immune Deficiency Syndrome
EHA	Environmental Health Area
EHL	Esso Highlands Limited
HIV	Human Immunodeficiency Virus
iHDSS	integrated Demographic Health Surveillance System
L&CA	Land and Community Affairs
LNG	Liquefied Natural Gas
MOH	Medicine and Occupational Health
OIMS	Operations Integrity Management System
P&GA	Public and Government Affairs
PNG	Papua New Guinea
SHE	Safety, Health and Environment
STI	Sexually Transmitted Infection
TB	Tuberculosis

## **1.0 INTRODUCTION**

Esso Highlands Limited (EHL) has developed this Plan to describe the actions that will be undertaken by the Papua New Guinea Liquefied Natural Gas (PNG LNG) Project (the Project) during the production phase to manage potential risks and impacts relating to:

- Community health
- Community safety
- Community security

### **1.1 Scope**

This Plan addresses health, safety and security from a community perspective only. Workplace safety, Project security and occupational health are managed through the Operations Integrity Management System (OIMS) Framework, with roles and responsibilities, resources and accountabilities allocated according to ExxonMobil standards. Where workers are primarily drawn from surrounding communities, health monitoring of workers is used as a proxy for community health monitoring.

### **1.2 Objectives**

The objectives of this Plan are to:

- Avoid or limit risks to, and impacts on, the health, safety and security of the community during the production phase from both routine and non-routine circumstances. This is achieved through implementing targeted prevention programs to reduce risks, along with the implementation of an effective monitoring and evaluation program
- Ensure that safeguarding of personnel and property is conducted in an appropriate manner that avoids or limits risks to the community's safety and security
- Maintain a monitoring and evaluation program that is community-based, participatory, transparent and covers all phases of production and decommissioning

This Plan should be read in conjunction with the ExxonMobil Statement of Principles on Security and Human Rights and OIMS System 5-5 Health Management.

## 2.0 LEGAL AND OTHER REQUIREMENTS

With regard to community health, safety and security activities, the Project will comply with applicable Papua New Guinean laws and regulations, applicable International Finance Institution requirements and applicable treaties and conventions. The applicable laws and other requirements are outlined within this section.

### 2.1 Papua New Guinean laws and regulations

The following requirements form the basis of this Plan, however; this is not an exhaustive list:

- *Constitution of the Independent State of Papua New Guinea 1975*
- *Public Health Act 1973*
- *Public Health Regulation (Sanitation and General) 1973*
- *Public Health (Infectious Diseases) Regulation 1973*
- *Public Health (Sewerage) Regulation 1973*
- *Public Health (Drinking Water) Regulation 1984*
- *Environment Act 2000*
- *HIV [Human Immunodeficiency Virus]/AIDS [Acquired Immune Deficiency Syndrome] Management and Prevention Act 2003*
- *PNG Quarantine Act 1953*
- *PNG Food Sanitation Act 1991*
- *Motor Traffic Act 1950*
- *Industrial Safety (Building Works) Order 1957*

### 2.2 International treaties and conventions

Typically, international treaties and conventions mandate actions that signatory countries must undertake and do not require direct action by private companies.

There are no international treaties and conventions relevant to the production phase of the Project from a community health, safety and security perspective.

### 2.3 International Finance Institution requirements

Various international standards and guidelines apply to community health, safety and security. Those that are relevant to the Project include:

- *Performance Standard 4: Community Health, Safety and Security (International Finance Corporation, 2006)*, and its objectives are:
  - To anticipate and avoid adverse impacts on the health and safety of the affected communities throughout the Project from both routine and non-routine circumstances
  - To ensure the safeguarding of personnel and property is carried out in accordance with relevant human rights principles and in a manner that avoids or minimises risks to affected communities
- *Performance Standard 1: Social and Environmental Assessment and Management Systems (International Finance Corporation, 2006)*, and some of its objectives are:
  - To adopt a mitigation hierarchy to anticipate and avoid, or where avoidance is not possible, minimise, and where residual impacts remain, compensate/offset for risks and impacts to workers, affected communities, and the environment
  - To ensure that grievances from affected communities and external communications from other stakeholders are responded to and managed appropriately
  - To promote and provide means for adequate engagement with affected communities throughout the Project cycle on issues that could potentially affect them and to ensure that relevant environmental and social information is disclosed and disseminated

## 2.4 Other requirements

EHL is committed to conducting business in a manner that is compatible with the environmental and economic needs of all communities in which it operates, and that protects the safety, health and security of employees, those involved in production, customers and the public. In its community health, safety and security activities, EHL will follow OIMS, which defines EHL's commitment to managing risk and achieving excellence in performance.

### 2.4.1 Health Policy

ExxonMobil's Health Policy states that the Company will:

- Identify and evaluate health risks related to its operations that potentially affect its employees, contractors or the public
- Communicate, in a reasonable manner, to potentially affected individuals or organisations and the scientific community any knowledge about health risks from its health programs and related studies

ExxonMobil's Statement on Strategic Health Management prescribes that the Company maintains an active commitment to the communities in which it works. ExxonMobil believes that self-sustaining improvements in public health are a key enabler for broader economic and social gains. By incorporating workforce and community health considerations in Project planning, ExxonMobil plays a role in addressing the broader economic and social development of the communities in which it operates.

### 2.4.2 Human rights

ExxonMobil is committed to conducting business in a way that protects the security of its personnel, facilities and operations and respects human rights.

ExxonMobil's Standards of Business Conduct establishes its approach. Its practices and operations reflect the spirit and intent of the *Universal Declaration of Human Rights (United Nations, 1948)* as it applies to private companies and the spirit and intent of the *ILO Declaration on Fundamental Principles and Rights at Work (International Labour Organization, 1998)*.

ExxonMobil policies support its commitment to human rights and include freedom of association, elimination of forced or compulsory labour, abolition of child labour, and equal employment opportunity. ExxonMobil condemns human rights violations in any form.

While recognising that host governments have the responsibility of maintaining law and order, security and respect for human rights, the private sector also has a responsibility to respect human rights within the role of business.

Therefore, ExxonMobil believes that:

- It has an important role to play in promoting respect for human rights
- Its business presence can and should have a positive influence on the treatment of people in the communities in which it operates
- Security and respect for human rights can and should be compatible
- Human rights violations are not acceptable and should be condemned

ExxonMobil formally documented its support of the *Voluntary Principles on Security and Human Rights (Secretariat for the Voluntary Principles on Security and Human Rights, 2000)*, referred to herein as the Voluntary Principles, in 2005 through its Statement of Principles on Security and Human Rights. Through this Statement, the Company is required to assess security requirements from a risk perspective, and consider available information regarding private security providers' past compliance with laws and respect for human rights.

### 2.4.3 Security approach

EHL will continuously reinforce the importance of security and implement appropriate and balanced security measures, based on existing corporate systems. This is achieved by:

- Establishing practices and guidelines
- Providing perspective
- Setting objectives
- Providing appropriate resources

Appropriate and balanced security measures take into account:

- Perceived versus actual risk
- The cost and practicality of potential countermeasures
- The relationship with the communities in which EHL operates
- Compliance with applicable laws
- Recognition of unique cultural and social norms

### 2.4.4 Good international industry practice

International standards, guidelines and good international practice that will be referenced by the Project, relevant to community health, safety and security include:

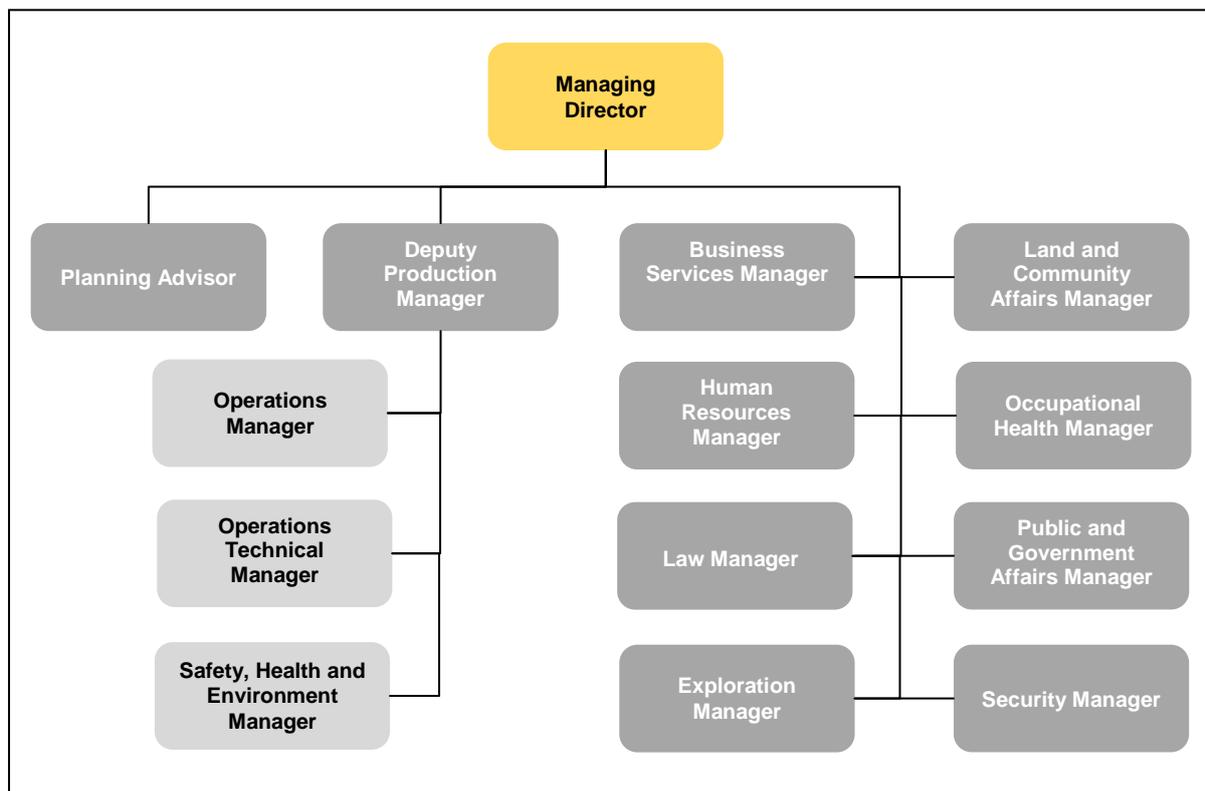
- Voluntary Principles
- *Protect, Respect and Remedy Guideline (United Nations, 2011)*
- *Code of Conduct for Law Enforcement Officials (United Nations, 1979)*
- *Basic Principles on the Use of Force and Firearms by Law Enforcement Officials (United Nations 1990)*
- *Guidelines for Drinking Water Quality, 4<sup>th</sup> Edition (World Health Organisation, 2011)*
- *Introduction to Health Impact Assessment (International Finance Corporation, 2009)*
- *Projects and People: A Handbook for Addressing Project Induced In-Migration (International Finance Corporation, 2009)*

### 3.0 ORGANISATION

#### 3.1 Resources

EHL will ensure that sufficient resources are allocated on an ongoing basis to achieve effective implementation of this Plan.

Chief responsibility for this Plan is shared between a number of departments, based on the nature of mitigation measures required. The organisation structure capturing each of these departments is shown in Figure 3-1.



**Figure 3-1: Esso Highlands Limited organisation chart for commencement of production**

The basic division of responsibility is indicated below:

- Community Health – Medicine and Occupational Health (MOH) department
- Community Safety – Safety, Health and Environment (SHE) department
- Community Security – Security department

As most of the impacts described in this Plan occur outside of Project premises, the Land and Community Affairs (L&CA) department will play a critical role in identifying unforeseen impacts and supporting the departments identified above with implementing defined mitigation measures. The Public and Government Affairs (P&GA) department also supports community health programs through their community development initiatives. These initiatives are addressed in the Community Development Management Plan.

Some sample job descriptions are provided in Section 7.0 to demonstrate the type of roles that will apply during the production phase. As the needs of the Project change over time, a number of roles may be replaced by others more appropriate to the Project's needs at the time.

#### 3.2 Contractor resources

During production, the Project will use comparatively few large-scale contractors. The primary responsibility for implementing this Plan will rest with EHL. To the extent that contractors are undertaking scopes of work relating to this Plan, these expectations will be

detailed in the invitation to tender and the contractor will ensure sufficient resources are allocated on an ongoing basis for effective implementation of this Plan. Examples where this will apply include the appointment and management of security guards by a contractor, operation of a camp facility, transportation of hazardous materials and the like.

## 4.0 IMPACTS AND MITIGATION

Community health, safety and security impacts have been identified through two separate processes, both of which are described below.

### 4.1 Community safety and security impact identification and mitigation

Community safety and security impacts were identified based upon the experience drawn from the construction phase. This was combined with the risk-based framework of the Project's environmental and social assessment process and analysis against the International Finance Corporation Performance Standards themes.

### 4.2 Community health impact identification and mitigation

Health impacts anticipated during the production phase were identified using the internationally recognised Environmental Health Area (EHA) approach, as described in *Guidance Note 4: Community, Health, Safety and Security (International Finance Corporation, 2007)*. Thirteen EHAs were defined and are summarised in Table 4-1.

**Table 4-1: Summary of identified Environmental Health Areas**

NUMBER	ENVIRONMENTAL HEALTH AREA
1	Housing and respiratory issues – Acute respiratory infections (bacterial and viral), pneumonias, tuberculosis, including Multi-drug resistant tuberculosis and Extremely drug resistant tuberculosis; respiratory effects from housing, overcrowding, housing inflation, immunisation coverage.
2	Vector-related disease – Malaria, dengue, chikungunya, lymphatic filariasis, tick-related diseases and ectoparasites etc.
3	Sexually transmitted infections (STIs) – HIV/AIDS, syphilis, gonorrhea, chlamydia, hepatitis B.
4	Soil, water and sanitation related diseases – Geohelminths, e.g. giardia, hook and pin worms, etc.
5	Food and nutrition related issues – Changes in subsistence practices, stunting, wasting, anemia, micro-nutrient diseases (including folate, Vitamin A, iron, iodine), gastroenteritis (bacterial and viral) and food inflation.
6	Accidents/injuries – Road traffic related spills and releases, construction (home and Project related) and drowning.
7	Exposure to potentially hazardous materials – Road dusts, air pollution (indoor and outdoor related to industrial activity, vehicles, cooking, heating or other forms of combustion/incineration), landfill refuse or incineration ash, any other Project-related solvents, paints, oils or cleaning agents, by-products.
8	Social determinants of health – Psychosocial, resettlement/relocation, violence, security concerns, substance misuse (drug, alcohol, smoking), depression and changes to social cohesion.
9	Cultural health practices – Role of traditional medical providers, indigenous medicines and unique cultural health practices.
10	Health services infrastructure and capacity – Physical infrastructure, staffing levels and competencies, technical capabilities of health care facilities, immunisation programs.
11	Program management delivery systems – Coordination and alignment of the Project to existing national and provincial level health programs, for example tuberculosis (TB), HIV/AIDS, malaria, and future development plans.
12	Non-communicable diseases – Hypertension, diabetes, stroke, and cardiovascular disorders.
13	Veterinary medicine/zoonotic issues – Potential disease distributions secondary to changes in animal migration patterns due to Project-related activities or infrastructure.

The overall mitigation strategies are organised around two fundamental public health concepts:

- Health promotion/education defined as:
- Any intervention that seeks to eliminate or reduce exposure to harmful factors by modifying human behaviours

- Any combination of health education and related organisational, political and economic interventions designed to facilitate behavioural and environmental adaptations that will improve or protect health
- Disease prevention defined as:
- Any intervention that seeks to reduce or eliminate diagnosable conditions
- May be applied at the individual level, as in immunisation, or the community level, as in the chlorination of the water supply

Disease prevention is often illustrated by the prevention pyramid which is composed of:

- Primary – The base of the pyramid covering population-oriented actions designed to be implemented before health problems develop
- Secondary – The second level covering actual clinical preventive services for populations at high risk, where interventions are designed to prevent a condition
- Tertiary – Top of the pyramid covering treatment intervention or rehabilitation with existing, serious problems

The placement of population-oriented prevention at the base is significant due to its:

- Focus on all of the people as recipients
- Broad, long-lasting impact on health
- Role in defining and facilitating the whole system to work

Table 4-2 presents a summary of the potential risks and impacts related to community health, safety and security, together with mitigation and management measures to avoid or reduce these impacts. It also includes the monitoring required to determine the effectiveness of these measures.

**Table 4-2: Risks and impact mitigation**

TOPIC	RISK/IMPACT TO THE COMMUNITY	RISK/IMPACT TO THE PROJECT	MITIGATION MEASURES	REF #	MONITORING	MONITORING FREQUENCY	RESPONSIBILITY
Emergency preparedness and response.	Unanticipated and unmanaged impacts to community and nearby receptors, including uncontrolled hydrocarbon release at a Project facility (including LNG Plant, Gas Plant, Komo Airfield, pipeline).	<ul style="list-style-type: none"> <li>• Damage to EHL assets</li> <li>• Lost opportunity to contain impact</li> <li>• Loss of Project continuity</li> <li>• Failure to maintain schedule and costs</li> <li>• Potential to impact on license to operate</li> <li>• Risk to reputation</li> </ul>	Identify emergency scenarios and develop emergency preparedness and response plans with allocation of responsibilities to local communities and authorities, (where appropriate).	1-11	Verification	Ongoing	SHE P&GA
			Develop specific stakeholder engagement plan based on consultation and participation with government and communities regarding the nature and potential consequences of the risks.	4-18	Verification	Annual	SHE
			Define protocol for community reporting of observed incidents (e.g. sight, smell or sound of pipeline leak).	4-19	Verification	Once	L&CA
Infrastructure and equipment design and safety – New buildings, structures and facilities.	<ul style="list-style-type: none"> <li>• Failure of containment or retention structures (e.g. bunds, dam, pond etc.), stockpile, reclaimed areas etc., leading to safety risks for downstream communities or harm to resources on which they depend (e.g. water)</li> <li>• Inadequate or ineffective water</li> </ul>	<ul style="list-style-type: none"> <li>• Injury to workforce or other stakeholders due Increased operations and maintenance costs community resentment towards Project</li> <li>• Blockages and stoppages</li> <li>• Claims for compensation</li> </ul>	Minimal construction anticipated in production phase, and where required, EHL established standards to be applied.	4-1	Verification	Ongoing	Engineering
			Check and maintain bunding, containment structures, surface conditions; monitor for leaks, loss of integrity etc.	4-2	Verification	Ongoing	Production
			Civil works designed and maintained with water and stormwater management in mind, including sediment traps and other erosion control measures as appropriate.	4-3	Verification	Ongoing	Engineering

TOPIC	RISK/IMPACT TO THE COMMUNITY	RISK/IMPACT TO THE PROJECT	MITIGATION MEASURES	REF #	MONITORING	MONITORING FREQUENCY	RESPONSIBILITY
	management and erosion control measures leading to run-off and water contamination impacting downstream communities		Identify potentially impacted downstream areas/users in the event that spills or releases could impact their usable resources (i.e. water quality and quantity).	4-4	Verification	Ongoing	L&CA
			Develop a communication protocol to inform them of significant releases or exceedances in a timely manner.	4-5	Verification	Ongoing	L&CA
Infrastructure and equipment design and safety – Transportation.	<ul style="list-style-type: none"> <li>Injury or accident to community members, Project employees or livestock (pigs) resulting from Project-related transport</li> <li>Dust generation from transport impacting air quality and causing nuisance impacts for communities</li> <li>Contamination of water supplies (e.g. dust on roofs used as catchments for water tanks</li> <li>Coating of crops by dust leading to</li> </ul>	<ul style="list-style-type: none"> <li>Community resentment towards Project</li> <li>Blockages and stoppages</li> <li>Claims for compensation</li> </ul>	Optimise road transport requirements including consideration for logistics management (minimisation of vehicle movements etc.).	4-6	Verification	Ongoing	Logistics
			Implement speed restrictions for EHL and contractor vehicles.	4-7	Verification	Ongoing	SHE
			Maintain community grievance process.	4-8	Verification	Ongoing	L&CA
			Continue safety awareness and education programs for impacted communities, including school programs.	4-9	Verification	Ongoing	L&CA
			To the extent possible, provide access for pedestrians and vehicles in areas where pedestrians and Project vehicles mix.	4 -10	Verification	Ongoing	SHE

TOPIC	RISK/IMPACT TO THE COMMUNITY	RISK/IMPACT TO THE PROJECT	MITIGATION MEASURES	REF #	MONITORING	MONITORING FREQUENCY	RESPONSIBILITY
	<p>reduced productivity</p> <ul style="list-style-type: none"> <li>Decommissioning of temporary access roads developed for construction period result in perceived loss of access within community</li> </ul>		Maintain an emergency response capability to address contingencies for emergency assistance for drivers and third parties as necessary.	4-11	Verification	Ongoing	Security
Hazardous materials management and safety – Community exposure.	Spills, leaks and other accidental releases from Project facilities or Project-related activities (transport) resulting in community safety-related risks and impacts (e.g. contamination of water supplies, soil contamination, etc.).	<ul style="list-style-type: none"> <li>Community resentment towards Project</li> <li>Blockages and stoppages</li> <li>Claims for compensation</li> </ul>	Evaluate the potential for substituting hazardous materials with safer alternatives.	4 -12	Verification	Ongoing	MOH
			Implement measures to avoid spills affecting communities, as defined in the Emergency Preparedness Plan.	4 -13	Verification	Ongoing	Logistics

TOPIC	RISK/IMPACT TO THE COMMUNITY	RISK/IMPACT TO THE PROJECT	MITIGATION MEASURES	REF #	MONITORING	MONITORING FREQUENCY	RESPONSIBILITY
<p>Ecosystem services – Provisioning (water, air, food, shelter, energy). Ecosystem services – Regulating (erosion control, water filtration/purification, flood protection, slope stability, disease and pest control, soil formation and stabilisation, pollination).</p>	<ul style="list-style-type: none"> <li>• Reduced community use of and access to ecosystem services including tree and plant products (food and non-food), and animal and fish products (food and non-food)</li> <li>• Diminished food and calorie intake as well as diversity of diet</li> <li>• Compromised hygiene and sanitation</li> <li>• Adverse affects on allocation of work tasks</li> <li>• Increased reliance on hunting as a source of protein with associated pressures on biodiversity</li> <li>• Increased community exposure to the risks and impacts of natural hazards resulting from changes to the physical environment, including flooding and slope stability</li> </ul>		<p>Re-assess Project impacts on community-dependent ecosystem services and develop corresponding mitigation measures.</p>	4-15	Community grievances	Ongoing	SHE

TOPIC	RISK/IMPACT TO THE COMMUNITY	RISK/IMPACT TO THE PROJECT	MITIGATION MEASURES	REF #	MONITORING	MONITORING FREQUENCY	RESPONSIBILITY
Security personnel – Private: hiring, rules of conduct, training, equipment and monitoring.	<ul style="list-style-type: none"> <li>Inappropriate or disproportionate use of force</li> <li>Inadequate protection of human rights</li> </ul> Failure to identify security risks to communities and to employees	Negative impact to reputation.	Apply Voluntary Principles.	4-20	Verification	Annual	Security
			Audit the performance of security providers.	4-21	Verification	Annual	Security
			Ensure regular training on Human Rights.	4-22	Verification	Annual	Security
			Effective community engagement on security arrangements.	4-23	Verification	Annual	L&CA
Security personnel – Government: assess and document risks.	<ul style="list-style-type: none"> <li>Demobilisation of mobile squad leads to increased crime and disorder in communities</li> <li>Inappropriate use of force by Government forces or absence of Government support when needed</li> </ul>		Maintain Memorandum of Understanding with Mobile Squad (Royal Papua New Guinea Constabulary), updating where necessary to reflect changes to Project status and community security context.	4-24	Verification	As required	Security P&GA
Land rights and usage – Access to, and use of, physical, economic and cultural resources and institutions, including employment opportunities, Rights of Ways.	Encroachment of Right of Way over time with potential to compromise safety of pipeline and safety of people in the event of accident.		Community awareness /consultation regarding safety and access/use restrictions.	5-8	Verification	Ongoing	Production

TOPIC	RISK/IMPACT TO THE COMMUNITY	RISK/IMPACT TO THE PROJECT	MITIGATION MEASURES	REF #	MONITORING	MONITORING FREQUENCY	RESPONSIBILITY
EHA 1: Housing and respiratory.	Papua New Guineans who reside in work camps and travel home during off times could potentially transmit respiratory infections to workforce personnel or to their home community. Specific worker housing design and capacity versus planned inhabitants.		Implement TB prevention and control program with medical confirmation of TB status before assignment. Provide worker education on TB and its prevention.	1.1	Verification: TB control program assessments (leading indicators) assessed as are the TB active cases (including investigation of close contact for determination of TB transmission to camp population)	As per health assessment schedule	MOH
			Project to notify Government of TB cases (Government to follow up with family members of workers diagnosed with TB at work camp as part of national TB programme).	1.2	TB control program assessments	As per health assessment schedule	MOH
			Medical clearance required for return to work for all employees and contractors diagnosed with TB.	1.3	TB control program assessments	As per health assessment schedule	MOH
			Conduct close contact investigation in accordance with TB control program.	1.4	TB control program assessment	As per health assessment schedule	MOH
			Adhere to appropriate worker housing design and capacity.	1.5	Camp hygiene and sanitation assessment	As per health assessment schedule	MOH

TOPIC	RISK/IMPACT TO THE COMMUNITY	RISK/IMPACT TO THE PROJECT	MITIGATION MEASURES	REF #	MONITORING	MONITORING FREQUENCY	RESPONSIBILITY
	Community influx creating overcrowding further compounding high local TB rates and inadequate local health service capacity. (In production phase, population assessments to be conducted to determine how population is changing).		Support the national TB control program through accurate diagnostic processes used in camp clinics to confirm TB status and advise the individual to seek appropriate treatment (mitigation to be reviewed based on population changes experienced in first years in the production phase).	1.6	Verification	Annual	L&CA MOH
	Multiple potential health impacts related to involuntary resettlement such as access to health care, nutrition status, increase in violence.		Monitor and address in the Resettlement Action Plans as required.	1.7	Verification: resettlement completion audit	Once per RAP	L&CA
Vaccine preventable diseases.	Potential increase in measles, mumps, rubella, chicken pox, pneumococcal pneumonia, influenza, typhoid, outbreaks in the community related to population influx or the introduction of personnel who are not immunised.		Pre-employment medical requirements (per minimum health requirements for Project /production).	1.8a	Verification: infectious disease outbreak management assessment	As per health assessment schedule	MOH
			Implement infectious disease outbreak management program for workers to reduce potential for outbreaks and if they occur to contain them and reduce the risk of migration out to local communities.	1.8b			
			Active vaccinations can be applied in workforce as necessary.	1.8c			
			Workers travelling to Juha will be required to have proof of immunity as a condition of travel to Juha.	1.8d			

TOPIC	RISK/IMPACT TO THE COMMUNITY	RISK/IMPACT TO THE PROJECT	MITIGATION MEASURES	REF #	MONITORING	MONITORING FREQUENCY	RESPONSIBILITY
			Offer immunisation program for EHL workers focused on higher risk profiles (e.g. kitchen staff).	1.8e	Verification Outcome: immunisation rates	As per health assessment schedule	MOH
EHA 2: Vector-related diseases. <i>Malaria</i>	If drinking water sources are enhanced by production activities, the potential exists to create mosquito breeding sites.		Provide information for training of workers in malaria awareness so they can take knowledge back to communities.	2.1a	Verification: worker training	As needed (when water supplies are impacted)	MOH
			Undertake an integrated vector surveillance and control program in EHL premises.	2.1b	Verification: malaria control program	As per health assessment schedule	SHE
			Conduct insecticide resistance testing.	2.1c			MOH
			Provide bed nets to workers for take home use.	2.1d	Verification	Annual	SHE
			Develop educational materials regarding vector-borne disease transmission.	2.1e	Verification	Annually and ongoing	MOH
			Provide training to workers regarding vector-borne disease and transmission.	2.1f	Verification	Annually and ongoing	SHE
		<i>Lymphatic filariasis</i>	Population influx creating increases in unimproved sanitation, thereby increasing lymphatic filariasis disease transmission by mosquito vectors.		Support the Papua New Guinea Institute of Medical Research in the collection of baseline data on lymphatic filariasis through support for the integrated Demographic Health Surveillance System (iHDSS).	2.2	Verification

TOPIC	RISK/IMPACT TO THE COMMUNITY	RISK/IMPACT TO THE PROJECT	MITIGATION MEASURES	REF #	MONITORING	MONITORING FREQUENCY	RESPONSIBILITY
<i>Chikungunya</i>	<i>Aedes albopictus</i> is a day biting mosquito who presents a risk to workers.		Support the Papua New Guinea Institute of Medical Research to measure prevalence of vector-borne diseases e.g. chikungunya through support for the iHDSS.	2.3	Verification	Annual	MOH
<i>Dengue</i>	Opening of roadways facilitating movement of infected individuals into the area; endemic in the coastal areas (contingent upon dengue prevalence differences between high and low prevalence groups).		Provide a vector control and dengue management program with case definitions, diagnostics at production work sites etc.	2.4a	Vector surveillance and control assessment Clinical operations assessment	As per health assessment schedule	MOH SHE
			Educate workers about reducing dengue risks in the home.	2.4b	Verification	Annual	MOH SHE
EHA 3: Sexually transmitted diseases.	Potential for work camp personnel to provide opportunities for increases in STIs, HIV/AIDs (workers entering and leaving the worksite could attract service and sex workers creating the conditions for an increase in STIs).		Implement camp security procedures to restrict who can enter the camp.	3.1a	Verification	Ongoing	Security
			Worker education to focus attention on the identification and treatment of curable STIs in EHL workers, including making condoms and femidoms available to workers.	3.1b	Verification: EHL clinic summary case reports	Yearly	SHE
			Maintain voluntary counselling and testing at plant site and Hides Gas Conditioning Plant and referral testing for HIV.	3.1c	Verification: health assessment	Yearly	MOH

TOPIC	RISK/IMPACT TO THE COMMUNITY	RISK/IMPACT TO THE PROJECT	MITIGATION MEASURES	REF #	MONITORING	MONITORING FREQUENCY	RESPONSIBILITY
EHA 4: Soil, water and sanitation related diseases.	Project Sewage Treatment Plant overflowing into area impacting surface drinking and bathing water sources; increasing faecal-oral diseases.		Operate and monitor Sewage Treatment Plants according to designed capacity. Provide surge capacity and monitoring of the system.	4.1	Verification	Annual	SHE
	Project water use could potentially deplete community drinking, bathing and laundry water supplies, increasing water related diseases.		Monitor Project water-related impacts according to the relevant Environmental Management Plan.	4.2	Verification: environmental surface and groundwater monitoring	According to relevant Environmental Management Plan	SHE
	Community water-related outbreaks (e.g. cholera) in nearby communities or worker populations.		Implement infectious disease outbreak management program for workers to reduce potential for outbreaks and if they occur to contain them and reduce the risk of migration out to local communities.	4.3	Health assessment	As per health assessment schedule	MOH
	Proximity in EHL facilities could create increases in skin diseases among workers that are then transmitted back to their home environment (lice infestations due to laundry and cleaning practices; scabies transmission due to close personal contact).		Implement laundry and cleaning procedures in worker accommodation units.	4.4a	Verification	As per health assessment schedule	MOH
	Verify camp living area configurations and occupation levels prevent overcrowding and hot bunking.	4.4b					
	Provide training for workers on how to avoid and manage skin diseases.	4.4c					

TOPIC	RISK/IMPACT TO THE COMMUNITY	RISK/IMPACT TO THE PROJECT	MITIGATION MEASURES	REF #	MONITORING	MONITORING FREQUENCY	RESPONSIBILITY
	Home environments could create increases in skin diseases among workers that are then transmitted back to work camps (lice infestations due to laundry and cleaning practices; scabies transmission due to close personal contact).		Provide treatment for skin diseases for workers at site clinics.	4.4d			
			Toilets and shower facilities provided for workers who don't reside on camp.	4.4e			
			Perform evaluations, diagnosis and treatment on fitness to work and return to work examinations in compliance with EHL requirements.	4.4f			
	Increased population, service workers and clan members has led to increased use of unimproved sanitation, potentially leading to faecal-oral related diseases.  It is likely that landowners will rent living areas to Project workers and job seekers creating an increased demand for properly designed sanitation facilities and increases in faecal-oral related diseases (example Kobalu area).		Develop educational materials regarding the prevention of water, sanitation and waste related diseases.	4.5	Verification	Annual	MOH

TOPIC	RISK/IMPACT TO THE COMMUNITY	RISK/IMPACT TO THE PROJECT	MITIGATION MEASURES	REF #	MONITORING	MONITORING FREQUENCY	RESPONSIBILITY	
	Project waste could create fly breeding sites, increasing rates of eye infections and fly/sanitation related diarrheal diseases.		Monitor Project waste management practices within EHL premises and at the landfills.	4.6	Verification: environmental monitoring program	Per environmental monitoring program	SHE	
EHA 5: Food and nutrition related illnesses.	Food cost inflation associated with influx could further marginalise existing low income groups.		Monitor food cost inflation, and where significant changes to affordability occur, assess economically displaced households to identify any newly vulnerable people.	5.1	Livelihood restoration monitoring (for two years after economic displacement)	Annual	L&CA	
	Facilities could create food related illness outbreaks that are transmitted to the Project Impact Area communities.		Conduct health assessment of EHL catering facility services, facilities and food waste disposal.	5.2	Verification: health assessment	As per health assessment schedule	MOH	
	Food waste could attract poisonous snakes and rodents.			Monitor on-site food waste management.	5.3a	Verification	Annual	MOH
				Establish and enforce policies and practices for leftover site catering facility food products.	5.3b	Verification	Annual	MOH
				Implement Vector Surveillance and Control Management Plan.	5.3c	Verification	Annual	SHE
				Develop educational materials regarding food related disease prevention.	5.3d	Verification	Annual	MOH

TOPIC	RISK/IMPACT TO THE COMMUNITY	RISK/IMPACT TO THE PROJECT	MITIGATION MEASURES	REF #	MONITORING	MONITORING FREQUENCY	RESPONSIBILITY
EHA 6: accidents and injuries.	Increased roadway traffic and associated accidents (livestock and people) from EHL transportation assets.		Conduct driver safety training. Continue safety awareness and education programs for impacted communities, including school programs.	6.1	Verification Outcome: Project-related traffic accidents in the community	Annual	SHE Logistics
	Increase in traffic due to EHL activities leads to increased risk of road accidents.		Ensure drivers successfully complete the EHL driving safety requirements and possess a valid driver's license for Papua New Guinea.	6.2	Verification Outcome: Project-related traffic accidents in the community	Annual	SHE
EHA 7: Exposure to Hazardous Materials.	Potential Project facility releases to air, groundwater and surface water.		Implement environmental monitoring programs (air emissions, water, etc.).	7.1a	See relevant Environmental Management Plan		SHE
			Manage noise exposure to community per design specifications.	7.1b	See relevant Environmental Management Plan		SHE
	Hazardous materials containers could be used for rainwater catchment in local communities.		Monitor chemical control and container/waste management programs. Implement materials control program to address proper disposal and/or improper use of containers.	7.2	See relevant Environmental Management Plan		SHE
	Community exposure to insecticides used for malaria control activities within EHL premises via air, soil and water routes.		Insecticide selection process (substitute where appropriate using management of change procedure).	7.3	Verification	Ongoing	SHE

TOPIC	RISK/IMPACT TO THE COMMUNITY	RISK/IMPACT TO THE PROJECT	MITIGATION MEASURES	REF #	MONITORING	MONITORING FREQUENCY	RESPONSIBILITY
	Sewage Treatment Plant or structure overflow.		Grey water and black water management and monitoring.	7.4	See relevant Environmental Management Plan	Ongoing	SHE
	Snake habitat disturbance during site clearing activities could increase snake migration into local communities.		Communicate potential for increase in snake migration during site clearing.	7.5	Verification	At start of habitat disturbance	L&CA SHE
EHA 8: Social determinants of health.	Mixing of cultural groups in Project work camps could contribute to cross cultural violence.		Manage cross cultural issues at work camps for other country nationals, Huli and other Papua New Guinean ethnic groups.	8.1a	Verification	Ongoing	L&CA Security
			Conduct worker education on cultural sensitivity, violence, contraband and harassment etc.	8.1b	Verification	Ongoing	Human Resources
	Opening of roadways creating internal in-migration; Influx of different cultural groups; with potential to disrupt social cohesion.		Establish system to monitor violence at the community level.	8.2	Verification	Annual	Security L&CA
	Increased income by some community members disrupting social cohesion, increasing drug and alcohol use and increasing violence.		Conduct worker education.	8.3	Verification	Annual	L&CA
	Changes in income and expenditures creating conflict inside the Project camps.		Implement work camp alcohol and drug restrictions. Conduct worker education regarding camp behaviour.	8.4	Verification	Annual	Security

TOPIC	RISK/IMPACT TO THE COMMUNITY	RISK/IMPACT TO THE PROJECT	MITIGATION MEASURES	REF #	MONITORING	MONITORING FREQUENCY	RESPONSIBILITY
EHA 10: Health services infrastructure.	Influx of individuals seeking employment opportunities and required services will need to include health services. NOTE: EHL procedures typically do not provide for treatment of community populations.		Decision by site management on an as needs basis.	10.1	Verification	Annual	Site Management
	National employees have expectations for medical treatment of family members.		EHL national employees will come under the EHL Human Resources benefits programme.	10.2a	Verification	Annual	Human Resources
			Support to local students for health care training and staffing of aid posts, community-based health care and health centres. Provide support for long term staffing of health facilities and services, including housing and ongoing training and supervision.	10.2b	Verification	Annual	P&GA
	Perception of inequity in hiring practices based on existing health conditions can trigger community unrest.		Provide to all contract companies (local landowner companies and Engineering, Procurement, Construction contractors) the specifications for performance of fitness for duty exams.	10.3	Verification	Quarterly	HR

TOPIC	RISK/IMPACT TO THE COMMUNITY	RISK/IMPACT TO THE PROJECT	MITIGATION MEASURES	REF #	MONITORING	MONITORING FREQUENCY	RESPONSIBILITY
	Fitness for Duty medical requirements have consequences for follow up and treatment that cannot be delivered locally, e.g. tuberculosis, hypersplenomegaly (enlarged spleen), periorbital abscess.		Identify service provider for follow up treatment of issues identified in fitness for duty exams.	10.4	Verification	Annual	MOH
EHA 11: National program delivery.	Periodic TB screening process with QuantiFERON® will identify TB cases (active and latent) that require follow up diagnostics and possible treatment; which is non-existent in the Project area.		Support the national TB control program and partnership in providing TB prevention and control services within work camps.	11.1	Verification	As per health assessment schedule	MOH
	Influx, and new roadways could facilitate movement of infected individuals into the area, currently no nationally run program exists.		Establish STI/HIV control program for workers.	11.2	Verification: health assessment	As per health assessment schedule	MOH
EHA 12: Non-Communicable Diseases.	Changes in Non-Communicable Disease rates in Papua New Guineans workforce employees due to changes in nutrition habits and food availability.		Worker education.	12.1	Verification	Annual	MOH

TOPIC	RISK/IMPACT TO THE COMMUNITY	RISK/IMPACT TO THE PROJECT	MITIGATION MEASURES	REF #	MONITORING	MONITORING FREQUENCY	RESPONSIBILITY
EHA 13: Zoonotic diseases.	Proximity of people and animals (particularly pigs and poultry operations) presents a risk to health of workforce and community through disease transmission.		Monitor new construction or changes to footprints of animal husbandry activities adjacent to the LNG Plant site and Hides Gas Conditioning Plant site.	13.1	Verification	Annual	L&CA

Because of the geographical extent of the Project, a combination of health promotion/education and primary disease prevention is the most effective and cost-efficient method of managing potential community health impacts. Therefore, a workforce health promotion/education approach can significantly impact or influence behaviours and practices in local communities. This approach uses the Project workforce as peer health educators and ambassadors in their home villages. However alternative approaches to community health risks will also be used when deemed appropriate.

Challenges exist with community health mitigation strategies in that they cannot be segregated into separate internal Project operations and external community categories. For some potential risks and impacts, there is a continuum from the Project to the community and vice-versa. This is because the Project's workforce is also part of the broader community outside of Project premises and can be exposed to health risks and impacts from the external environment. Therefore, many of the proposed strategies originate within Project premises and extend into specific Project Impact Areas through the workforce. Mitigation activities, whether directed towards workers, family members or the general community, all seek to positively influence community health levels, while also recognising that the overall responsibility of improving community health rests with the Government, and not with the Project.

## 5.0 MONITORING

Monitoring of community health, safety and security is being conducted to:

- Assess the effectiveness of mitigation actions and other actions/controls
- Assess actual impacts against predicted impacts
- Assess compliance with applicable legal and other requirements

Some baseline community health data was collected as part of the Health Impact Assessment process in 2008. During the construction phase, the Project entered into a public-private partnership with the Papua New Guinea Institute of Medical Research, with the aim of monitoring the Project's impact on the health of the population in the Project area. The key element of this partnership was the development of an iHDSS.

Data collection commenced through the iHDSS in 2010. The iHDSS was established to collect longitudinal data on a variety of population and household topics across a target population. It is an internationally recognised system that is community based, participatory and scientifically rigorous. The iHDSS aims to provide objective information that is used to develop any needed specific intervention measures.

Four iHDSS sites were established in 2011 during the Project's construction phase as shown in Figure 5-1. They are:

- Komo-Hides (three divisions covered): Haliago, Gigiria and Hibiria
- Hiri West (LNG Plant site): four villages covered: Lea Lea, Papa, Boera, and Porebada
- Asaro Valley/Goroka (control site for Hides)
- KarKar Island (control site for LNG Plant site)

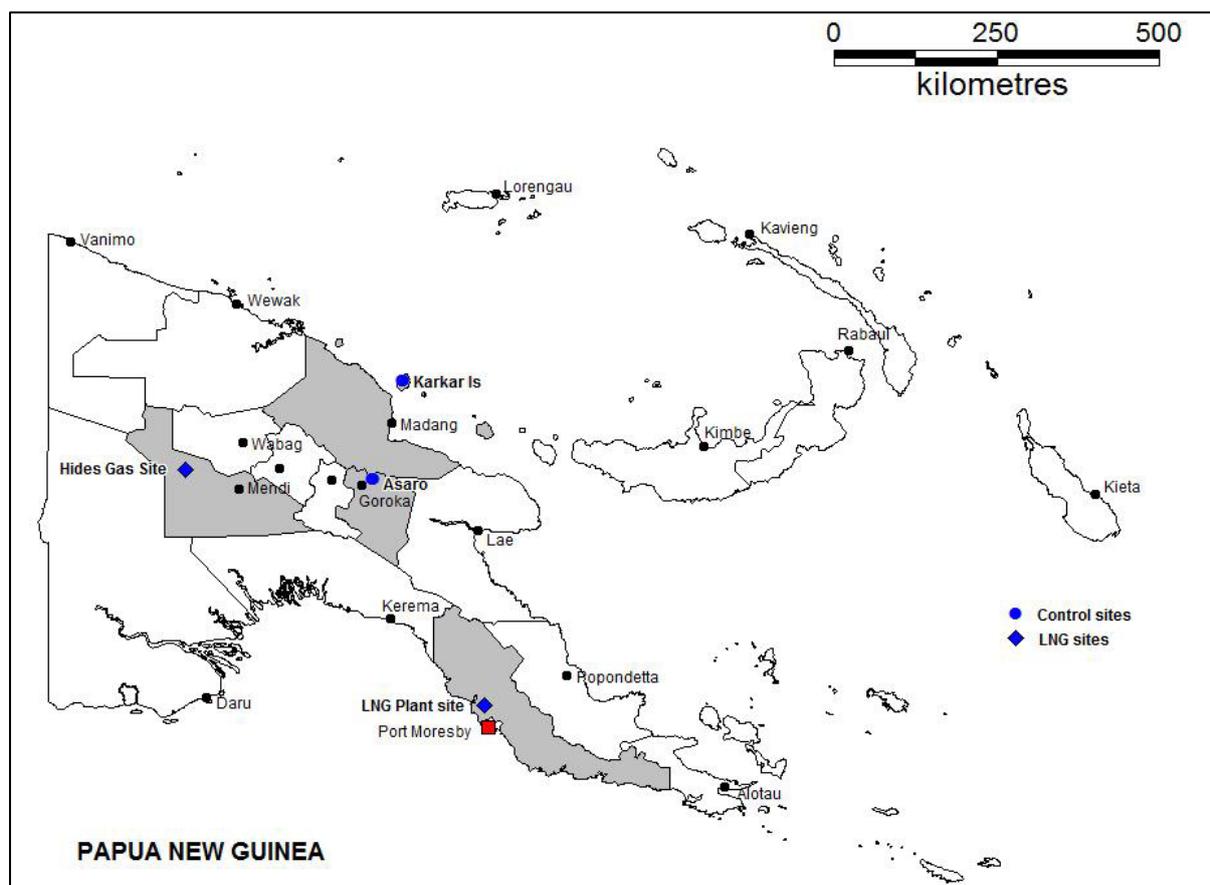


Figure 5-1: Integrated Demographic Health Surveillance System sites in Papua New Guinea

Resourcing of the iHDSS clinics has improved diagnostic capabilities in Project area health centres. The main areas of focus have been:

- Vector-borne diseases: malaria and dengue fever
- Respiratory diseases: pneumonia, influenza
- Diarrhoeal diseases: viral, bacterial and parasitic infections
- STIs: syphilis, gonorrhoea, chlamydia and HIV/AIDS
- Tuberculosis: Pulmonary, paediatric and extra pulmonary tuberculosis

The iHDSS uses question designs and survey forms for surveillance which are linked to the International Network for the Demographic Evaluation of Populations and their Health (known as the INDEPTH Network). Both socioeconomic and mortality surveys are conducted as part of the iHDSS, as well as nutrition surveys in some cases. The INDEPTH Network ([www.indepth-network.org](http://www.indepth-network.org)) is the umbrella organisation that co-ordinates the worldwide developing country health and demographic surveillance effort. It is a not-for-profit organisation that consists of some 37 health and demographic surveillance system sites in 19 countries in Africa, Asia, Central America and Oceania.

During the Project's construction phase, multiple iHDSS surveys were conducted addressing mortality, morbidity and social criteria. The number and frequency of surveys will reduce and may be phased out during the production phase, and will not necessarily follow the iHDSS framework, as the bulk of baseline data will have been obtained and it is anticipated that a greater level of stability in community health impacts will occur. Monitoring worker health will also occur through the Camps Health Assessment Program. The key focus areas that will be monitored are:

- Malaria control and prevention program
- Tuberculosis control and prevention program
- Vector surveillance and control
- Clinical operations
- Food safety
- Water safety
- Camp hygiene and sanitation
- Industrial hygiene

These key focus areas will be monitored on a regular basis by EHL using Company checklists. Community safety and security monitoring relies upon the community grievance and issues management systems, and incident management reporting (to the extent that there is Project involvement in community safety and security events). This level of monitoring will continue in the production phase.

## 5.1 Assessment and review

The assessment process is designed to determine the level of implementation of the mitigation measures identified in Table 4-2, the extent of the impacts that have occurred, and the extent to which the mitigation measures are effective in minimising or moderating those impacts. Assessments undertaken by EHL will include:

- Reviews of speed tracking records from Production vehicles to give an indication of safe driving behaviours by Production personnel when working outside Project premises
- Internal reviews of Project compliance with the Voluntary Principles. This may include audits of security providers; a review of training records for security guards; a review of adherence of contract provisions for contractors with respect to the Voluntary Principles; and a review of security log books
- Analysis of community issues and grievances to detect any community health, safety and security issues which have arisen as a result of the Project
- Reviews of employee health records to determine any changes to employee health levels. National employees will be used as a proxy for community health monitoring

given that most will reside in neighbouring communities. Where changes have occurred, investigations into the cause of those changes will be conducted and modifications made as appropriate

The Independent Environmental and Social Consultant, on behalf of the Lender Group, will conduct periodic monitoring reviews of the Project, largely based on the social and environmental controls set out in the Environmental and Social Management Plan. These reviews provide an opportunity to evaluate the range of programs involving community health, safety and security as well as examine specific issues and incidents in detail.

## **5.2 Audit**

EHL may at its discretion audit any contractors or suppliers to determine their compliance with this Plan.

EHL may at its discretion undertake audits of other third party facilities and providers, as relevant to the Environmental and Social Management Plan.

## 6.0 REPORTING

Both internal and external reporting requirements apply to community health, safety and security.

### 6.1 Internal reporting

Any community health, safety or security incidents which meet the requirements for incident notification must be reported in accordance with the incident management procedure, as described in the Environmental and Social Management Plan. Notwithstanding this reporting requirement, the following internal reports are also required. Any disease outbreak identified through the community health surveillance systems will also be reported internally, and externally as appropriate.

Monthly internal reports will be generated by the SHE and Security departments to report any community safety or security related incidents that have occurred across the Project.

MOH will generate regular reports on workforce and camp health that will capture activities at EHL premises, including worker education and voluntary testing services provided to employees.

The L&CA team will review all community health, safety and security reports to ensure actions and feedback required are tracked and recorded.

### 6.2 External reporting

EHL will report externally on Project-relevant information using a variety of methods and at varying frequencies, largely depending on the stakeholders concerned and the nature of the issue.

Less targeted external communications will include:

- Project newsletters
- The Executive Summary of the Environmental and Social Report which is distributed in Tok Pisin and English through appropriate national newspapers such as the *Post Courier*, *The National* and/or *Wantok Nius*
- Mass Media including national newspapers, radio and a newspaper column by EHL's Managing Director, which is also published in Tok Pisin in the *Wantok Nius*
- The website [www.pnglng.com](http://www.pnglng.com)

## 7.0 ROLES AND RESPONSIBILITIES

The following roles and responsibilities are examples of the type of roles that will apply during the production phase. As the needs of the Project change over time, some roles may be replaced and or combined with others that are more appropriate to the Project's needs at the time.

MOH Manager:

- Responsible for health support coordination, delivery and implementation of health services to the production workforce
- Ensure health specifications and programs/procedures meets Papua New Guinean health regulatory requirements
- Develops and coordinates the implementation of EHL's health inspection and audit programs to monitor compliance with health requirements
- Provides review of disease prevalence data and recommends changes to address disease prevalence and severity

Community Health Manager:

- Identifies and evaluates community health risks
- Identifies mitigation steps to address community health issues affected by production activities
- Conducts inspections and audits for effective implementation of community health programs
- Budgetary stewardship
- Collects, analyses data, reports on and provides recommendations on initiatives for continuous improvement in the community health program performance and compliance

Security Manager:

- Management and coordination of security guards employed by the Project
- Management of security incidents which occur both on the Project site and outside the site
- Responsible for the relationship with the Royal Papua New Guinean Constabulary
- Overall responsibility for ensuring the Voluntary Principles are complied with, that training on the principles is provided to security guards (employees) and a contractual item for contracted security guards and that performance against these principles is measured

SHE Manager:

- Responsible for ensuring safe behaviours by Project personnel such that community safety is protected
- Investigates and analyses community safety events when/if they occur and escalates findings and required remedial actions to Management as required
- Responsible for notification of community safety incidents, as described in the Environmental and Social Management Plan

L&CA Manager:

- Overall responsibility for the interface between the Project and community members
- Manages the team who facilitate access to community members for community health, safety and security issues/topics
- Supports MOH Manager in the identification and implementation of community health projects which can deliver community development benefits

## 8.0 TRAINING AND AWARENESS

EHL will ensure that personnel responsible for the execution of tasks and requirements in this Plan are competent on the basis of education, training and experience.

This Plan requires significant training be provided to workers who may be exposed to hazards (health, safety or security) from Project activities. This training is considered to be part of the mitigation framework, so it is not addressed within this document.

The Plan also requires workforce training be provided, particularly with regard to the management of communicable diseases. This training is applicable to all employees and contractors.

Training will include:

- Voluntary Principles training for all security guards and security management, including specific modules on the appropriate use of force and protection of human rights
- STI and HIV/AIDS prevention and awareness training for all employees, with extension to communities through education and awareness campaigns as appropriate
- Sanitation and nutrition awareness and education for all employees, with a focus on messages which can be taken home to families to encourage good sanitation and nutrition practices in village environments
- Driver training for all Project drivers including training on speed restrictions in populated areas, safe driving in rural areas and basic first aid
- Respiratory illness and infectious disease management including tuberculosis
- Vector-borne disease awareness including malaria, dengue and chikungunya.

## 9.0 REFERENCE LIST

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