

**ExxonMobil**

ExxonMobil PNG 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
EMPNG	ExxonMobil PNG Limited
HIV	Human Immunodeficiency Virus
iHDSS	integrated Demographic Health Surveillance System
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

### Corporate Separateness Notice

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PNG LNG is an integrated development that includes gas production and processing facilities, onshore and offshore pipelines and liquefaction facilities. Participating interests are affiliates of Exxon Mobil Corporation (including ExxonMobil PNG Limited as operator), Oil Search Limited, Kumul Petroleum Holdings Limited, Santos Limited, JX Nippon Oil and Gas Exploration, Mineral Resources Development Company and Petromin PNG Holdings Limited.

## **1.0 INTRODUCTION**

This Plan describes how ExxonMobil PNG Limited (EMPNG) and its contractors will manage community health, safety and security during the production phase of the Papua New Guinea Liquefied Natural Gas (PNG LNG) Project. This Plan has been developed, and will be implemented, in accordance with Papua New Guinean legislation, EMPNG policy and International Finance Institution standards.

This Plan is one component of, and should be read in conjunction with, a series of documents that together comprise the Environmental and Social Management Plan.

For the purposes of the ESMP, and this Plan, the term PNG LNG area refers to the Project Impact Area as defined in the PNG LNG Project Environmental Impact Statement (EMPNG as Esso Highlands Limited, 2009).

### **1.1 Scope**

This Plan sets out the potential risks and impacts associated with community health, safety and security, and describes how they will be mitigated and monitored. Where workers are primarily drawn from surrounding communities, health monitoring of workers is used as a proxy for community health monitoring.

It outlines the requirements and expectations for implementing the defined mitigation measures, assessing and verifying compliance, reporting, assuming roles and responsibilities, supervision and training.

This Plan will apply to all production activities associated with the Upstream facilities, pipelines, LNG Plant and the PNG LNG Port Moresby office. It is expected to be adopted and applicable to EMPNG contractors.

### **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, EMPNG will comply with applicable Papua New Guinean laws and regulations, treaties and conventions, International Finance Institution requirements, and company policies.

The following requirements form the basis of this Plan, however, they should not be assumed to be an exhaustive list of all legal and regulatory requirements.

### 2.1 Papua New Guinean laws and regulations

Papua New Guinean laws and regulations relevant to community health, safety and security include the:

- *Constitution of the Independent State of Papua New Guinea 1975*
- *Public Health Act 1973*
- *Public Health (Sanitation and General) Regulation 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 PNG LNG 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 EMPNG include the International Finance Corporation's Performance Standards on Social and Environmental Sustainability (International Finance Corporation, 2006), referred to as the 'Performance Standards'; specifically:

- Performance Standard 4: Community Health, Safety and Security, and its objectives are:
  - to anticipate and avoid adverse impacts on the health and safety of the affected communities throughout PNG LNG 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, 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 Company requirements

EMPNG 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, EMPNG will follow OIMS, which defines EMPNG'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 maintains an active commitment to the communities in which it works and 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* as it applies to private companies and the spirit and intent of the *International Labour Organization Declaration on Fundamental Principles and Rights at Work*.

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*, 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

EMPNG 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 EMPNG 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 EMPNG, relevant to community health, safety and security include:

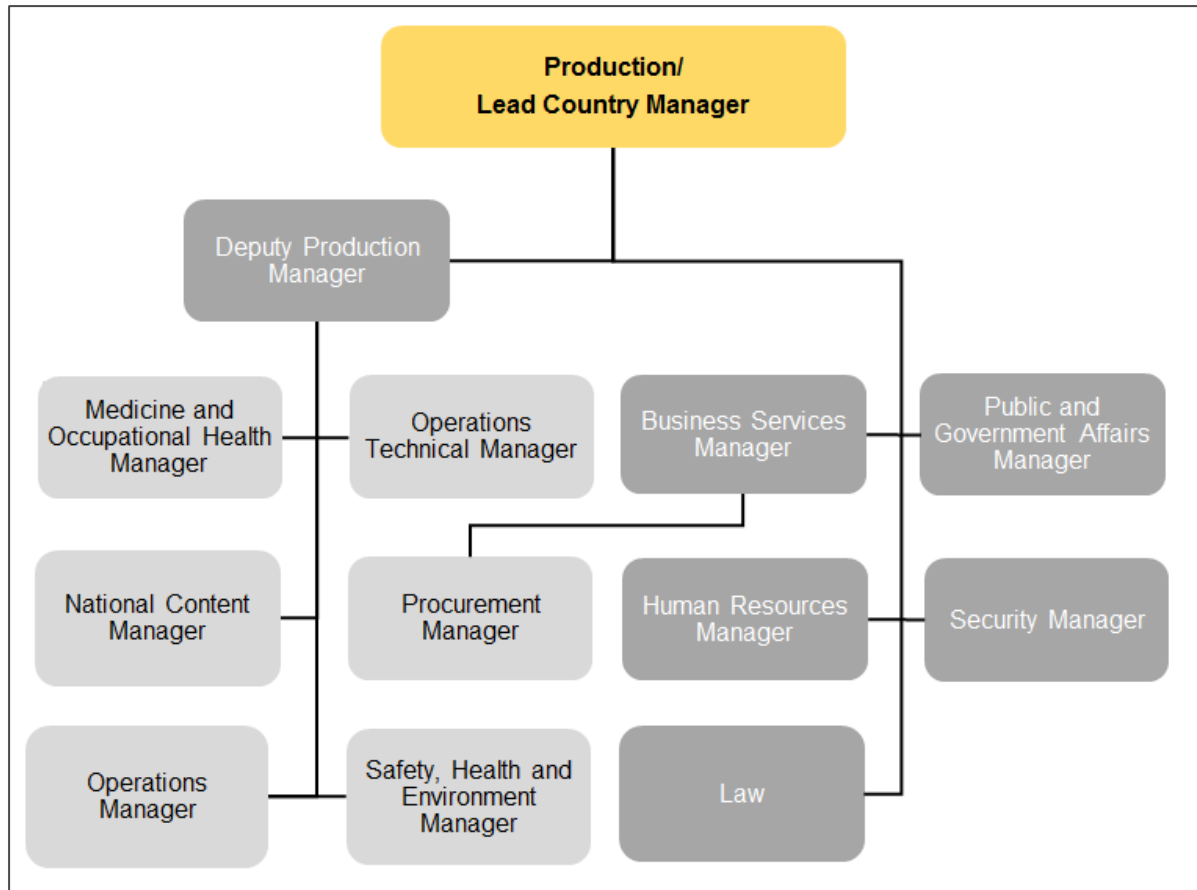
- Voluntary Principles
- Guiding Principles on Business and Human Rights: Implementing the United Nations "Protect, Respect and Remedy" Framework (United Nations, 2011)
- *Code of Conduct for Law Enforcement Officials*
- *Basic Principles on the Use of Force and Firearms by Law Enforcement Officials*
- Guidelines for drinking-water quality - 4<sup>th</sup> ed (World Health Organization, 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

The requirements of this Plan will be implemented by the Safety, Health and Environment (SHE), Medicine and Occupational Health (MOH) and Security departments. The SHE Manager will own this Plan from an OIMS functional perspective.

As most of the impacts described in this Plan occur outside of EMPNG premises, the Public and Government Affairs (P&GA) department will play a critical role in identifying unforeseen impacts and supporting the SHE, MOH and Security departments with implementing the requirements of this Plan.

The relationship between these different departments is highlighted in Figure 3-1.



**Figure 3-1: ExxonMobil PNG Limited organisation chart**

Some sample job descriptions are provided in Section 7.0 to demonstrate the type of roles that will apply within EMPNG during the production phase. As the needs of EMPNG change over time, some roles may be adjusted accordingly.

Where contractors are undertaking scopes of work relating to this Plan, their requirements and expectations under this Plan 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. However, the primary responsibility for implementing this Plan will rest with EMPNG.



## 4.0 IMPACTS AND MITIGATION

Community health, safety and security impacts have been identified through two separate processes.

The first involved the identification of community safety and security impacts based upon the experience drawn from the construction phase. This was combined with the risk-based framework of the EMPNG environmental and social assessment process and analysis against the International Finance Corporation's Performance Standards.

The second process required that health impacts anticipated during the production phase were identified using the internationally recognised Environmental Health Area (EHA) approach, as described in the International Finance Corporation's Guidance Notes: Performance Standards on Social and Environmental Sustainability (International Finance Corporation, 2007), specifically Guidance Note 4: Community, Health, Safety and Security. 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 (TB), including Multi-drug resistant TB and Extremely drug resistant TB; respiratory effects from housing, overcrowding, housing inflation, immunisation coverage.
2	Vector-related disease – Malaria, dengue, chikungunya, tick-related diseases and ectoparasites etc.
3	Sexually transmitted infections (STIs) – HIV/AIDS, syphilis, gonorrhoea, 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, anaemia, 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 PNG LNG-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 PNG LNG-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 PNG LNG to existing national and provincial level health programs, for example 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 PNG LNG-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 EMPNG	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 an EMPNG facility (including LNG Plant, Hides Gas Conditioning Plant, Komo Airfield, pipeline)	<ul style="list-style-type: none"> <li>• Damage to EMPNG assets</li> <li>• Lost opportunity to contain impact</li> <li>• Loss of 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	Verification	Ongoing	SHE
			Develop specific stakeholder engagement plan based on consultation and participation with government and communities regarding the nature and potential consequences of the risks	2	Verification	Annual	P&GA
			Define a protocol for community reporting of observed incidents (e.g. sight, smell or sound of pipeline leak)	3	Verification	Once	P&GA
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</li> </ul>	<ul style="list-style-type: none"> <li>• community resentment towards EMPNG</li> <li>• Blockages and stoppages</li> <li>• Claims for compensation</li> </ul>	Adopt appropriate design standards	4	Verification	Ongoing	SHE
			Check and maintain bunding, containment structures, surface conditions; monitor for leaks, loss of integrity etc.	5	Verification	Ongoing	SHE
			Civil works designed and maintained with water and stormwater management in mind, including sediment traps and other erosion control measures as appropriate	6	Verification	Ongoing	SHE

TOPIC	RISK/IMPACT TO THE COMMUNITY	RISK/IMPACT TO EMPNG	MITIGATION MEASURES	REF #	MONITORING	MONITORING FREQUENCY	RESPONSIBILITY
	depend (e.g. water) <ul style="list-style-type: none"> <li>Inadequate or ineffective water management and erosion control measures leading to run-off and water contamination impacting downstream communities</li> </ul>		Identify potentially impacted downstream areas/users in the event that spills or releases could impact their usable resources (i.e. water quality and quantity)	7	Verification	Ongoing	SHE, P&GA
			Develop a communication protocol to inform downstream users of significant releases or exceedances in a timely manner	8	Verification	Ongoing	P&GA
Infrastructure and equipment design and safety – Transportation	<ul style="list-style-type: none"> <li>Injury or accident to community members, EMPNG employees or livestock (pigs) resulting from PNG LNG-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> </ul>	<ul style="list-style-type: none"> <li>Community resentment towards EMPNG</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.)	9	Verification	Ongoing	Operations
			Implement speed restrictions for EMPNG and contractor vehicles	10	Verification	Ongoing	SHE
			Maintain community grievance process	11	Verification	Ongoing	P&GA
			Continue safety awareness and education programs for impacted communities, including school programs	12	Verification	Ongoing	P&GA
			To the extent possible, provide access for pedestrians and vehicles in areas where pedestrians and EMPNG vehicles mix	13	Verification	Ongoing	SHE

TOPIC	RISK/IMPACT TO THE COMMUNITY	RISK/IMPACT TO EMPNG	MITIGATION MEASURES	REF #	MONITORING	MONITORING FREQUENCY	RESPONSIBILITY
	<ul style="list-style-type: none"> <li>Coating of crops by dust leading to reduced productivity</li> <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	14	Verification	Ongoing	Security
Hazardous materials management and safety – Community exposure	Spills, leaks and other accidental releases from PNG LNG facilities or 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 EMPNG</li> <li>Blockages and stoppages</li> <li>Claims for compensation</li> </ul>	Evaluate the potential for substituting hazardous materials with safer alternatives	15	Verification	Ongoing	MOH
			Implement measures to avoid spills affecting communities, as defined in the Emergency Preparedness Plan	16	Verification	Ongoing	Operations

TOPIC	RISK/IMPACT TO THE COMMUNITY	RISK/IMPACT TO EMPNG	TO	MITIGATION MEASURES	REF #	MONITORING	MONITORING FREQUENCY	RESPONSIBILITY
<p>Ecosystem services – Provisioning (water, air, food, shelter, energy)</p> <p>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 effects 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>			Re-assess PNG LNG impacts on community-dependent ecosystem services and develop corresponding mitigation measures	17	Community grievances	Ongoing	SHE

TOPIC	RISK/IMPACT TO THE COMMUNITY	RISK/IMPACT TO EMPNG	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> <li>Failure to identify security risks to communities and to employees</li> </ul>	Negative impact to reputation.	Apply Voluntary Principles	18	Verification	Annual	Security
			Audit the performance of security providers	19	Verification	Annual	Security
			Ensure regular training on Human Rights	20	Verification	Annual	Security
			Effective community engagement on security arrangements	21	Verification	Annual	P&GA
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 PNG LNG status and community security context	22	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	23	Verification	Ongoing	P&GA

TOPIC	RISK/IMPACT TO THE COMMUNITY	RISK/IMPACT TO EMPNG	TO	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	24	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
				EMPNG 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)	25	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	26	TB control program assessments	As per health assessment schedule	MOH
				Conduct close contact investigation in accordance with TB control program	27	TB control program assessment	As per health assessment schedule	MOH
				Adhere to appropriate worker housing design and capacity	28	Camp hygiene and sanitation assessment	As per health assessment schedule	MOH



TOPIC	RISK/IMPACT TO THE COMMUNITY	RISK/IMPACT TO EMPNG	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, demographic studies 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 demographic studies)	29	Verification	Annual	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	30	Verification: resettlement completion audit	Once per RAP	P&GA
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 EMPNG)	31	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	32			
			Active vaccinations can be applied in workforce as necessary	33			
			Offer immunisation program for EMPNG workers focused on higher risk profiles (e.g. kitchen staff)	34	Verification Outcome: immunisation rates	As per health assessment schedule	MOH

TOPIC	RISK/IMPACT TO THE COMMUNITY	RISK/IMPACT TO EMPNG	MITIGATION MEASURES	REF #	MONITORING	MONITORING FREQUENCY	RESPONSIBILITY
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	35	Verification: worker training	As needed (when water supplies are impacted)	MOH
			Undertake an integrated vector surveillance and control program in EMPNG premises	36	Verification: malaria control program	As per health assessment schedule	SHE
			Conduct insecticide resistance testing	37			MOH
			Develop educational materials regarding vector-borne disease transmission	38	Verification	Annually and ongoing	MOH
			Provide training to workers regarding vector-borne disease and transmission	39	Verification	Annually and ongoing	SHE
<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	40	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 work sites etc.	41	Vector surveillance and control assessment Clinical operations assessment	As per health assessment schedule	MOH SHE
			Educate workers about reducing dengue risks in the home	42	Verification	Annual	MOH SHE

TOPIC	RISK/IMPACT TO THE COMMUNITY	RISK/IMPACT TO EMPNG	MITIGATION MEASURES	REF #	MONITORING	MONITORING FREQUENCY	RESPONSIBILITY
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	43	Verification	Ongoing	Security
			Worker education to focus attention on the identification and treatment of curable STIs in EMPNG workers, including making condoms and femidoms available to workers	44	Verification: EMPNG clinic summary case reports	Annual	MOH
			Maintain voluntary counselling and testing at plant site and Hides Gas Conditioning Plant and referral testing for HIV	45	Verification: health assessment	Annual	MOH
EHA 4: Soil, water and sanitation related diseases	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 design capacity Provide surge capacity and monitoring of the system	46	Verification	Annual	Operations, SHE
			PNG LNG water use could potentially deplete community drinking, bathing and laundry water supplies, increasing water related diseases	47	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	48	Health assessment	As per health assessment schedule	MOH

TOPIC	RISK/IMPACT TO THE COMMUNITY	RISK/IMPACT TO EMPNG	MITIGATION MEASURES	REF #	MONITORING	MONITORING FREQUENCY	RESPONSIBILITY
	<p>Proximity in EMPNG 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).</p> <p>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)</p>		Implement laundry and cleaning procedures in worker accommodation units	49	Verification	As per health assessment schedule	Operations, MOH
			Verify camp living area configurations and occupation levels prevent overcrowding and hot bunking	50			
			Provide training for workers on how to avoid and manage skin diseases	51			
			Provide treatment for skin diseases for workers at site clinics	52			
			Provide toilets and shower facilities for workers who don't reside on camp	53			
			Perform evaluations, diagnosis and treatment on fitness to work and return to work examinations in compliance with EMPNG requirements	54			
	PNG LNG waste could create fly breeding sites, increasing rates of eye infections and fly/sanitation related diarrheal diseases		Monitor waste management practices within EMPNG premises and at landfills	55			

TOPIC	RISK/IMPACT TO THE COMMUNITY	RISK/IMPACT TO EMPNG	MITIGATION MEASURES	REF #	MONITORING	MONITORING FREQUENCY	RESPONSIBILITY
EHA 5: Food and nutrition related illnesses	Transmission of food-related illnesses, originating within EMPNG facilities, to nearby communities via various forms of interaction (e.g. employment)		Conduct health assessment of EMPNG catering facility services, facilities and food waste disposal	56	Verification: health assessment	As per health assessment schedule	MOH
	Food waste could attract poisonous snakes and rodents		Monitor on-site food waste management	57	Verification	Annual	MOH
			Establish and enforce policies and practices for leftover site catering facility food products	58	Verification	Annual	MOH
			Implement Vector Surveillance and Control Management Plan	59	Verification	Annual	SHE
			Develop educational materials regarding food related disease prevention	60	Verification	Annual	MOH
EHA 6: Accidents and injuries	Increased roadway traffic and associated accidents (livestock and people) from EMPNG transportation assets		Ensure drivers successfully complete the EMPNG driving safety requirements and possess a valid driver's license for Papua New Guinea  Continue safety awareness and education programs for impacted communities, including school programs	61	Verification	Annual	Operations

TOPIC	RISK/IMPACT TO THE COMMUNITY	RISK/IMPACT TO EMPNG	MITIGATION MEASURES	REF #	MONITORING	MONITORING FREQUENCY	RESPONSIBILITY
EHA 7: Exposure to hazardous materials	Potential facility releases to air, groundwater and surface water		Implement environmental monitoring programs (air emissions, water, etc.)	62	See relevant Environmental Management Plan		SHE
			Manage noise exposure to community per design specifications	63	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	64	See relevant Environmental Management Plan		SHE
	Community exposure to insecticides used for malaria control activities within EMPNG premises via air, soil and water routes		Insecticide selection process (substitute where appropriate using management of change procedure)	65	Verification	Ongoing	SHE
	Sewage Treatment Plant or structure overflow		Grey water and black water management and monitoring	66	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	67	Verification	At start of habitat disturbance	P&GA SHE

TOPIC	RISK/IMPACT TO THE COMMUNITY	RISK/IMPACT TO EMPNG	MITIGATION MEASURES	REF #	MONITORING	MONITORING FREQUENCY	RESPONSIBILITY
EHA 8: Social determinants of health	Mixing of cultural groups in EMPNG 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	68	Verification	Ongoing	P&GA Security
			Conduct worker education on cultural sensitivity, violence, contraband and harassment etc.	69	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	70	Verification	Annual	Security P&GA
	Increased income by some community members disrupting social cohesion, increasing drug and alcohol use and increasing violence		Indirectly advocating awareness through partnerships with community-based organisations	71	Verification	Annual	P&GA
	Changes in income and expenditures creating conflict inside camps		Implement work camp alcohol and drug restrictions. Conduct worker education regarding camp behaviour	72	Verification	Annual	Security, Operations

TOPIC	RISK/IMPACT TO THE COMMUNITY	RISK/IMPACT TO EMPNG	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: EMPNG procedures typically do not provide for treatment of community populations		Decision by site management on an as needs basis	73	Verification	Annual	Operations
	National employees have expectations for medical treatment of family members		EMPNG national employees will come under the EMPNG Human Resources benefits programme	74	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	75	Verification	Annual	P&GA, MOH
	Perception of inequity in hiring practices which are based on existing health conditions can trigger community unrest		Provide to all contract companies the specifications for performance of fitness for duty exams	76	Verification	Annual	HR, Procurement



TOPIC	RISK/IMPACT TO THE COMMUNITY	RISK/IMPACT TO EMPNG	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. TB, hypersplenomegaly (enlarged spleen), periorbital abscess		Identify service provider for follow up treatment of issues identified in fitness for duty exams	77	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 PNG LNG area		Support the national TB control program and partnership in providing TB prevention and control services within work camps	78	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		Conduct worker awareness on STI/HIV infection; provide diagnostic capability for STI/HIV infections; and provide counselling and referral to a HIV centre for individuals diagnosed with HIV.	79	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	80	Verification	Annual	MOH

TOPIC	RISK/IMPACT TO THE COMMUNITY	RISK/IMPACT TO EMPNG	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	81	Verification	Annual	P&GA

Because of the geographical extent of PNG LNG, 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 EMPNG 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 operations and external community categories. For some potential risks and impacts, there is a continuum from EMPNG to the community and vice-versa. This is because EMPNG's workforce is also part of the broader community outside of EMPNG premises and can be exposed to health risks and impacts from the external environment. Therefore, many of the proposed strategies originate within EMPNG premises and extend into communities accommodating members of the EMPNG 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 Papua New Guinean Government, and not with EMPNG.

## 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, EMPNG entered into a public-private partnership with the Papua New Guinea Institute of Medical Research, with the aim of monitoring PNG LNG's impact on the health of the population in the PNG LNG 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 PNG LNG'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).

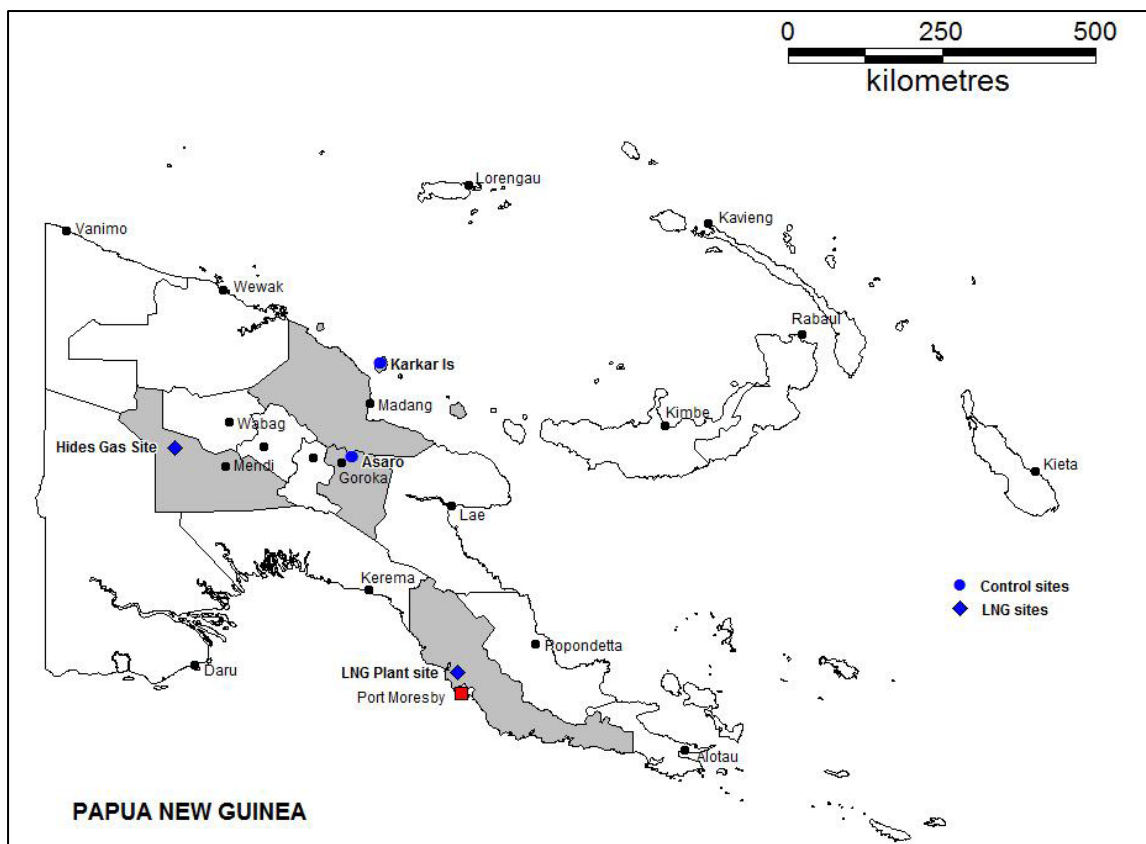


Figure 5-1: Integrated Demographic Health Surveillance System sites in Papua New Guinea

Resourcing of the iHDSS clinics has improved diagnostic capabilities in PNG LNG 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
- TB: Pulmonary, paediatric and extra pulmonary TB.

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 PNG LNG'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
- TB 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 EMPNG using company checklists. The need for ongoing monitoring through the iHDSS will be reviewed on an annual basis. Community safety and security monitoring relies upon the community grievance and issues management systems, and incident management reporting (to the extent that there is EMPNG involvement in community safety and security events).

## **5.1 Assessment**

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 EMPNG will include:

- reviews of speed tracking records from EMPNG vehicles to give an indication of safe driving behaviours by EMPNG personnel when working outside EMPNG premises
- internal reviews of EMPNG 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 PNG LNG

- 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 Lender Group's Independent Environmental and Social Consultant, on behalf of the Lender Group, will conduct periodic monitoring reviews of PNG LNG, 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**

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

EMPNG 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**

Any community health, safety or security incidents that 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 occur across PNG LNG.

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

The P&GA department will review community health, safety and security reports to ensure actions and feedback required are tracked and recorded.

### **6.2 External**

EMPNG will report externally on PNG LNG-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:

- newsletters
- the Executive Summary of each report in the PNG LNG Environmental and Social Report series, which is distributed in Tok Pisin and English through appropriate national newspapers such as the Post Courier, The National, Sunday Chronicle and/or Wantok Nius
- mass media including national newspapers, radio and a newspaper column by EMPNG's Production/Lead Country Manager, 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 main departments responsible for implementing this Plan are MOH, SHE and Security, with the support of P&GA. Following are examples of the types of roles that will apply during the production phase. Some of these departments and roles may change over time to reflect the changing needs of EMPNG.

### **7.1 SHE Manager**

The SHE Manager will be responsible for:

- coordinating implementation of this Plan
- verifying implementation of this Plan including reporting of non-conformances and developing and implementing corrective actions as appropriate
- reviewing performance trends on a regular basis and stewarding performance against objectives and targets
- assessing EMPNG and contractors' compliance with the requirements of this Plan and developing and implementing corrective actions as appropriate
- periodically reviewing the effectiveness of this Plan and providing recommendations for improvements
- ensuring adequate resources and budget are available to meet the safety objectives of this Plan
- confirming that training programs meet the minimum requirements established in this Plan
- ensuring safe behaviours by EMPNG personnel such that community safety is protected
- investigating and analysing community safety events when/if they occur and escalates findings and required remedial actions to management as required
- notification of community safety incidents, as described in the Environmental and Social Management Plan
- collecting, analysing and reporting on relevant health-related data and providing recommendations on initiatives for continuous improvement.

### **7.2 MOH Manager**

The MOH Manager will be responsible for:

- coordinating delivery and implementation of health services to the workforce
- ensuring health specifications and programs/procedures meet Papua New Guinean health regulatory requirements
- developing and coordinating the implementation of EMPNG's health inspection and audit programs to monitor compliance with health requirements
- providing review of disease prevalence data and recommending changes to address disease prevalence and severity
- identifying and evaluating community health risks
- identifying mitigation steps to address community health issues affected by EMPNG's activities
- conducting inspections and audits for effective implementation of community health programs
- ensuring adequate resources and budget are available to meet the health objectives of this Plan
- collecting, analysing and reporting on relevant health-related data and providing recommendations on initiatives for continuous improvement.

### **7.3 Security Manager**

The Security Manager will be responsible for:



- managing and coordinating security personnel retained by EMPNG
- managing security incidents which occur both on EMPNG worksites and outside these sites
- maintaining the relationship with the Royal Papua New Guinean Constabulary
- ensuring the Voluntary Principles are complied with, that training on the Voluntary Principles is provided to security personnel (employees) and a contractual item for contracted security guards and that performance against these Principles is measured
- ensuring adequate resources and budget are available to meet the security objectives of this Plan.

#### **7.4 P&GA Manager**

The P&GA Manager will be responsible for:

- interfacing between EMPNG and community members
- managing personnel who facilitate access to community members for community health, safety and security issues/topics
- supporting the MOH Manager in the identification and implementation of community health projects which can deliver community development benefits.

## 8.0 TRAINING AND AWARENESS

EMPNG 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 EMPNG 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 EMPNG 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 TB
- vector-borne disease awareness including malaria, dengue and chikungunya.

## 9.0 REFERENCE LIST

- Esso Highlands Limited. (2009). *PNG LNG Project Environmental Impact Statement*. Report prepared by Coffey Natural Systems Pty Ltd for ExxonMobil. Brisbane: Esso Highlands Limited
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