ENVIRONMENTAL MANAGEMENT PLAN

ETO LDA

FOMENTO II, COMORO, DOM ALEIXO

DILI

This Environmental Management Plan is prepared by Hersege Lda on behalf of Eto Lda. Hersege Lda is a National Mining and Environmental consulting company located in Dili. Comment, Suggestion and input for this EMP report can be forwarded to hersegeconsultant10@gmail.com

AUGUST 2021

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1. EXECUTIVE SUMMARY

The Esperança Timor Oan Lda gas site will be located at Aldeia Fomento II, Suco Comoro, Post Administrative Dom Aleixo, and Municipality of Dili, Timor-Leste. It is new business development propose by Esperança Timor Oan (ETO), Lda (Sucursal) Company with the purpose of importing with further development and activity in the retailing of gases to be supply and deliver directly to end users. The main owner or unique shareholder of the company is a Timorese national Mr. Nilton Telmo Gusmão dos Santos.

The refilling LPG station is located in a private land nearby to the main road of Fomento II with the total land occupied by ETO Lda is approximately **1,944 m²** in which the refilling LPG station with supporting facility for operation will be constructed.

The aim of this EIA full study report is to examine both positive and negative impacts that the project undertaking is likely to have on both physical and socio economic environment. Early identification of possible impacts will promote environmental sustainability in that anthropogenic factors will not interfere with natural environment but will blend with it creating harmony. This study is an important planning tool for the project proponent since it will state any significant project impacts and clearly define mitigation measures to avoid or curb adverse impacts. The aim of this EMP are Identification, prediction, evaluation & mitigation of biophysical, social & other relevant effects of development on the environment during the operational phase of the proposed project using mathematical / simulation models as per applicable Timor-Leste law.

Preparation of Environmental Management Plan (EMP) to be adopted for mitigation of the anticipated adverse impacts of the project during the operational phase.

- LPG is primarily composed of propane, butane, isobutane and mixtures of these gases.
- LPG exists as liquid or gas (vapour), depending on pressure and temperature.
- LPG has many properties including density (specific gravity), flame temperature, boiling point, flash point, vapour pressure, odour, appearance, energy content, gaseous expansion, and combustion formula, limits of flammability, nomenclature and molecular formula.
- Liquefied Petroleum Gas (also referred to as LPG, LP Gas) is a mixture of hydrocarbon gases predominantly Propane (C3) and Butane (C4). LPG Gas has unique characteristics that make it a useful and portable fuel. LPG evaporates at normal temperatures and pressures. LPG is heavier than air and thus tends to settle in low spots, such as basements. This can cause ignition or suffocation hazards if not dealt with.

2. DETAILS OF PROJECT PROPONENTS

The proposed contractions and operation of Refilling LPG station in Fomento II will operate if the company get license from government including environmental license, with the contact details as follows:

Operator : Esperança Timor Oan (ETO),
Mobile : (+670) 7732 0496
Address : Rua China Rate, Lahane Oriental, Dili
E-mail : info@eto.tl
Contact Person : Alberto Soares Aniceto
Title : Downstream Manager
Mobile : (+670) 7732 0496

Table 1. List of Workers

No.	**Name**	
DIRECTOR & SHAREHOLDER		
1	NILTON T. GUSMÃO DOS SANTOS	CEO ETO GROUP
MANAGING BOARD		
2	PLINHO LEWIS GUSMÃO	CHIEF OPERATING OFFICER
3	ALBERTO SOARES ANICETO	DOWNSTREAM MANAGER
LOCAL STAFF		
4	TOMÉ FILOMENO PIRES	Administration & Supervisor
5	JAIME C. DO CARMO LEMOS	Coordinator ETO Gas
6	CAITANO XAVIER	Assisten Driver
7	PEREGRINO DA COSTA	Assisten Driver
8	SATURNINO VIRIATO MAIA	Driver
9	PAULO ROMÃO DA SILVA	Driver

3. DETAILS OF CONSULTANT WHO PREPARED EMP

a. Detail of Consultant

The detail of consultant who prepared the Environmental management plan as following:

Consultant Name : HERSEGE LDA
Consultant TIN : 12299016
Registered Address : Rua Taibessi, Alcrin, Lahane Oriental, Nain Feto DILI
Telephone No. : (+670) 77522363 / 76717048 / 76641553
E-mail Address : hersegeconsultant10@gmail.com
Type of Company : Private Limited
Status of Company : Local Timorese
Date of Incorporation : 13 July 2018

b. Experiences

Hersege Lda has involved in preparing Environmental Impact Assessment in several activities since it was established and has a qualified and experiences members in Environmental Engineering, Geological Engineering, Mining Engineering and Instrumentation Engineering (Oil and Gas Operation). Following are the experiences of the consultant and it member's qualification:

Table 2. Experiences of the Hersege Lda Consultant

NO	COMPANY	TYPE OF SERVICES	PROJECT ACTVITIES	PROJECT LOCATION	STATUS
1	Nananiu Unip. Lda	Mining and Environmental License	River Sand Mining	Matai, Suai	**COMPLETED**
2	China Wu Yi Co.,Ltd	Mining and Environmental License	Quarry And River Sand Mining	Ulmera, Liquica	On Process
3	Montana Diak Unip Lda	Mining and Environmental License	River Sand Mining,	Hera, Dili	**COMPLETED**
4	Juncostim Lda	Mining License	Quarry and River Sand Mining	Dato, Liquisa	On Process
5	Xirevo Unip Lda	Mining and Environmental License	Quarry and River Sand Mining	Dili, Liquica	On Process
6	Borala Lda	Environmental License	Fuel Filling Station	Dili, Viqueque	**COMPLETED**
7	Green Diamond Unip Lda	Environmental License	Fuel Filling Station	Oe-cussi	**COMPLETED**
8	Jesoria Unip Lda	Environmental License	Fuel Filling Station	Viqueque	**COMPLETED**
9	Tatoli Fuel Lda	Environmental License	Fuel Filling Station	Lospalos	**COMPLETED**

10	Queybubun Laco Conbustivel Lda	Environmental License	Fuel Filling Station	Maliana	**COMPLETED**
11	AdyPay Lda	Environmental License	Fuel Filling Station	Ossu	**COMPLETED**
12	Mekar Fuel Lda	Environmental License	Fuel Filling Station	Lurumata, Dili	**COMPLETED**
13	Nusabe III Unip Lda	Environmental License	Fuel Filling Station	Aileu	**COMPLETED**
14	Ergin Fuel	Environmental License	Fuel Filling Station	Metinaro	**COMPLETED**
15	Mega Petroleum	Environmental License	Fuel Filling Station	Fatuhada, Dili	**COMPLETED**
16	Super Fuel	Environmental License	Fuel Filling Station	Kuluhun, Dili	**COMPLETED**
17	Titer Unip Lda	Environmental License	Fuel Filling Station	Losaplos	**COMPLETED**
18	Klean Gas Lda	Environmental License	Retail Gas Station	Dili	On Process
19	Abom Kase Fuel	Environmental License	Fuel Filling Station	Maliana	**COMPLETED**
20	Arca Flacor	Environmental License	Fuel Filling Station	Ainaro	**COMPLETED**
21	Vida Diak Petroleo	Environmental License	Fuel Filling Station	Aipelu	**COMPLETED**
22	Xalila Fuel	Environmental License	Fuel Filling Station	Dili	**COMPLETED**
23	Divita Fuel Unip Lda	Environmental License	Fuel Filling Station	Tibar	**COMPLETED**
24	Ai-dalau Furak Unip Lda	Environmental License	Fuel Filling Station	Same	**COMPLETED**
25	ETO Lda	Environmental License	Fuel Filling Station	Mandarin, Balide and Manatuto	**COMPLETED**
26	GSGP Petrol Station	Environmental License	Fuel Filling Station	Laga	**COMPLETED**

c. Qualification and Experiences of each member

- **Herculano Ivo L. Granadeiro** is Mining Engineer with 4 years of experiences in preparing the mining license activities and Environmental Impact Assessment for fuel filling stations and mining activities for obtaining the Environmental License.
- **Geovanio Alves,** is Geological Engineer with 3 years of experiences in preparing the mining license activities and Environmental Impact Assessment for fuel filling stations and mining activities for obtaining the Environmental License. During the study in Indonesia, Geovanio has done several geological surveys for mineral in Kalimantan, Papua, Halmahera and Sumatera.
- **Sergio Valdano Pinto** is a Mining Engineer and has diploma of engineering in instrumentation (oil and gas operation), with 4 years of experiences in preparing the mining license activities and Environmental Impact Assessment for fuel filling

stations, mining activities and involved in preparation of EIA for China Harbour Timor Temporary Jetty in Mota Ikun for obtaining the Environmental License. Also, Sergio has attended training for Oil and Gas Safety Passport and a safety briefing in Petronas Chemical Methanol Labuan, Malaysia.

- **Patricio de Oliveira Ximenes** is Environmental Engineer with 3 year of experiences in preparing the mining license activities and Environmental Impact Assessment for fuel filling stations and mining activities for obtaining the Environmental License and as an environmental officer in China Wu Yi, Co.,Ltd
- **Sergio Martires,** is Mining Engineer with 2 year of experiences in preparing the mining license activities and Environmental Impact Assessment for fuel filling stations and mining activities for obtaining the Environmental License

4. DESCRIPTION OF THE PROJECT

ISO LPGas tanks will be loaded into the tank truck and transported to the project site. Then it will be filled in to the two ISO Tanks at the project site using a connection that has been provided or specially designed from the factory. Facilities used by these business activities, such as; two ISO Tanks with factory standard products for LPG (Propane), with a horizontal type of Storage Tank (**GB150NB/ T47042**), with a capacity of each tank is **24,600** liters, while the size of each ISO Tank is, 20m3. For the small gas cylinder itself has several sizes such as; **from sizes 3kg (600 units), 5kg (481 units and the rest are still in the shipping stage, namely 119 units and a total of 600 units), to 10kg (600 units), 12.5kg (600 units) and 45kg as many as (350).**

The emergency management system consist of; **Fire extinguisher 9kg (4 units), 6kg (2 units) and 2kg (1 unit). while for gas detectors there are 2 units.**

The proposed development will be located in Aldeia Fomento II, Suco Comoro, Dom Aleixo Administrative Post, and the Municipality of Dili, Timor-Leste, with an area **of 39x64.80 m^2 (1,944 M^2)**, the map for the project location is detailed below:

a. Identification of the Project

The refilling LPG station is located at rua Fomento II, Aldeia Fomento II, Suco Comoro, Post Administrative Dom Aleixo and Municipality of Dili. The project area closed to the Xalila Fuel is a business development proposed by Eto Lda, Company for the purpose of supplying and delivering the LPG gas directly to end users.Comoro is one of the Suco in the post administrative Dom Aleixo, Municipality of Dili.

Based on census *Fo Fila Fali* 2015 most of comoro people speak Tetum Frasa, while Makasae, Mambai, Baikeno, Fataluco, Lolein, Tetum Terik and others are spoken by several people.

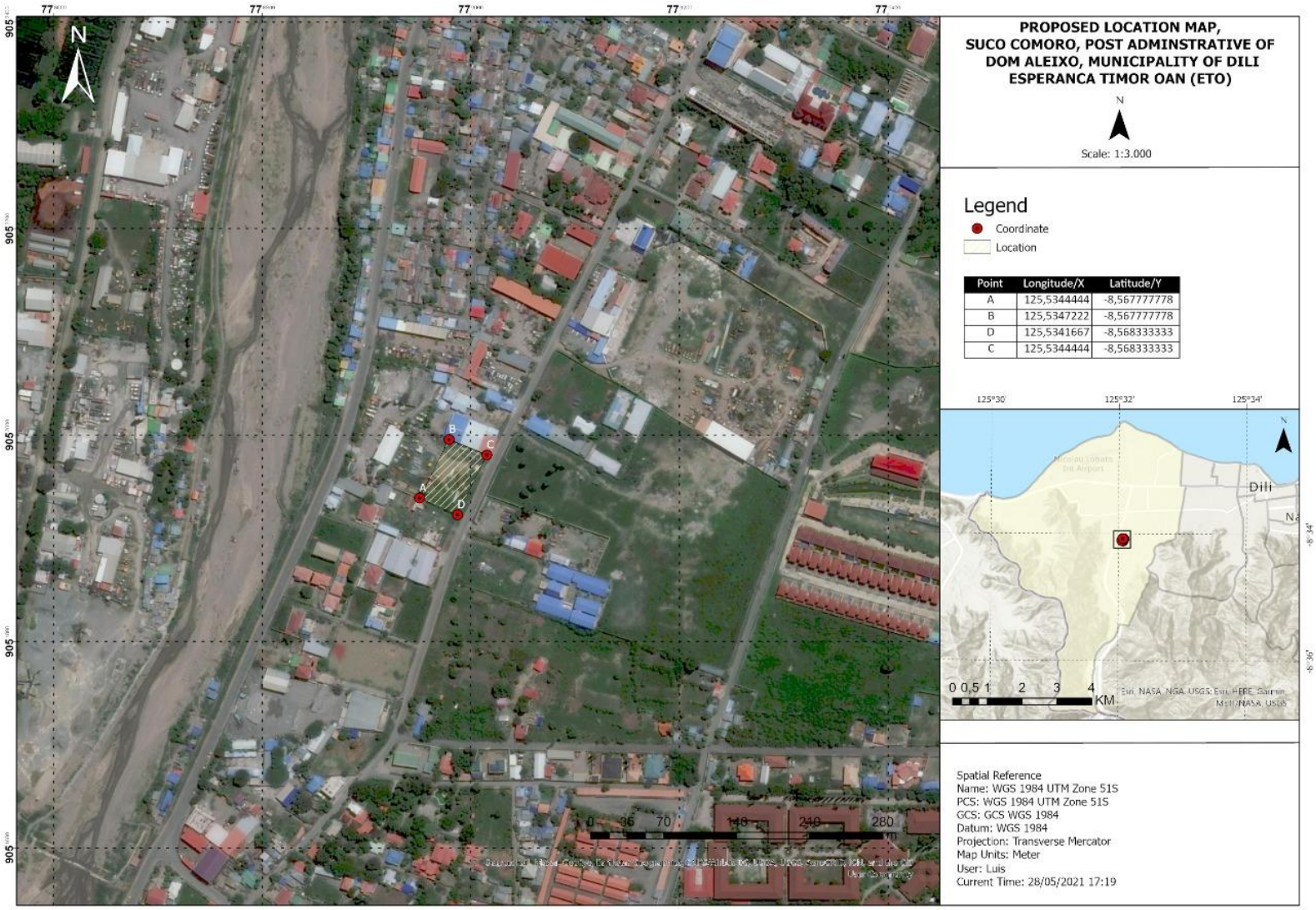


Figure 1. Project Location Map

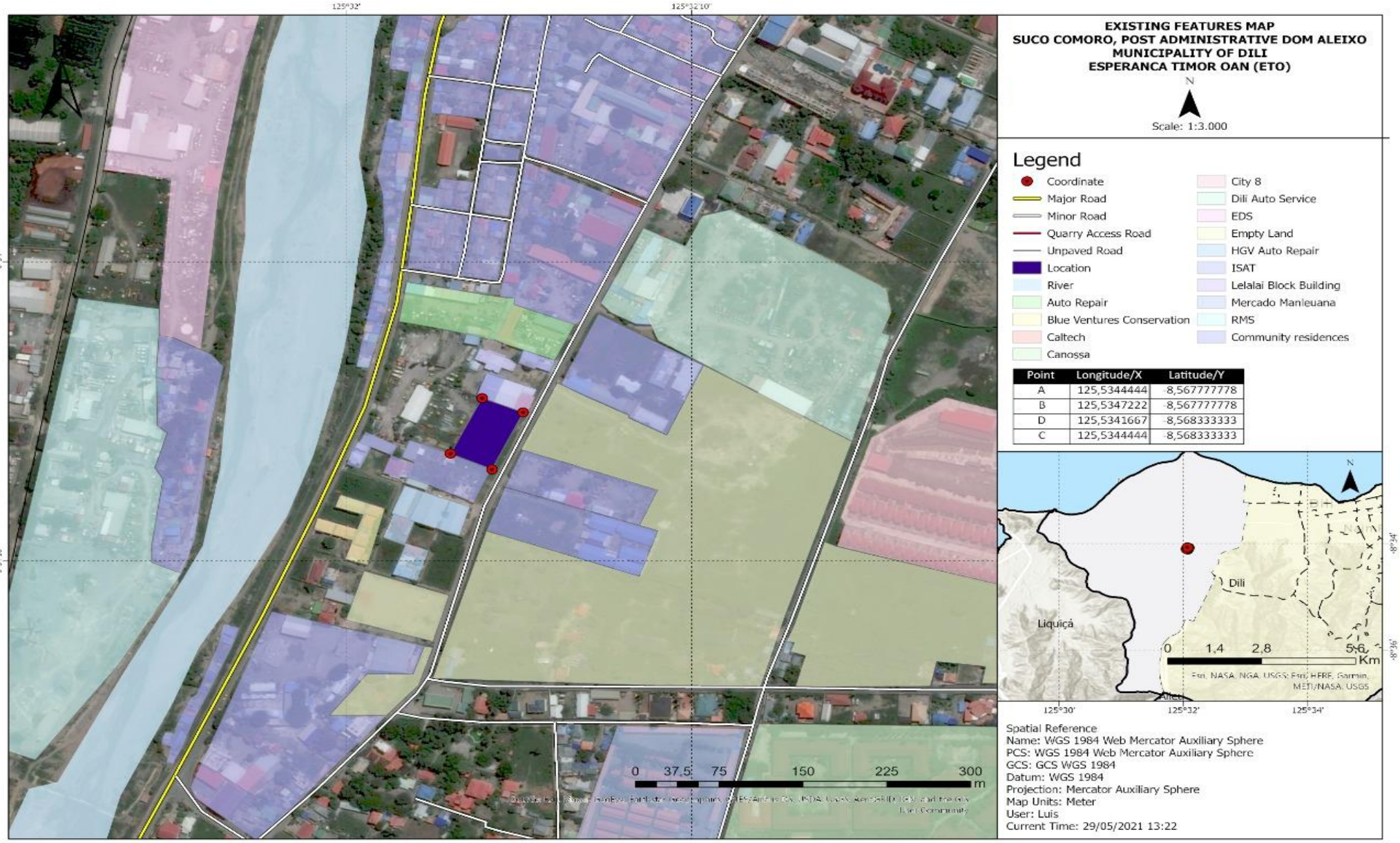


Figure 2. Existing Features Map

b. Categorization of the project

In accordance to the definition of the project category set out in article 4 of the Decree Law no.5/2011 Environmental Licensing and Annexes 1 and 2 of the law, this project (LPGas Refill Station) is defined as a category (B). The LPGas Refill Station project components fall into the Petroleum Industry Sector (Storage sites for Oil/Natural Gas/Petrochemicals or Chemicals) and due to the environmental impact may occur during the activities

c. Brief description of the Nature, size and Location of the Project

The refilling LPG station is located at Rua Fomento II, Aldeia Fomento II, Comoro, Post Administrative Dom Aleixo and Municipality of Dili and the geographics coordinate are 8°34'5"S Latitude and 125°32'4"E. Total land occupied by the fuel storage and supporting facility is about 1,944 m2, facilities used by these business activities, such as; two ISO Tanks with factory standard products for LPG (Propane), with a horizontal type of Storage Tank (**GB150NB/ T47042**), with a capacity of each tank is **24,600** liters, while the size of each ISO Tank is, 20m3. For the small gas cylinder itself has several sizes such as; **from sizes 3kg (600 units), 5kg (481 units and the rest are still in the shipping stage, namely 119 units and a total of 600 units), to 10kg (600 units), 12.5kg (600 units) and 45kg as many as (350).**

The project area closed to the Xalila Fuel Station is a business development proposed by Eto Lda, Company for the purpose of supplying and delivering the LPG gas directly to end users. The project activity operates from Monday to saturday and starts from Eight in the morning until six in the evening.

The refilling LPG station is established in the private land owned by **Mr. Nilton Telmo Gusmão Dos Santos,** Company Eto Lda. In the northern part of the proposed location is Romante Company Land, in the southern part is Community Land, in the eastern part is a public road (Rua Fomento II) and in the western part is a G&S Company.

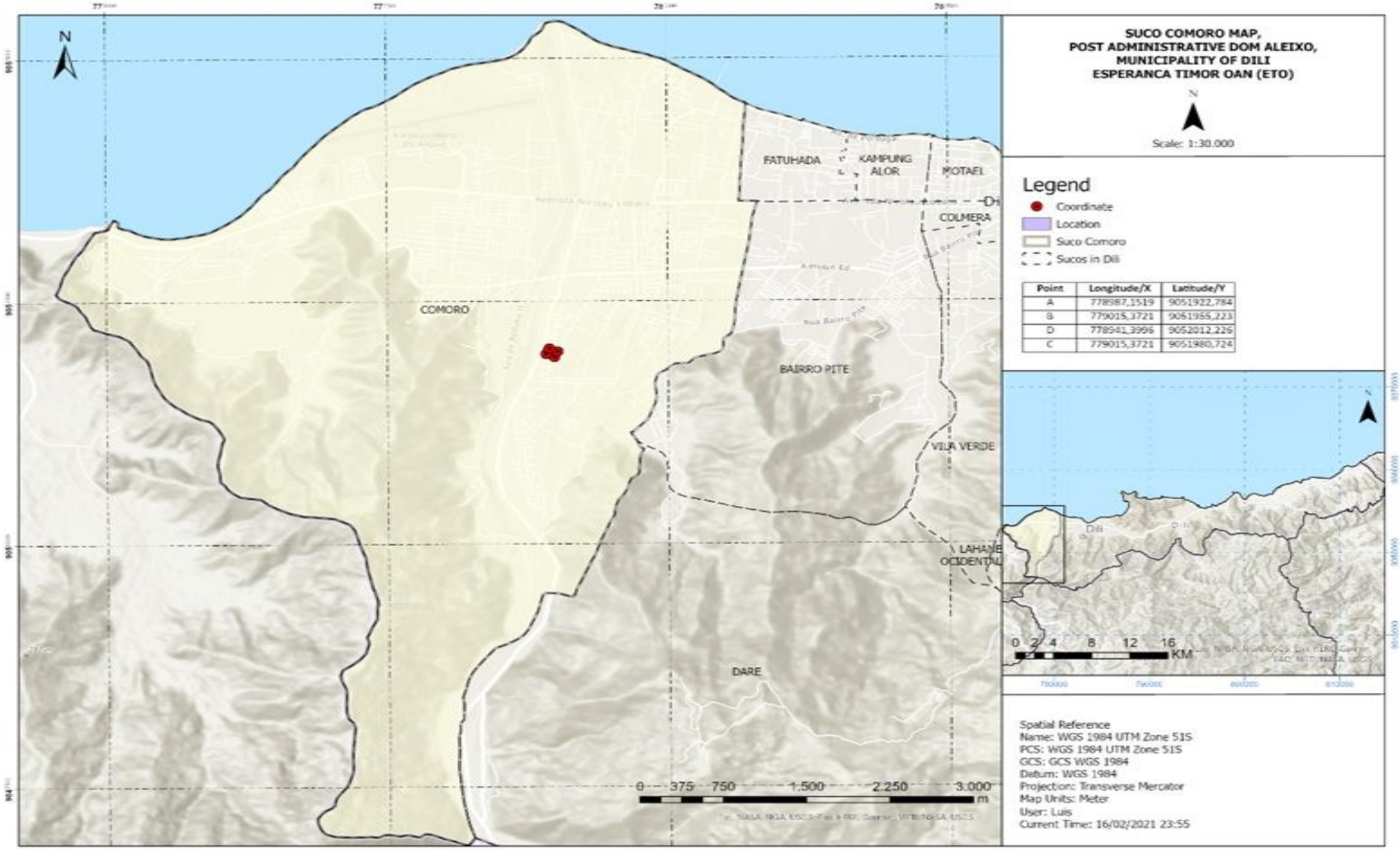


Figure 3. Suco Map

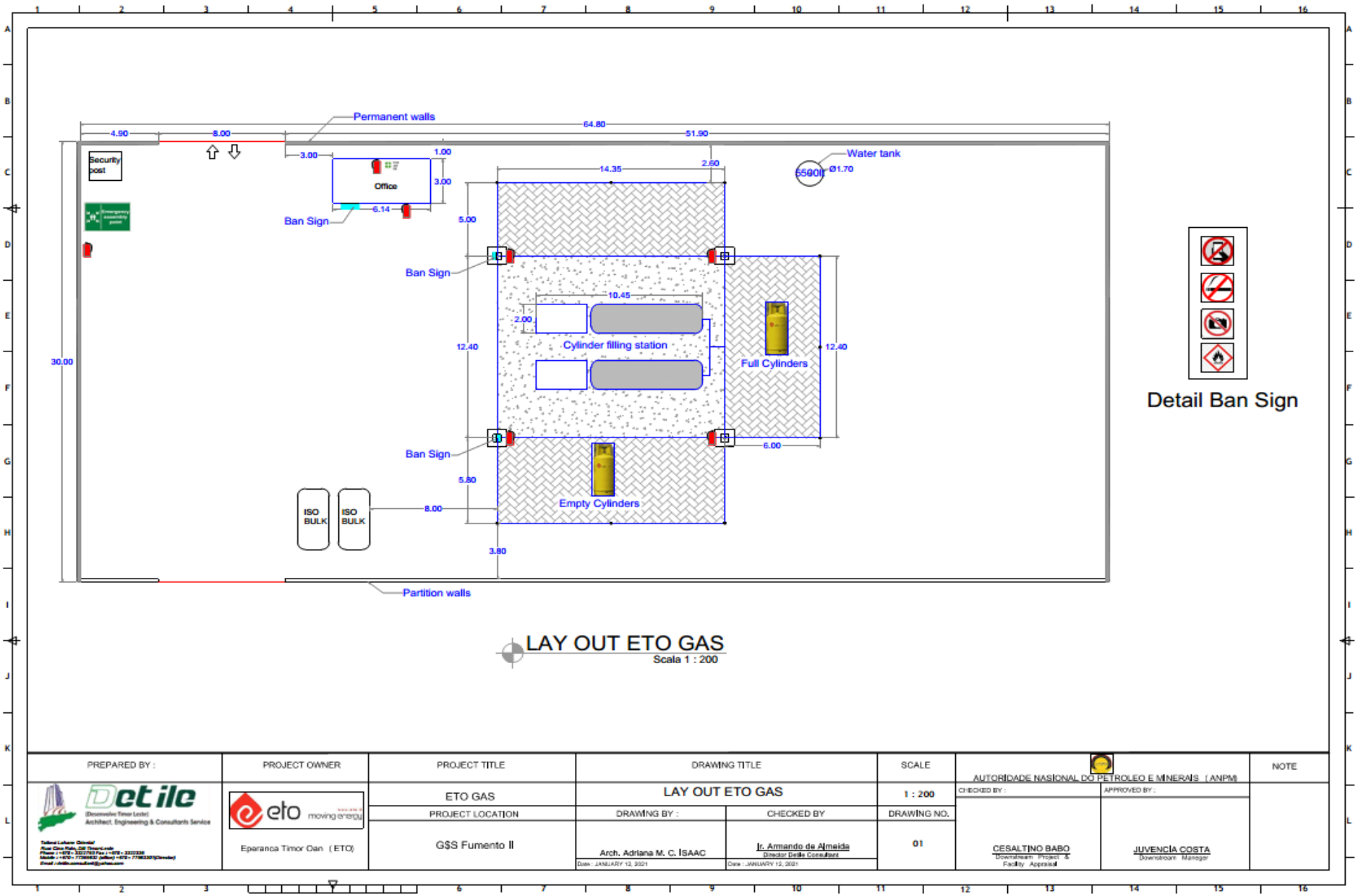


Figure 4. Site Layout

- **ISO Tank**

1. ETO Lda, own and operates Gas supply and distribution facilities as decribed below;
2. **Gas Tank Storage : 24,600 Liter, 2 Unit Tank Storage**
3. **ISO bulk Tanks : 2 Unit**
4. **Gas Detector : 2 Units**
5. **Cylinder : 3 KG (600 Units), 5 KG (600 Units), 10 KG (600 Units), 12.5 KG (600) and 45 KG (350 Units).**
6. **Fire Extinguisher : 9 KG (4 Units), 6 KG (2 Units) and 2 KG (1 Unit)**

ETO Lda is a fully registered and licensed from Serve and Location Approved by ANPM that is positioned in the Gas Filling industry in Timor-Leste to maximize profits. Aside from the point that ETO will be retailing Gas, also engaged in other complimentary services that will help company maximize profits. These are the products and services that will be made available to customers;

Figure 5. ISO Tank

- **Refill Machine**

The refill machine for filling the cylinder with various weights (3 Kg up to 45 kg) is completed with inlet and outlet hoses and valve adaptors for all common cylinder makes, pump, pressure control and weight scale.

Figure 6. Refill Machine

- **Cylinder**

LPGas cylinders (propane tanks) may also be called “Propane Gas Bottles”, "LPG Bottles", "LPG Gas Bottles" or just "Gas Bottle". LPG gas cylinders (propane tanks) work by containing both liquid and gas, as LPG liquefies under relatively low pressure. An LPG gas cylinder (Propane Tank) is considered low pressure versus high pressure cylinders, as used with CNG. LPG gas bottle sizes vary, based on application and demand. A small LPG bottle is portable, as used in camping.

Figure 7. Cylinder Point

d. Affected Area

The following map shown are indicates the affected area in the proposed site. Having mentioned the affected area, the proponent considered these impacts during operation and decommissioning phase within provides the environment management plan. Noise, Dust and emission that will be produced by the operation vehicles and decommissioning period

e. Justification and Need for the Project

There are a number of factors considered as motives why the proposed development should be implemented in this particular site which draw the attention to support Dili development project. Some of the validating factors considered include:

- Accessibility: The accessibility of the site is relatively favorable where the site is located near to Xalila Fuel.
- Demand for LPGas Station Services: The demand of LPGas and related services in this area is highly, due to the various restaurant and local residence that is started to utilize a LPGas to support their daily life.
- The proper standard. There is several LPGas Station in Fomento II, which may not be sufficient to response domestic demand.
- Low Risk to the Locals: The area with the site for the proposed LPGas station is far to the community settlement, approximately 10 meters to 1km or so, this makes the project suitable for the area since there are very few people at risk from the activities of the project.

f. The Proponent's Endorsement of The EMP

Eto Lda is fully responsible to endorse and implement all the requirements of this Environmental Management Plan (EMP); including implementation of requisite legal frameworks. Monitoring of the LPGas station activities will be carried out by the Eto Lda as the project's proponent and will be responsible for day-to-day management of the project's activities.

g. The Structure of The EMP

This document has been structured to describe the new, project-related facilities and their likely impacts - positive, neutral or negative - on the existing environment (including the community, the natural environment and local cultural heritage) in the context of prevailing government policies and law:

Section 1	Executive Summary
Section 2	Details of The Project Proponent
Section 3	Details of The Consultant Who Prepared EMP
Section 4	Description of The Project
Section 5	Legal Requirements
Section 6	Institutional Roles and Responsibility
Section 7	Summary of Impact
Section 8	Description of proposed Mitigation Measures
Section 9	Governing Parameters
Section 10	Monitoring Program
Section 11	Reporting Requirements
Section 12	Responsibilities for Mitigation and Monitoring
Section 13	Emergency Plan
Section 14	Decommissioning Plan
Section 15	Capacity Development and Training
Section 16	Public Consultation and Information Disclosure
Section 17	Complaints and Grievances Mechanisms
Section 18	Work Plan and Implementation Schedule
Section 19	Cost Estimates Review of the EMP
Section 20	Non-Technical Summary

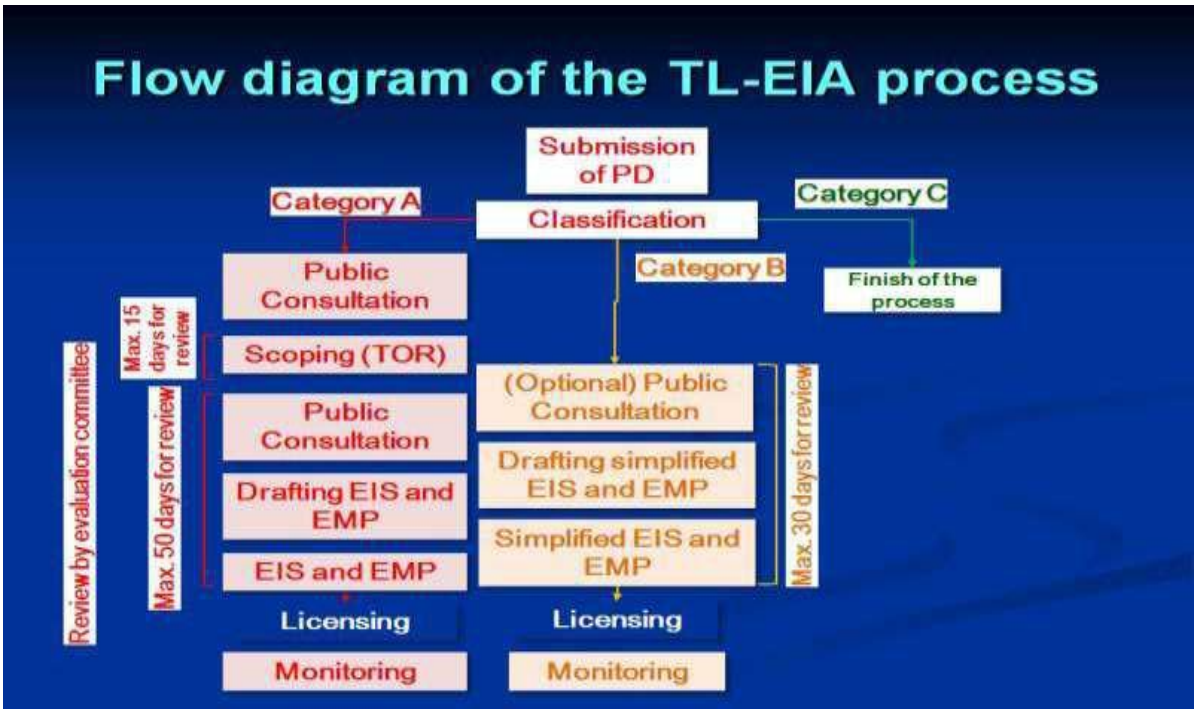
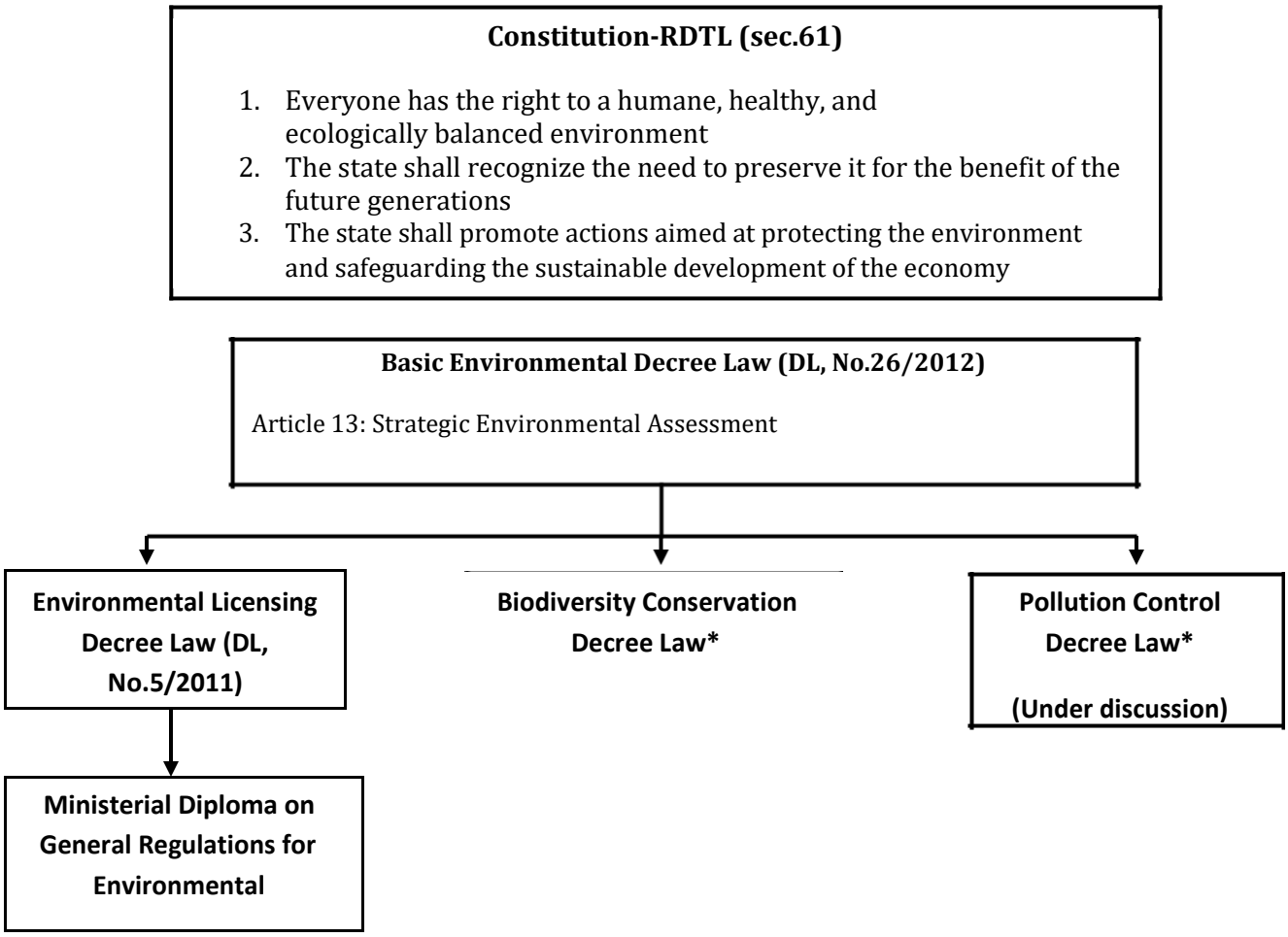


Figure 8. EIA Process Required for Category A, B and C Project

5. LEGAL RECRUITMENTS

a. Hierarchy of Environmental Law



b. Relevant Laws and Regulation

This environmental impacts assessment as a basis to prepare the report of EMP has been conducted by taking the reference from the legal framework of environmental safeguard policy, as well as the Timor-Leste regulation of petroleum and mineral resources management. The following table, show the main regulation related to EIA and petroleum activity in Timor-Leste.

Table 3. Relevant Laws and Regulation

Agency	Relevant Laws
Ministry of Commerce and Environment	Decree Law No. 5/2011
	Decree Law No. 26/2012 on Environmental base law
	(Draft) Law on Biodiversity (March 2012)
	(Draft) Law on Protected Area (May 2013)
	UNTAET Law No. 19/2000 on Protected Area

Ministry of Agriculture and Fisheries (MAF)	Law No. 12/2004 on Crimes related fisheries
	Law No. 6/2006 on legal Basis for management and Regulation of Fisheries and Agriculture
National Petroleum and Mineral Authority	1. ANPM Regulation no.2/2014, of 24, October 2014, first Amendment of ANPM regulatory No. 1/2012 on the downstream petroleum activity. 2. ANPM Regulation no.3/2014, of 24, October 2014, first amendment and operation of fuel filling station
International	1. Convention on the Prevention of Marine pollution by Dumping of Wastes and other Matter (London Dumping Protocol) 2. Indonesian Petroleum Regulation

Other relevant regulation required in absence of local regulation are also applicable such WHO, IFC, USEPA, where some standard parameters of the environmental indicator was used. The following table shows the most applicable international standards parameter of the environmental indicators:

Table 4. Applicable International standards in Absence of Timor Leste's Standards

Environmental Standard	TL National Standard	International Standard
Drinking water Quality standards	Adopted WHO Standards	WHOs
Waste water effluent	None	WHO/USEPA
Ambient Air Quality Standards	None	IFC/WHO
Heavy Metal Standards	None	WHO
Noise	Leq55dB(A) per UNTAET Regulation	Word Bank
Vibration	None	USEPA
Soil	None	IFC/Word Bank
Ambient receiving water Quality Standards	None	IFC/WHO
OHS	None	IFC/ISO-81001

c. Downstream Regulations

First Amendment to ANPM Regulation No. 3/2014 on Installation and Operation of Fuel Filling Station. This regulation serves as a legal instrument necessary to efficiently manage the procedures for reviewing existing installations, installing new Fuel Filling Stations, renovating or making alterations to existing Fuel Filling Stations, as well as their operation.

General Principles for Installation of Gas Station or Fuel Filling Station

Section I of this regulation covers the *location, project and licensing approvals*.

(a) The approval of the location of a new or an existing Gas Station and Fuel Filling Station is done prior to the presentation and approval of a project for the construction of a Gas Station and Fuel Filling Station. It must be made through the completion and submission of the form

included in annex I in this regulation, called "*Application for Approval of Location of a Fuel Filling Station*" to the ANPM.

(b) After obtaining a Certificate of Approval of Location for Gas Station and Fuel Filling Station, operators of new or existing Gas station and Fuel Filling Station shall present to the ANPM an

"*Application for the Approval of a Project for a Gas Station and Fuel Filling Station*", in the form included in Annex II to this Regulation.

(c) The License Application shall follow the rules set forth in ANPM Regulation No.1/2012, of 24 October 2012, and the License is issued in the form set out in Annex I to Decree Law No.1/2012, of 1 February 2012, on the Downstream Sector. First Amendment to ANPM Regulation no.1/2014 on Fuel, Biofuel, and Lubricant Quality Standards and Specifications. This regulation sets the minimum quality standards for Fuel, Biofuel, Lubricants and similar products available in the domestic market and minimum standards of consumer protection.

International Regulations about the Gas Filling Station

- T1 **ISO 9162**: Standard for LPG, International Standard Organization
- T2 **K 2644-87**: Standard for LPG, Japanese Institute of Standard
- T12 Ship-to-Ship Transfer Guide (Liquefied Gases). ICS, OCIMF, SIGGTO
- **Japan:** Liquefied Petroleum gas container Valve design / manufacturing standard KHK S0126 (2014)
- **Indonesian:** Forms, materials and components, construction requirements, quality requirements, and test method of LPG steel tube valves.
- **Environmental Basic Law No. 26/2012** sets the framework for other environmental legislation such as the Decree 05/2011 Environmental Licensing Law (ELL) and pending laws & regulations including the draft biodiversity law.
- **The Decree Law No 5/2011 Environmental Licensing**
- **Occupational Health and Safety laws in Timor-Leste** has not enacted or implemented regulations for working conditions, health and safety. UNTAET Regulation 2002/05, the Labor Code for Timor-Leste, is broadly relevant creates a National Labor Board to provide independent advice on occupational safety and health matters as well as training and skills development, minimum wages and other related functions. The Occupational Health and Safety Law was drafted in 2004, but has not yet been enacted.

- **Biodiversity Decree Law No.6/2020:** Establish strategic significance of biodiversity to Timor-Leste and promote sustainable use, conservation and fair and equitable sharing of biological resources.
- **World Health Organization (WHO) guidelines for drinking water quality, sanitation and waste water,** safely managed sanitation and safe waste water treatment and reuse are fundamental to protect public health.
- **International Finance Corporation (IFC), Environmental, Health, and Safety General Guidelines.** The IFC EHS Guidelines is a reference of a good international industry practice. The EHS Guidelines contains the performance levels that are generally considered and the mitigation measures used to maintain and or maximize the environmental conditions in projects activities.
- **World Health Organization (WHO) guidelines for ambient noise,** the quality noise level for community residential is 50 dBA and industrial is 70 dBA.
- **The law guarantees civilian firefighters in risky areas in Timor-Leste.** In May 2018, Law No. 8.415, which regulates the existence of civilian firefighters in buildings, risk areas or major public concentration events, as well as arrangements for companies and entities that provide fire prevention and fire services in Sergipe.
- **Legal Decision No. 16/2017 May 17 Trade Law.** After the innovations carried out by the Business Registration and Verification Service (SERVE), business registration in Timor-Leste was divided between two different organizational systems. Commercial practices are held simultaneously by two diplomas, without complementary and with various nonconformities, namely the Code of Ethics for Commercial Registration - Law No. 7/2006 March 1 and Ministerial Decree No. 35/2012, July 18, who created the SERVE.
- **Decree Of Law No. 34/2017 September 27 Gives License Of Economic Activities.** The VI Constitutional Government has made a significant effort to improve the business environment in the country, has implemented a set of reforms aimed at revising the current regulatory framework for the exercise of economic activities, making it simpler and less bureaucratic without neglecting, however, the certainty and security required for legal trade.
- **Law No. 10/2017 of May 17, New Law of Commercial Companies.** The creation of a comprehensive legislative framework and in accordance with best

international practices for the pursuit of commercial activity is a key factor in promoting a consistent and sustainable economic development of any modern state, either by creating the necessary legal instruments for the exercise economic activity in a globalized market, or by the image of progress and credibility that it transmits to the other States, international organizations and foreign investors.

- **Decree-Law no. 04/2012 – Labor Code**; This law describes the duties and obligations of the private employer and employee while exercising their function within the scope of work, or within the bounds of a work contract, with the aim of creating good working conditions and a fair, safe and healthy working environment.
- **Ministerial Directive 44/2017;** Regulation on Impacts and Benefits; covering the process for agreement between the project Proponent and the local community regarding the advantages and disadvantages of the project.
- **Ministerial Directive 46/2017;** Defining the details for Project Documents (PD), TOR, EIS and EMP documents, as stated in Annexes 1, 3, 4 and 5 respectively.
- **Ministerial Directive 47/2017;** Regulation on public consultation procedures and requirements during an environmental assessment process.

World LPG Association (WLPGA) Standard Guidelines:

- Guide to Good Industry Practices for Bulk LP Gas Installations
- Tank Location and Layout
- Tank Design
- Tank Fittings
- Pumps, Compressors, Vapourisers and Dispensers
- Pipework and Regulators
- Electrostatic and Electrical Precautions
- Fire Precautions
- Tank Commissioning and Decommissioning
- Transfer Operations
- Training
- Written Operating and Emergency Procedures
- Maintenance and Examination

6. INSTITUTING ROLES AND RESPONSIBILITIES

Proponent responsibilities

Category B Project – Refueling Gas Station

- Preparation of Project Document and submission
- Holding a public consultation (optional)
- Implementation of environmental survey, prediction of environmental impacts, and evaluation of these impacts identified
- Preparation of Environmental Management Plan
- Implementation of monitoring: to monitor periodically the environmental aspects identified and submit a monitoring report to the Environmental Authority

Relevant Authorities' Roles and Responsibilities

Agencia Nasional de Licensiamentu Ambiental (ANLA) ***Ministério* do *Comércio*, *Industria e Ambiente (MCIA)***	Carry out inspection and monitoring to safeguard the environment, health and safety
Autoridade Nacional do Petróleo e Minerais (ANPM) ***Direcção Downstream*** ***Ministério* do Petróleo**	The regulatory authority for the petroleum and natural gas and related products, and mining industries Carry out inspection and monitoring on downstream activities
Direcção Nacional* de *Servicos* de *Águas e Saneamento (DNSAS)	Responsible for the national management of water resources. It also formulates sector policy, manages the distribution for human consumption, and monitor water quality through DNSAS laboratory
Ministério da Saúde	Responsible for public health
Direcção Nacional da Protecção Civil (which include the fire fighters)	Responsible for fire hazard and emergency

7. SUMMARY OF IMPACT

The impact of proposed construction activities for LPG storage and Gas refueling at Rua Fomento II, Aldeia Fomento II, Tibar, Dom Aleixo, Dili on each environmental attribute was assessed. The construction and operation phases were considered to identify the possible impacts due to LPG plant or project. The beneficial and adverse impacts have been analyzed in the following section on prediction and evaluation of impacts.

Because of the potential to create long-term impacts, operation phase is very important from the environmental impact assessment point of view. The basic impacts like particulate and gaseous emissions from DG (diesel Generator) set, fugitive emission from bullets and movement of trucks, water consumption and waste water generation and solid waste may have potential adverse impact on air quality, water quality, noise level, soil and land. The operation phase will broadly include following direct and indirect activities.

- Transportation of LPG through bullet lorry
- Fugitive gaseous emissions
- Sewage generations
- Noise generation
- Solid and hazardous waste generation
- Occupational health and safety of workers

a. Soil Impacts

During the construction and operation of LPG Gas refueling, wastes such as excavated soil, debris, some pipes/ metal waste and very small amount of oil & grease will be generated. During operation of LPG storage and Gas refueling, no process waste will be generated in any form. It is estimated that about 20 kg solid waste may be generated by workers, canteen and truck drivers. Solid waste generated from LPG storage and Gas refueling will be segregated in the form of recyclable waste, biodegradable waste and non-bio-degradable wastes. Recyclable waste, including paper, plastic, etc. will be sent for recycling. Biodegradable waste will be used for composting at the LPG plant to produce manure for green belt. Occasionally, used oil will be generated from DG (Diesel Generator) sets and engine maintenance, which is categorized as Hazardous Waste as per Hazardous Waste (Management, Handling and ran boundary Movement).

b. Biological Impact

The LPG storage and Gas refueling will not have any impact of terrestrial ecology of the area as no tree cutting is required during the operation phase. Growth of plantation and development of green belt at the LPG plant is likely to improve the flora and fauna at the site.

c. Impact of the forest

There would not be any impact on forests from the LPG storage and Gas refueling at Location.

d. Impact on aquatic Ecology

No impact is envisaged on aquatic ecology from the operation of LPG storage and Gas refueling during construction or operational phases. As there is no water body in the vicinity of the plant.

e. Socio-economic impact

The major positive socio-economic impact will be observed in the form of the following:

- Reduction of Emissions: The proposed LPG storage and Gas refueling will ensure availability of LPG for domestic and industrial establishments in the region, which will help in minimization of use fossil fuel (petrol, HSD, furnace oil, etc.), coal, wood, etc. Consequently, it will help in maintaining a cleaner environment due to reduction in emissions.
- Improved Health Conditions: Use of LPG as a cleaner fuel will also create healthy environmental conditions and help in the uplift of socioeconomic conditions of the people of the region.

f. Health and Safety Impact

The major health and safety impact during the operation phase is if leakage occurs, LPG vapours can collect on the ground and in drains or basements and if the gas meets a source of ignition it can burn. LPG cylinders can explode if involved within a fire.

8. DESCRIPTION OF PROPOSED MITIGATION MEASURES

The operational impact analysis shall mainly focus on the Health and Safety of operating the LPG refill Station. Other aspects addressed for the construction phase may be applied during the operational phase. It should be noted that, the operation of an LPG refill Station is a highly technologized operation with standard regulatory principles. These guidelines ranges from the type of tanks and pipes to be used as well as the dispensary units. Of most important aspects is how the operator ensures that, the facility is protected from bush fires, workers are aware of the high fire and explosion risk and all necessary firefighting equipment is available and workers know how to use them.

Table 5. Proposed Mitigation Measures

Pre - Construction

Project related activities	Source of potential impacts	Potential Impacts	
		Negative	**Positive**
• Land clearing using heavy machinery • Land excavation	• Land clearing • Poor soil and rock piles • Inexperienced workers • Fuel and lubricant leakages	• Air pollution • Noise and vibration pollution • Impact on workers' health and safety and community • Impact on agriculture, geology economic and ecology • Soil and water pollution • Fire or/and explosion • Conflict	• Employment opportunity
• Vehicle and heavy machinery movements	• Intense movements of vehicles and heavy machineries in and out of the facility • Inexperienced workers • Fuel and lubricant leakages	• Air pollution • Traffic jam and traffic accident • Impact on workers' health and safety and community • Soil and water pollution • Fire or/and explosion • Conflict	
• Wastes Production	• Poor soil and rock piles • Improper disposal of wastes • Poor site management	• Air pollution • Visual pollution • Soil and water pollution • Impact on economic and agricultural activity • Conflict	

Construction

Project related activities	Source of potential impacts	Potential Impacts	
		Negative	Positive
• Vehicles and heavy machineries movement • Excavation	• Poor site management • Inexperienced workers and drivers • Poor soil and rock piles management • Fuel and lubricant leakages	• Air pollution • Noise and vibration pollution • Impact on workers' health and safety • Soil and water pollution • Fire or/and explosion • Conflict	• Employment opportunity
• Concrete mixtures for construction of walls, floor, supporting office, retention basin, pumps island and etc.	• Poor site management • Inexperienced workers • Fuel and lubricant leakages	• Air pollution • Noise and vibration pollution • Impact on workers' health and safety and community • Soil and water pollution • Fire or/and explosion • Conflict	
• Installation of tanks, Fuel pipes, canopy and dispensers electrical system and etc.	• Inexperienced workers • Not follow procedures	• Air pollution • Noise and vibration pollution • Impact on workers' health and safety and community • Fire or/and explosion • Conflict	
• Wastes production	• Improper disposal of wastes • Poor site management	• Visual pollution, • Soil and water pollution • Conflict • Impact on economic and agricultural activity	

Operation

Facility related activities	Source of Potential impact	Potential Impacts	
		Negative	Positive
Exchange of LPG ISO tanks	• Inexperienced and untrained staffs • Leaking from ISO tanks (body, seal and valves) • Carelessly handling ISO tanks • Safety procedure negligence • ISO tank fall	• Fire in the facility • Explosion in the facility • Air pollution in and outside the facility • Loss of life • Impact on health and safety of the workers and community	• Employment opportunity
Refilling the LPG cylinders	• Inexperienced and untrained staffs • Leak from cylinder valves • Leaking from cylinders' body • Leak from the filling plant components (seals, pipe, hoses and valves) • Safety procedure negligence	• Fire in the facility • Explosion in the facility • Loss of life • Air pollution in and outside the facility • Impact on health and safety of the workers and community	
Cylinder delivery and Road ISO tanks trucks movements in the facility	• Unlicensed and inexperienced driver • Crash into other vehicles • Poor maintenance of trucks • Cylinders falling off • Safety procedure negligence	• Air pollution in and outside the facility • Traffic in the facility • Traffic accident in the facility • Fire and explosion • Loss of life • Impact on health and safety of the workers • Damage to facility	
Cylinder delivery and Road ISO tanks trucks movements outside of the facility	• Unlicensed and inexperienced driver • Crash into other vehicles • Poor maintenance of trucks • Cylinders falling off • Safety procedure negligence	• Air pollution in and outside the facility • Traffic outside of the facility • Traffic accident outside of the facility • Fire and explosion outside of the facility • Loss of life outside of the facility • Impact on health and safety of the community • Damage to public and private facility and property	
Community activities	• Rubbish burning • Burning house • Burning for agriculture purposes	• Air pollution in and outside the facility • Fire in the facility • Explosion in the facility • Loss of life • Impact on health and safety of the workers	
Produce solid and liquid wastes	• Improper management of wastes	• Soil quality • Water quality	

		• Land field	
Vandalism	• Set up fire in the facility or outside of the facility	• Fire in the facility • Explosion in the facility • Loss of life • Impact on health and safety of the workers and community	

Maintenance

Facility related activities	Potential Source impact	Potential Impacts	
		Negative	Positive
Repair cylinders (valves and bodies)	• Inexperienced and untrained staffs • Improper use of equipment • Safety procedure negligence	• Impact on health and safety of the workers	• Employment opportunity
Repair ISO tank (bodies and parts)	• Inexperienced and untrained staffs • Improper use of equipment • Safety procedure negligence	• Impact on health and safety of the workers	
Repair Filling Plant (hoses, valves, seals, bolts and etc.)	• Inexperienced and untrained staffs • Improper use of equipment • Safety procedure negligence	• Impact on health and safety of the workers	
Repair canopy/fence/concrete floor	• Inexperienced and untrained staffs • Improper use of equipment • Safety procedure negligence	• Impact on health and safety of the workers	
Repair truck (ISO tank road truck and cylinders delivery truck)	• Inexperienced and untrained staffs Improper use of equipment • Safety procedure negligence	• Impact on health and safety of the workers	
Produce solid and liquid wastes	• Waste Vehicles maintenance • Wastes ISO tanks and Cylinders maintenance • Leak from cylinder or ISO tanks or vehicles • Improper management of wastes	• Soil quality • Water quality • Air quality • Land field	

Decommissioning

Facility related activities	Source of Potential impact	Potential impacts	
		Negative	Positive
Dismantle of canopy, fence and removing concrete floor	• Inexperienced staffs • Improper use of equipment • Safety procedure negligence	• Noise pollution • Air pollution • Impact on staffs occupational health and safety • Impact on community health and safety	• The place can be rehabilitated and use for other purpose
Removing filling plant from the facility	• Removing filling plant without proper equipment • Safety procedure negligence	• Impact on staffs occupational health and safety	
Removing ISO tanks (poor condition and good ones) from the facility	• Removing ISO tanks from the facility without using proper equipment • Safety procedure negligence	• Impact on staffs occupational health and safety	
Removing Cylinders (poor condition and good ones)	• Removing heavy cylinders without proper equipment • Safety procedure negligence	• Impact on staffs occupational health and safety	
Movement of vehicles inside the facility	• Movement of people and other vehicles inside the facility • Safety procedure negligence	• Impact on staffs occupational health and safety • Damage to facility	
Movement of company's vehicles outside of the facility	• Movement of people and other vehicles outside the facility • Safety procedure negligence	• Impact on staffs occupational health and safety • Impact on community health and safety • Damage to public and private facility and property	
Produce Solid and liquid wastes	• Dismantle of the facility components • leaks	• Soil quality • Water quality • Air quality • Land field	
• Decommissioning	• Employees losing their job	• Impact on family economy	

All over the world, the LPG industry has grown extensively therefore making it an alternative source of clean and affordable energy for household use. The industry has developed standard guidelines for the operation of LPG activities, ranging from cylinder and storage tanks manufacturing to plant operations. The guideline mainly focuses on health and safety measures.

The possible environmental threats such as land degradation exhaust emission, biodiversity loss, oil leakages, and employment, health and safety issues during construction and operation phases are adequately addressed. The impact analysis of these environmental threats to physical environment, biological and human environment was low with the proposed mitigation measures. The information was analyzed with a high degree of certainty due to adequate literature availability and a wide operation of LPG plants worldwide. The analysis further demonstrates that the project is expected to positively contribute to the socio-economic development of Timor-Lestes as well as at national level through employment creation and contribution to the Nation. Analysis of the no project alternative showed that the adverse impacts will be negative especially on the socio-economic aspects. It is important that the proponent adequately implements the EMP to ensure social and environmental sustainability.

9. GOVERNING PARAMETERS

As discussed in the previous sections, Operation of refueling LPG It could affect the air, water and soil, as well as the health and safety of employees and the community.

In the absence of national environmental quality standards which are relevant to the proposed projects, for future reference on environmental assessment criteria the company intends to comply with available international guidelines, such as WHO ambient air quality guidelines for assessing the ambient air quality emissions.

- **Ambient Air Quality**

Table 6. WHO Ambient Air Quality guidelines

WHO Ambient Air Quality Guidelines		
	Averaging Period	**WHO Guidelines Values**
Particulate Matter **$PM_{2.5}$** **PM_{10}**	1 – year 24 – hour 1 – year 24 – hour	10 µg/m^3 25 µg/m^3 20 µg/m^3 50 µg/m^3
Ozone (O_3)	8 – hour daily maximum	100 µg/m^3
Nitrogen dioxide (NO_2)	1 – year 1 – hour	40 µg/m^3 200 µg/m^3

Sulfur dioxide (SO_2)	24 – hour 10 minute	20 µg/m_3 500 µg/m_3
Carbon monoxide (CO)	8 – hour	9 ppm or 10.31 mg/m_3

The initial measurement that conducted by using Airradio to measure the air quality in the proposed location. the result shown that in the PM 2.5 is 9 ug/m3, the results describe below the threshold recommended by International Ambient Air Quality Standard WHO 2001, 25 ug/m3– 24 hours mean and PM 10 is 14 ug/m3, the results describe below the threshold recommended by International Ambient Air Quality Standard WHO 2001, 25 ug/m3– 24 hours mean. The SOx is 2 ug/m3 – 24 hours mean, the result of the measurement is described below the threshold recommended by WHO Air Quality Guidelines (AQG), SOx is 20 ug/m3 – 24 hours mean and the others parameter such as CO and O3 are 0 (Zero). All the result of the measurement is described below the threshold recommended by WHO Air Quality Guidelines (AQG), NOx is 200 ug/m3, O3 is 100 ug/m3.

Gas Detector Bosean K- 600

Air Radio

Anemometer

Sound Level meter

Figure 9. Air Quality Measurements

Furthermore, the drinking water quality parameters are selected in accordance with the water quality study conducted by the Ministry of Health, Environmental Health Division of Timor-

Leste in collaboration with the WHO Regional Office for South East Asia. For groundwater monitoring, there is National Groundwater Monitoring guide available. It provides basic information such as what groundwater is, different types of bore drilling and monitoring methods, how to measure groundwater levels and how to sample and test the quality of groundwater.

- **Drinking Water Quality**

Table 7. Water Quality Parameters

Water quality parameters that are identified as of concern to Timor-Leste		
Chemical Parameters	**Unit**	**Timor-Leste Recommended value**
pH	pH	6.5 – 8.5
TDS	mg/L	600 (WHO)
Temperature	°C	-
Turbidity	NTU	5
Iron	mg/L	0.3
Sulfate	mg/L	250
Fluoride	mg/L	1.5
Nitrate	mg NO_3/L	10
Arsenic	mg/L	0.01

Table 8. WHO Classification of Bacteriological Water Quality

WHO classification of bacteriological water quality	
Thermo tolerant Coliform per 100ml, CFU/100ml	**Risk classification**
0	In accordance with WHO guidelines
1 – 10	Low risk
10 – 100	Intermediate risk
>100	High risk

- **Soil Parameter**

Soil pH is considered a master variable in soils as it affects many chemical processes. It specifically affects plant nutrient availability by controlling the chemical forms of the different nutrients and influencing the chemical reactions they undergo. The optimum pH range for most plants is between 5.5 and 7.5; however, many plants have adapted to thrive at pH values outside this range.

Based on the measurement in the field that conducted by the consultant the result of **pH** measurement in the project location is **7**, this shown that pH in the project location is **Normal** based on the soil pH parameter range by the United States Department of Agriculture (UDSA). The type of soil that observed in the proposed location is alluvial soil with fine grand soil consist of several main alluvial material such as clay, chalk and sand.

Figure 10. FLO 10 pH Measurements

Table 9. Soil pH Parameter (The United States Department of Agriculture (USDA))

Denomination	pH range
Ultra acidic	< 3.5
Extremely acidic	3.5–4.4
Very strongly acidic	4.5–5.0
Strongly acidic	5.1–5.5
Moderately acidic	5.6–6.0
Slightly acidic	6.1–6.5
Neutral	6.6–7.3
Slightly alkaline	7.4–7.8
Moderately alkaline	7.9–8.4
Strongly alkaline	8.5–9.0
Very strongly alkaline	> 9.0

- **Noise Level**

Sound level meters are commonly used in noise pollution studies for the quantification of different kinds of noise, especially for industrial, environmental, mining and aircraft noise. The current international standard that specifies sound level meter functionality and performances is the IEC 61672-1:2013.

The first noise measurement point is inside the project area. Noise source is from the operated motor vehicle that passes through the main road and to the fuel filling area. Total of the 120 data collected from the noise level meter within the 10 minutes time frame. By using

formula based on the "*Lampiran II Keputusan Menteri Negara Lingkungan Hidup No. : KEP-4/MENLH/11/1996 Tentang Baku Tingkat Kebisingan Tanggal 25 Nopember 1996*, the result of measurement is **44.2 dBA**. This number does not exceed the IFC Noise Level Guidelines for industrial activity (70 dbA) see Table 10.

Table 10. IFC Noise Level Guidelines

Receptor	One Hour L_{Aeq} (dBA)	
	Daytime 07:00 - 22:00	Nighttime 22:00 - 07:00
Residential; institutional; educational[55]	55	45
Industrial; commercial	70	70

In addition the temperature at the project location when conducted the measurement is 34^{o}C, the humidity is 65% RH, with the wind speed is 0.1 to 0.9 m/s and the wind blows from North to South.

10. MONITORING PROGRAM

The monitoring program is established to measure the impacts that may occur as a result of the project. It serves as the company's ways of showing its commitment in the health, safety and the environmental protection and to comply with the legal requirements. Furthermore, the effectiveness of proposed mitigation measures can be gauged through the monitoring program. The project's owner and the designated officers/staffs are responsible for developing, implementing and maintaining the monitoring programs.

A scope is provided for each of the monitoring programs that is created or performed in the following table.

Table 11. Monitoring Program

No	Monitoring Program	Scope	Responsibility
1	Inspection	**Cylinder inspection** • Check for proper labelling of cylinders and painting • Check for the sign of damage and corrosion on the cylinder body, including the welded parts • Check for the sign of damage or corrosion on the bottom of the cylinder • Check for dust in the cylinder neck threads • Check for the sign of damage on cylinder valve, valve pad and collar/valve protection ring • Make sure empty cylinders are not mixed with filled ones and vice versa • Ensure cylinder valves are not loosen	SUPERVISOR OF ETO LDA
		Filling plant • Ensure cylinders scale is clear of dust • Filling hoses are in good condition • Ensure connection between hoses and line are not loosen • Ensure valves and seals are in good condition • Ensure electrical switch board working properly	SUPERVISOR OF ETO LDA
		Compressor • Ensure air hoses to filling plant are in good condition, • Ensure no leaks in fuels tanks, • Ensure no air leak from compressor body • Ensure compressor belt are in good condition • Ensure bolts and nut are not loosen	SUPERVISOR OF ETO LDA
		Floors • Floor area where there is possibility of spills such as dispensing and unloading of bulk delivery area is cemented and graded to contain polluted runoff, • The cemented surface ground need to be maintained so that no cracks or faulty joints between concrete slabs that would allow liquid penetration (sign of deterioration), • Ensure that the marking for safety zones on the pavement are visible	SUPERVISOR OF ETO LDA
		Lightning • Check lighting system to ensure that all areas have adequate lighting level	SUPERVISOR OF ETO LDA
		Electrical and back up generator • Ensure electrical system and back are in good condition to support the filling activity	SUPERVISOR OF ETO LDA
		LPG ISO Tanks • Check for sign of damage or corrosion on ISO tank frame, access ladder, walkways and safety grid • Check the labelling for sign damages or fading • Check the ISO tanks for sign damages, leaks or corrosion on the body • Check the condition of pressure/vacuum relief valves if there is sign of damage • Check the condition of filling port and top discharge valves if there is sign of damage and corrosion	SUPERVISOR OF ETO LDA

		• Check the condition of electrical box and electrical heating if there is sign of damage • Check the condition of emergency shut off valve if there is sign of damage • Check the condition of bottom outlet if there is sign of damage or corrosion • Check the condition of thermometer if there is sign of damage • Check the any structure that ISO tanks are place on for condition of damages	
		Notice and signs • Ensure that none of the notices and signs posted are missing, damage or illegible, • Emergency telephone number are up to date and displayed	SUPERVISOR AND STAFF OF ETO LDA
		Firefighting equipment • Ensure that fire extinguishers are present in the correct number, fully charged and no sign of damage, • Carry out a regular inspection on the fire extinguishers (at least once a month) and inform a competent third party who is responsible in providing services on fire extinguishers if there is any damage or malfunction on it • Regularly check if there is always enough water to be used on fire	SUPERVISOR AND STAFF OF ETO LDA
		Emergency equipment • Check contents of first aid kit are all present and correct (*i.e.* include necessary supplies and medication), • Check all emergency switches and loud speaker or alarm system and telephone are functioning properly • Constantly check the gas detectors if it works	SUPERVISOR AND STAFF OF ETO LDA
2	Emergency response plan and its procedures	**Equipment and procedures** • Description of emergency response equipment, function(s) and how to operate, • Identify fixed firefighting facilities, such as raising alarm system, electrical shut down of pumps/dispensers or other equipment, emergency routes and assembly point for staffs and customers, • Portable fire fighting, including fire extinguishers, its type and location • Ensure that emergency procedures are understood by all employees on site, for instance by using appropriate language and/or utilize pictogram	SUPERVISOR AND STAFF OF ETO LDA
		Training and practice in emergency procedure • Provision of training to the employees, include but not limited to (i) unloading or replacement of empty LPG ISO tanks with filled ISO tanks; (ii) practical experience of using portable fire extinguishers; (iii) familiarity with different classes of fire and appropriate type of fire extinguishers for each class; (iv) safe cylinder filling procedures; (v) recognizing and reporting fault in equipment; (vi) dealing with small leaks • Ensure all employees attend first aid training • Ensure all employers attend firefighting training and refreshment training and should have certificate	SUPERVISOR AND STAFF OF ETO LDA
3	Maintaining records and documentation	**Documents**	SUPERVISOR AND STAFF OF

		• Records of maintenance history, faults detected and repairs or modifications carried out at the site (on ISO tanks, Cylinders, Filling Plant, Cylinder Delivery Truck, LPG ISO Tanks Road Truck, Firefithing equipment, Emergnecy Equipment and Comporessor) • Incident reporting, • Inventory check on the LPG stock, • Inventory check on the LPG cylinder stock, • Up-to-date Health, Safety and Environmental (HSE) Plan	ETO LDA
4	Traffic monitoring	**Traffic safety** • Ensure accesses are not obstructed in any manner, including obstruction by parked vehicles, • Ensure the vehicles are parked in a designated area while refuelling, • Place restriction on circulation of people and other vehicles at the unloading or replacement zone during unloading or replacement of empty ISO tanks with filled ISO tanks. • Place restriction on circulation of people and other vehicles at the loading and unloading of filled and empty cylinders	SUPERVISOR AND STAFF OF ETO LDA
5	Implementation of current procedures in place	**Procedures** • Filling the fuel to storage tank through the fuel tanker, • Filling the fuel to the tank of vehicles, • Count the volume of fuel in the storage tank and record the result, • Make the inspection to the fire extinguisher, • Job Safety Analysis and reporting	SUPERVISOR AND STAFF OF ETO LDA

11. REPORTING REQUIREMENTS

The environmental management plan would require reporting arrangements for the purposes of assisting with effective implementation and with external reporting. All reports must be filed by the operator/company in a place where they can be easily retrieved and to be made available for scrutiny by relevant authorities. The types of reporting that need to be prepared include:

- Internal monitoring and inspection
- Incident, accident and emergency reporting
- Performance indicators
- Training programs

The following table specifies the reporting frequencies and types of reports for reporting to the environmental authorities and other relevant authorities.

Table 12. Reporting Requirements

No	Activities	Types of report	Reporting frequency	
			Internal reporting	External reporting
1	Internal monitoring and inspection	1. Report of maintenance history faults detected and repairs or modification carried out on ISO tanks, Cylinders, Filling Plant,	When such activities are performed	When requested
		2. Inventory report on the LPG stock	Daily record	
		3. Inventory report on the cylinder stock	Daily record	
2	Incident, accident and emergency reporting	4. Report on leaks from cylinder, LPG ISO tanks, Filling plant components	A report must be filed soon after the incident/accident/emergencies has been handled to the company management	In the event of serious incidents occurs, relevant authorities must be verbally informed at the time of incident/ accident/emergency as soon as possible and a report must be filed after it has been handled
		5. Fire or other emergencies		
		6. Traffic accident		
		7. Violence and/or vandalism		
3	Reporting on performance indicator	8. Incident rate	A report on performance indicate can be done yearly	
		9. Training records		
		10. Complaints and grievance records		
4	Training	11. Firefighting training and its refreshment training	Refreshment training based on certificate expiration date	A report including the evidence (e.g., copy of training certificate) is filed to relevant authorities, when there are new training or refresher training
		12. First aid training and its refreshment training	Refreshment training based on certificate expiration date	
		13. Handling LPG ISO tanks, Filling Plant, and LPG Cylinders (including filling cylinders)	Refreshment training based on certificate expiration date	

12. RESPONSIBILITIES FOR MITIGATION AND MONITORING

The company has primary responsibilities for implementation of the proposed mitigation measures and monitoring programs. The company also is in liaison with other relevant institutions and authority bodies to ensure that the installation and operation of the automotive fuel filling station is aligned with the national laws and regulations, and industrial best practice.

The following institutions and authorities (as mentioned earlier in the section of institutional roles and responsibilities) have roles and responsibilities in safeguarding the social wellbeing, economic, and the environmental protection relevant to the proposed project

Table 13. Responsibilities for Mitigation and Monitoring

(1) *Agencia Nasional de Licensiamentu Ambiental (ANLA)* (2 *Ministério* do *Comércio*, *Industria e Ambiente (MCIA)*	Carry out inspection and monitoring to safeguard the environment, health and safety
(3) Autoridade Nacional do Petróleo e Minerais (ANPM) *Direcção Downstream* (4) *Ministério* do Petróleo	The regulatory authority for the petroleum and natural gas and related products, and mining industries Carry out inspection and monitoring on downstream activities
(5) *Direcção Nacional* de *Servicos* de *Águas e Saneamento (DNSAS)*	Responsible for the national management of water resources. It also formulates sector policy, manages the distribution for human consumption, and monitor water quality through DNSAS laboratory
(6) *Ministério da Saúde*	Responsible for public health
(7) Direcção Nacional da Protecção Civil (which include the fire fighters)	Responsible for fire hazard and emergency

13. EMERGENCY PLAN

a. Emergency Response Procedures

The emergency response procedures indicate the emergency actions to be carried out upon becoming aware of the emergencies.

1) Emergency Contact

The emergency contact details for the available emergency services:

- Police station 112
- Fire department 115
- Ambulance 110

2) Threat of Violence, Personal Injury or Robbery

If such events occur, contact the emergency services and refrain from engage in any actions that can further aggravate the situation.

3) Responses of Emergency Evacuation Procedure

If there any natural disaster such us earth quake and big fire occurrences on the facility, the company must has the evacuation route and the safe zones as the disasters my not harm the workers or people. It will use as the first procedural to save people on the site. All people in the site must pay attention and remember this evacuation procedure on the site.

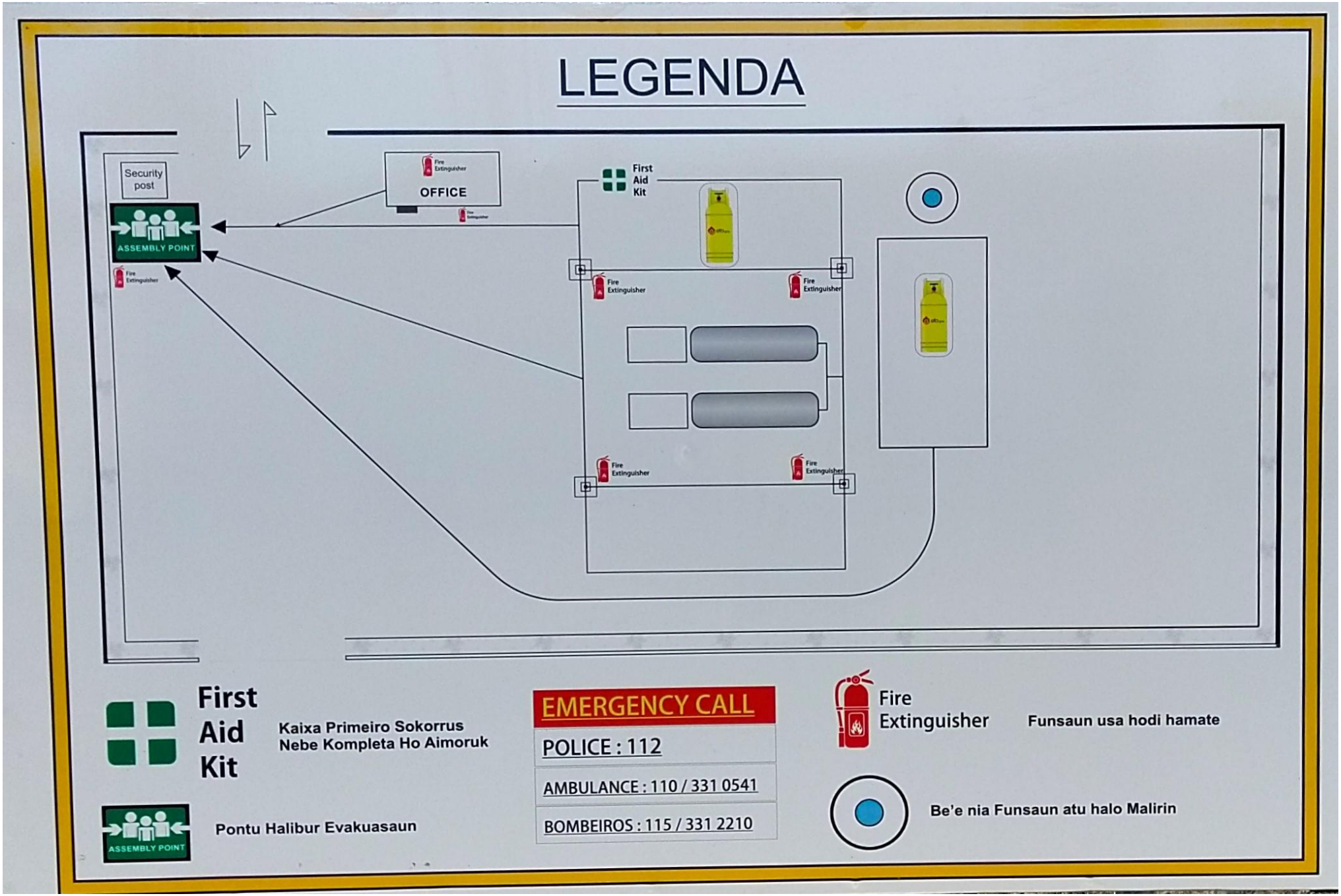


Figure 11. Evacuation Route

b. Emergency Operating Procedures and Instruction

1) Confirmation through detector or witnesses that disaster has occurred
2) Inform the shift supervisor or person in charge by telephone or in person
3) Supervisor of the disaster field will be the commander in charge, directing the first stage of the emergency response plan for rescue
4) If the disaster has upgrade to the second stage of the response level, the emergency broadcast will released to the whole factory, and the entire emergency response organization will be mobilized in the factory to implement the second stage of the emergency response plan
5) At the second stage of the initial level of the response plan, the field commander should still continue to be in charge until the general commander has arrived, and then commander and he/she will continue to assist with the disaster relief
6) General Commander shall determine whether the accident can be effectively contained, and will decide whether to shut down or isolate the disaster, and may send an emergency notification requesting an external assistance unit for support
7) General Commander shall determine whether it will affect the outside of the factory, if it‟s under control, and then should continue to help with disaster relief and remain vigilant.

c. When LPG leak has been found

1) Shut down the main power in the factory immediately
2) Shut down the closest valve member, to confirm the leakage location of liquefied petroleum gas, and take emergency measures to prevent leakage expansion
3) Site supervisor should take appropriate measures according to the situation, and call 115 to inform the fire department for support if necessary
4) Vehicles are prohibited to start the engine, and owner need to manually push their vehicles to a safe place
5) Prepare the firefighting equipment immediately
6) When there is a pipe rupture, it will cause the leakage of liquefied petroleum gas, so should notify the residents nearby as soon as possible, and prohibit the use of fireworks. Proceed to traffic control if necessary, and persuade residents to evacuate.

d. Equipment for Loading or Unloading LPG causes a Fire in the Factory

1) Site supervisor should take appropriate measures according to the situation, and call 3310320 to notify fire department for support if necessary
2) Provide initial fire extinguishing
3) Stop the operation of the equipment
4) Emergency response task organization should initiate rescue action according to the assigned tasks
5) Try to extinguish the fire, while preventing the fire from spreading, especially be aware that it does not spread to the high-pressure gas equipment
6) Prevent vehicles from entering the factory so that it will not be affected by the fire
7) If after assessing that there is difficulty in extinguishing the fire due to its rapid spread, should persuade the nearby residents to evacuate
8) Wait for the fire department‟s arrival to support and assist accordingly

e. When Filling Machine Burst Into Flames

1) Staff who discovers the flames should shout „filling machine is on fire!‟ immediately, and quickly turn off the power. Should take out the dry chemical fire extinguisher, and extinguish the fire off from the windward location
2) Staff nearby should promptly take another dry chemical fire extinguisher and standby from the diagonal back-side to guard and support the firefighting if necessary
3) After the staff on duty has confirmed the police‟s arrival, one should shut down the main power immediately, request unauthorized persons to leave, and closely monitor the situation
4) Site supervisor is in command to deal with the aftermath, keep the machine that caused the accident remain in status quo, and report to the supervisor to investigate and handle situation with the repairing staff. And also make use of the detector to detect if there still any leakage of liquefied petroleum gas, and then proceed to restore to fill gas.

f. Gas tankers causes large leakage when loading or unloading in the factory can catch on fire or not

1) Staff who discovers the fire should shout "gas tanker is on fire!" immediately, and turn off the emergency shut-off valve of the gas tanker.

2) Staff on duty should turn off the power and stop the operation of the equipment; direct staff and vehicles to leave to a safe location, call 3310340 for support from the fire departments if necessary.

3) Site supervisor is in command, fully alert and focused on extinguishing the fire.

4) Check and complete the repair of loading and unloading equipment. Use the detector to verify if there still any leakage of liquefied petroleum gas, and restore to fill gas.

g. When there is a fire near the factory

1) Depending on the situation, site supervisor should decide whether to suspend the filling operations, and call the fire department at 3310340.

2) When there is a risk that the fire may spread to the factory, the site supervisor should suspend the filling operations, turn off the main power, and command part of the staff to assist on firefighting, and another part of the staff should stand by in the factory.

3) The fire extinguisher in the factory only has a high efficiency for extinguishing the fire that is caused by oil and gas, however it has no effect on other sources, such as wood, paper and cloth, etc. Therefore, if there is a fire in the factory, please pay attention to what kind of fire you are fighting against, do not make unnecessary waste. Usage of the number of fire extinguishers should depend on the limitation as to not affect the safety of the factory.

4) If there is a fire that needs to be extinguished outside the factory, the commander needs to make sure there are enough staff and fire extinguishers to protect the safety of the factory.

h. Delivery car accident

1) Traffic accident: contact the rescue units through the operators or other drivers, and notify the supervisor to dispatch vehicles for oil steel cylinders.

2) Leakage of steel cylinders or if it‟s on fire: operators should try to plug the leaking hole or reduce the leakage, move the steel cylinder to an open area and prevent fire. Remove all the other cylinders if it‟s under safe conditions; cool down the firing cylinder by water, call the fire department, and prevent other people and vehicles from entering the danger zone.

3) Trucks on fire: operators should extinguish the fire, inform the fire department, remove the steel cylinders from the truck under the safest possible conditions,

prevent other people and vehicles from approaching the truck, and notify the supervisor to dispatch vehicles to transfer the steel cylinders away.

i. Customer equipment accident

The main customers of our company are residential or commercial customers, who currently use the bottle LPG. The emergency situations for the customers include leakage, fire, and explosion, etc.

1) If our company has received the emergency notification from customers, staff needs to record:
   a) Customer‟s information (name, address, and phone number)
   b) Remind and confirm if they have switched off the gas supply and left the scene.
   c) Brief about accident and request for help
   d) If there are any injuries
   e) Whether they have notified the rescue units
   f) Time
   g) Preliminary processing by the customer
   h) Others
2) Staff who received the notification need to guide the customers or the staff at the scene:
   a) Put personal safety as the first priority
   b) Do not turn on the electrical switches or use mobile phones
   c) Evacuate the neighbors to a safe place
   d) Control the leakages or sources of ignition
   e) Move the leaking gas cylinders to an open space or open the doors and windows to circulate air
   f) Move the unaffected steel cylinders away from the scene
   g) Call the rescue teams and provide information
   h) Record the field data and remain at the scene of incident
   i) Staff should assist investigation personnel

14. DECOMMISSIONING PLAN

Where equipment for storing or discharging LPGas is taken out of use, either permanently or on a temporary basis, it shall be carried out safely and that the equipment is left in a safe state. The decommissioning process is taking place after operation has ceased and a notification shall be given to the relevant authority six months prior to any of decommissioning activity. Any work associated with decommissioning the fuel containment system should be done by competent persons. It is also paramount to carry out a risk assessment taking into consideration all matters concerning health, safety and environmental protection.

There are two phases in the decommissioning plan:

a. Dismantling of the fuel containment system (the installation is decommissioned)

- During the excavation and removal of underground storage tank care should be taken to ensure that any contaminated material is contained and not allow migrating to other areas, this risk could be minimized by preventing rainwater build-up within the excavation.
- Before any work is carried out to render the storage tanks safe all residual fuel should, so far as is reasonably practicable, be removed from the tank and an underground tank should be inserted to reduce the risk of explosion.
- The removal of pipework should only be carried out after it has been drained and isolated from sources of fuel. It is likely for a flammable atmosphere or residual petrol to be present in pipework and as a precautionary measure of flushing with water should precede the removal and dismantling work
- The electricity supply in the site should be disconnected prior to the commencement of the decommissioning activity
- Dispensers may be removed from the site with precautions to ensure that the site is maintained in a safe condition
- The oil/water separator should be removed when it serve no purpose in connection with any intended future use of the site. Beforehand, arrangement should be made for disposal of any liquid or sludge contained in the chambers of the oil/water separator.

b. Abandoning and restoring the site

The location of abandoned underground tanks or pipework should be brought back to its existing condition. Any residual materials from the site shall be disposed in accordance with the health, safety and the environmental plan and the environmental regulations.

15. CAPACITY DEVELOPMENT AND TRAINING

Eto Lda is committed to facilitate all of its employees at the fuel filling station with training courses from accredited training providers. Every employee is obligated to attend and complete the training while actively working at the fuel filling station.

The training which will be offered by the company is tailored to the role of the employees. The purpose of these training is to ensure that they understand their responsibilities when implementing the environmental management plan. The list of training provided is as follow:

a. First Aid training
b. Safety course
c. Customer service course
d. Basic training on fire fighting

The company would also offer refresher courses for existing employees as recommended in the training certificates, which would normally valid for a year or more depending on the training.

In addition, the employer has the responsibility to induct the staffs regarding the key points of environmental value and ensure that everyone is aware of the environmental incident emergency response procedures.

16. PUBLIC CONSULTATION AND INFORMATION DISCLOSURE

Public consultation is conducted by project owner and supported by the consultant with the objective to obtain constructive opinion or comments from affected community including negative and positive comments. The method of public consultation is door to door and by forum. Opinion and comments attached in this EMP Document.

There are several respondents were interviewed on their concerns regarding the impacts due to the proposed project activity. Most of the correspondents are pleased with the presence of the fuel filling station and the job opportunity that might be created. However, dust and safety are the main issue that raised by the correspondent.

Consultation with ETO GAS Security/Local Community

Consultatio with Mr. Tulus/G&S Operator

Consultation with Mr. Anacleto dos Santos/Local Community/Fomento II

Consultation with Mr. Hipolito Ximenes/Local Community/Fomento II

Figure 12. Public Consultation

17. PUBLIC CONSULTATION WITH LOCAL AUTHORITIES AND COMMUNITIES

According to **Minesterial Diploma No.47/2017,** in preparing drafts for SEIS and EMP, ANPM requested the proponent to complete the existing requirements, by holding public consultations with local residents, government institutions, local authorities, intellectuals and other relevant government agencies. With the reason that in the preparation stage of the SEIS and EMP documents, it is very necessary for these activities so that the proponent can understand the situation and condition of the area from the surrounding community, of a development project or investment in certain areas, especially in the Comoro area. The purpose of the public consultation held by the company is to hear, understand and accept suggestions, criticisms and constructive solutions, for the vision or business strategy plan prepared by the company so far.

That way, on February 25, 2021, the proponent made a plan to complete the requirements requested by ANPM to hold a public consultation forum, from the preparations made by the proponent for smooth running of the event, the first thing the proponent made was to coordinate between the proponents. with the local authority, and also with the ANPM to determine the day and date to realize the event. From the public consultations which took place from February 25, 2021, while during the event there were many questions, suggestions and constructive criticism submitted from the surrounding community, people's representatives or local authorities as well as explanations on environmental laws from ANPM. from the suggestions and criticisms submitted by the guests at the event, among others, as follows;

- **Mr. Mariano De Deus (Romante Company Owner);**

  On that occasion the Romante Director, emphasized and reminded the director of the Eto Lda company, to be committed to Health and Safety Environment, develop the human resources for safety training and proper training for staff before this bussinnes running.

- **Mr. Januario Ximenes (Chefe Aldeia Baya Leste);**

  Worried about the presence of this business in the fomento II area, because previously there was a gas station that now existed, namely from the Xalila fuel company, therefore Mr. Aldeia himself gave some input so that the Eto company could control it well so that there was no danger in the form of fire, a big explosion, which scared and traumatized the surrounding community.

- **Mrs. Faustina Piedade (Komunidade);**

  Mrs. Faustina advised the Eto company to be careful in recruiting workers employed for this business, in other cases people are very afraid of the name Gas, and for the Eto company to be able to maintain and avoid accidents in the business in the future.

- **Mrs. Isabel de Fatima (Komunidade);**

  Mrs. Francisca suggested that the company should preserve the environment, while for the equipment used, she emphasized that the company should use high-quality equipment in accordance with factory standards and required requirements. Mrs. Isabel is worried about the requirements regarding the training certificate requested by Eto Lda.

- **Mr. Jose Figueredo from ANPM/Downstream Staff;**

  From that opportunity, representatives from government institutions/ANPM, namely; Mr. Jose, he explained in great detail the requirements or permits, especially in the downstream sector related to the Environmental Permit Proposal which was applied until a permit was issued for activities related to existing government institutions.

- **Mr. Plinho Lewis Gusmão (Chief of Marketing)**

  At the last opportunity before the closing of the event, the Chief of Marketing of Eto Lda Company, namely; Mr. Plinho Lewis Gusmão, accepts all inputs with a big heart, and Mr. Plinho conveys that the Eto Lda company is highly committed with a clear vision and business strategy, building and developing human resources for the community around the project area and the Fomento II community in general. Eto Lda has a great business spirit, improve the safety work and environment part, high integrity in doing business, Eto Lda also has work experience in the business of preparing and supplying fuel oil, Gota Water Comsumption, Eto Telco, and Gas for government institutions to public consumption in the future.

Meeting with ANPM/Downstream Staff

Meeting with SEA/ANLA Department

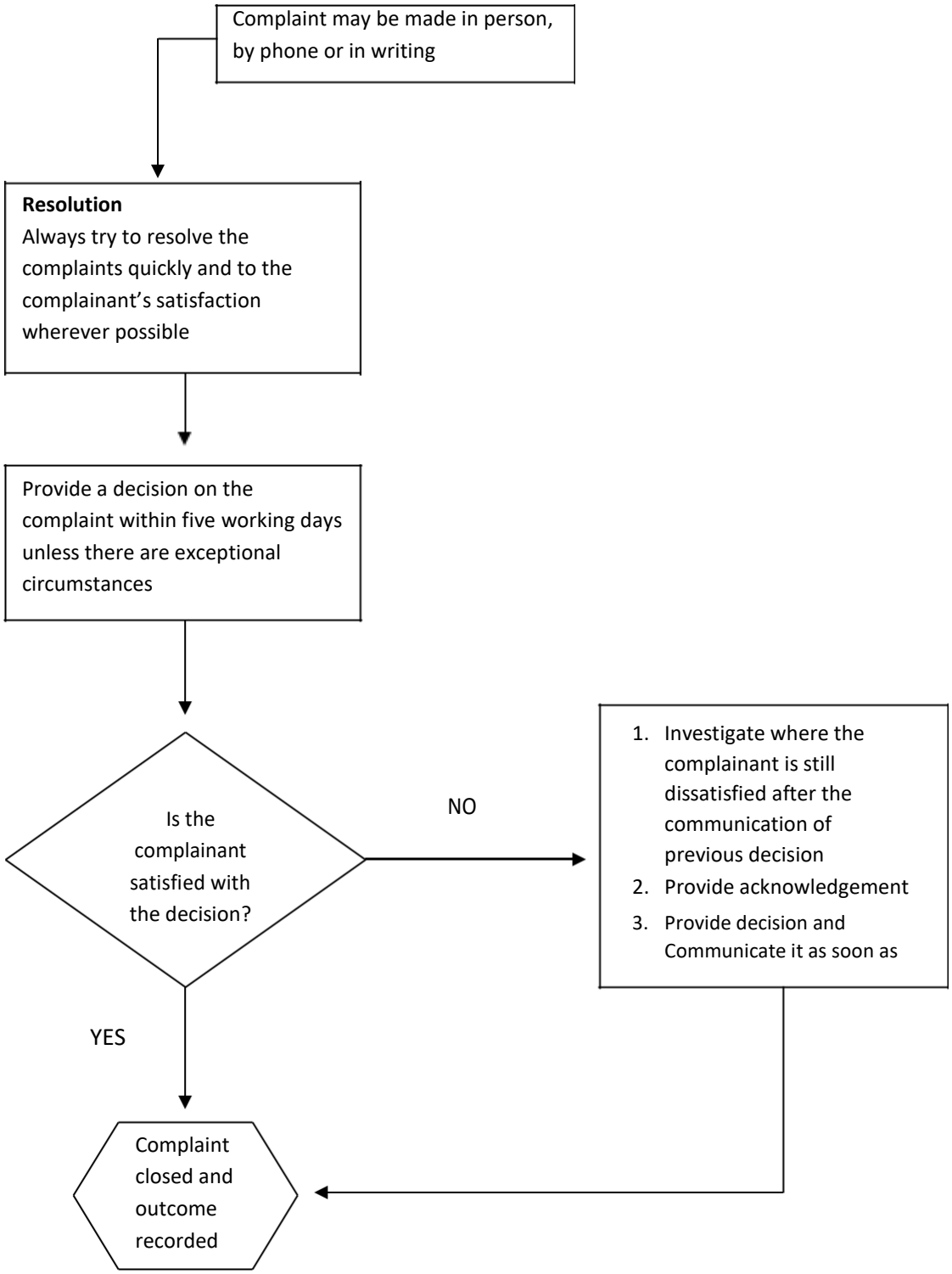
Meeting with ANPM/Downstream Staff

Meeting with DNSAS Laboratory Staff

Figure 13. Public Consultations by Forum with Local Community, Local Authority, ANPM & Others Authorities (*Source: Eto Lda and Hersege Consultant 2021*)

18. COMPLAINTS AND GRIEVANCES MECHANISMS

Complaints handling procedure flowchart



19. WORK PLAN AND IMPLEMENTATION SCHEDULE

Table 14. Working Plan and Implementing Schedule

No	Description	Years			
		2000	2020	2021	Present Operation
1	Establishment of Company				
2	Construc New Office in Fomento II				
3	Start Operation in New office				

20. COST ESTIMATE

The total investment of Eto Lda Gas is equal to $200,000 which will covered construction of the LPGas Station and its supporting facilities, training of staff, component of LPGas facilities, and land renting.

21. REVIEW OF THE EMP

A review or amendment to the EMP may be needed during the life of the project as a part of important aspect for improving the LPGas station's environmental management. The review of the EMP would be submitted to the Environmental Authority for approval.

Review of the EMP would be undertaken:

a. Following significant environmental incidents
b. When there is a need to improve performance in an area of environmental impacts
c. Periodically for actions undertaken over long timeframes, such as 2 years
d. When there is a major renovation on main component of the facilities
e. After major incidents in the facility

22. NON-TECHNICAL SUMMARY

This is a non-technical summary for an environmental management plan which is prepared on behalf of Eto Lda Gas Reffiling LPG. The aim is to provide the public and regulators proper understanding on the company's commitment to manage the potential impacts from the installation and operation of a LPGas station. The non-technical summary is part of environmental management plan that is required for an

environmental licensing process. The proposed plan is primarily on the management of a refilling LPG station during its operational and decommissioning phase

Sumáriu naun-tékniku ida ne'e ba Planu Jestaun Ambiental nebe prepara em nome hosi Eto Lda Gas ba Reabastesimento LPG, Objetivu mak atu fornese ba publiku no regulador entendementu loloos kona-ba empreza nia komprimisu atu jere impaktu potensial hosi instalasaun no operasaun iha Reabastecimentu ida ne'e. Sumáriu naun-tékniku nu'udar parte husi Planu Jestaun Ambiental nebe nesessaria mos ba prosesu lisensamentu ambiental. Proposta planu prinsipalmente mak kona-ba jestaun retallu estasaun ense kombusitivel automotive faze operasaun no dezativasaun.

b. This environmental management plan is established to facilitate monitoring and assess whether management actions are being implemented. It could also provide assurance to regulators that the requirements to environmental and social performances would be met.

Planu Jestaun Ambiental ida ne'e estabelese atu fasilita monitorizasaun no avaliasaun konaba asaun jestaun sira ne'ebe implementa dadaun. Nia bele mos fo garantia ba regulador sira katak rekizitu ba dezempeñu ambiental no sosial sei kumpri.

c. The scope of the environmental management plan to be covered in this section is as follow:

- The description of the project
- Legal framework
- Potential impacts
- Proposed mitigation measures and monitoring

Iha ambitu Planu Jestaun ambiental sei kobre iha seksaun ida ne'e mak hanesan tuir mai:

- *Deskrisaun kona-ba projetu*
- *Enkuadramentu legal*
- *Impaktu Potensiál*
- *Medidas mitigasaun ne'ebe propoin no monitorizasaun*

d. ETO Lda Gas was established in the year of 2000. It was established to be active in importing of L.P. Gas and associated Gases and fittings and cooking equipment in Timor Leste. The initial step was to be involved in importing with further development and activity in the retailing of gases and associated domestic and industrial products.

e.

ETO Lda Gas estabelese iha tinan 2000. Estabelese fatin refere atu ativa importasaun ba LPGas no asosiadu gases no apropiadu no fasilidade tein ou kuzinã iha Timor Leste. Pasu inisiu iha venda vareju gases no asosiadu produtu demostiku no industria.

e. The refilling LPG station is located at rua Fomento II, Aldeia Fomento II, Suco Comoro, Post Administrative Dom Aleixo and Municipality of Dili. Total land occupied by the LPGas Station and supporting facility is about 1,944 m2, in which the refilling LPG station with supporting facility for operation is installed.

Fatin abastesementu LPG lokaliza iha Rua Fomento II, Aldeia Fomento II, Comoro, Postu Administrativu Dom Aleixo no Municipiu Dili. Total rai ne'ebe okupa ba Fatin LPGas no fasilidade suporta maka 1,944 m2, ne'ebe mak fatin abastesimentu LPGas no nia fasildade suporta intala ba

f. The project area closed to the Xalila Fuel by Fomento II Acces Road to Suco Manleuana is a business development proposed by Eto Lda, Company for the purpose of supplying and delivering the LPG gas directly to end users.

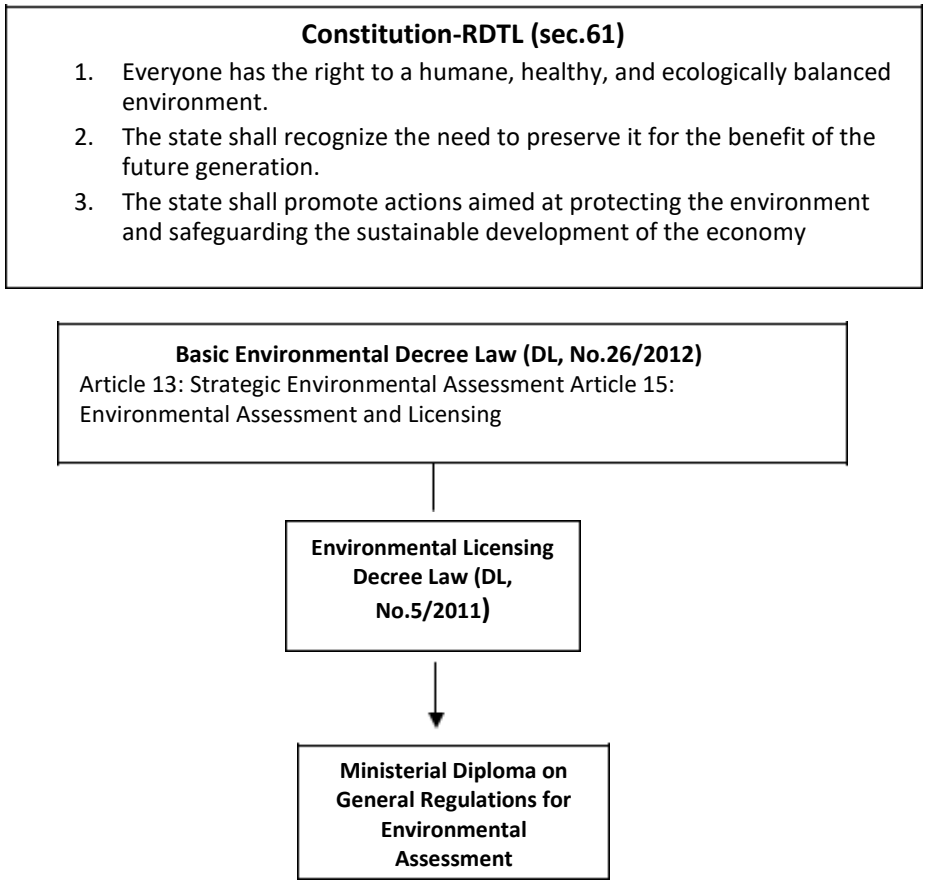
Area projetu lokaliza besik Xalila Fuel husi dalan Diresaun Fomento II ba Manleuana mak hanesan proposta dezemvolvimentu negosiu husi Eto Lda, ho objetivu atu fornese no distribui LPGas direitamente ba konsumedores

Map showing the location of Eto Lda
Mapa ne'ebe Hatudu Lokalizasaun husi Eto Lda

Photograph of proposed Location
Fotografia Proposta Lokalizasaun

g. The following diagram shows the hierarchy of environmental law in Timor-Leste. The Constitution of the Republic Democratic of Timor-Leste recognizes the need to preserve and protect the environment as stated in Section 16. The country also enacted Basic Environmental Decree-Law and Environmental Licensing Decree-Law. The Ministerial Diploma on General Regulations for Environmental Assessment is the primary guideline used for the preparation of the environmental management plan.

Diagrama hirak tuir mai ne'e hatudu hierarkia ba lei ambientál iha Timor-Leste. Konstituisaun República Demokrátika Timor-Leste rekoñese nesesidade atu prezerva no proteje ambiente, hanesan preve iha Seksaun 61. Nasaun aprova mós Dekretu-Lei Báziku Ambientál no Dekretu-Lei Lisensiamentu Ambientál. Diploma Ministeriál kona-ba Regulamentu Jerál ba Avaliasaun Ambiental mak orientasaun prinsipál nebe uza ba preparasaun planu jestaun ambiental.



Artigu 61

(Meiu-ambiente)

1. Ema hotu-hotu iha direitu atu moris iha ambiente ema moris nian ne'ebé moos, nabelun-di'ak hó natureza, no iha obrigasaun atu proteje no halo di'ak ba jerasaun loron ikus nian.
2. Estadu rekoñese katak iha nesesidade atu tau matan didi'ak no fó valór ba ita-nia rain nia riku-soin.
3. Estadu tenki fó-sai buat ne'ebé mak sei halo atu defende natureza maibé sei hodi hala'o mós

Dekretu-Lei Basiku Ambiental (Dekretu-Lei No. 26/2012) Artigu 13: Strategia Avaliasaun Ambiental Artigu 15: Avaliasaun Ambiental no Lisensamentu

Dekretu-Lei Lisensamentu Ambiental (Dekretu-Lei No.5/2011)

Diploma Ministerial sobre Regulamentu Jeral ba Avaliasaun Ambiental

h. Relevant Authorities' Roles and Responsibilities
Funsaun no Responsabilidade husi autoridade relevante

Agencia Nasional de Licensiamentu Ambiental (ANLA) ***Secretario Estado Ambiental SEA*** ***Ministério* do *Comércio, Industria e Ambiente (MCIA)***	Carry out inspection and monitoring to safeguard the environment, health and safety *Hala'o inspeksaun no Monitorizasaun ba salvaguarda ambiente, saude no seguransa*
Autoridade Nacional do Petróleo e Minerais (ANPM) ***Direcção Downstream*** ***Ministério* do Petróleo**	The regulatory authority for the petroleum and natural gas and related products, and mining industries *Autoridade regulador ba petroleum no natural gas no produto relevante no industria minas.* Carry out inspection and monitoring on downstream activities *Hala'o inspeksaun no monitorizasaun ba atividade downstream*
Direcção Nacional* de *Servicos* de *Águas e Saneamento (DNSAS)	Responsible for the national management of water resources. It also formulates sector policy, manages the distribution for human consumption, and monitor water quality through DNSAS laboratory *Responsabiliza ba manajementu rekursu be'e. nomos formula seitor politica, maneja distribusaun ba konsumedores no monitoriza ba qualidade be husi laboratoriu DNSAS*
Ministério da Saúde	Responsible for public health *Responsabiliza ba saude publiku*
Direcção Nacional da Protecção Civil (which include the fire fighters)	Responsible for fire hazard and emergency *Responsabiliza ba perigu ahi no emergensia*

i. The operational impact analysis shall mainly focus on the Health and Safety of operating the LPG refill Station. Other aspects addressed for the construction phase may be applied during the operational phase. It should be noted that, the operation of an LPG refill Station is a highly technologized operation with standard regulatory principles.

Analiza impaktu operasaun tenke foka ba iha saude no seguransa. Aspeitu seluk mak hanesan aspeitu konstrusaun ne'ebe bele aplika ba iha duranrte priodu operasaun. Tenke nota katak, operasaun husi abastesimentu LPG ne'e uja teknolojia ne'ebe as ho standar principiu regulador.

Proposed Mitigation Measures
Proposta Medida Mitigasaun

Pre - Construction

Project related activities	Source of potential impacts	Potential Impacts	
		Negative	**Positive**
• Land clearing using heavy machinery • Land excavation	• Land clearing • Poor soil and rock piles • Inexperienced workers • Fuel and lubricant leakages	• Air pollution • Noise and vibration pollution • Impact on workers' health and safety and community • Impact on agriculture, geology economic and ecology • Soil and water pollution • Fire or/and explosion • Conflict	• Employment opportunity
• Vehicle and heavy machinery movements	• Intense movements of vehicles and heavy machineries in and out of the facility • Inexperienced workers • Fuel and lubricant leakages	• Air pollution • Traffic jam and traffic accident • Impact on workers' health and safety and community • Soil and water pollution • Fire or/and explosion • Conflict	
• Wastes Production	• Poor soil and rock piles • Improper disposal of wastes • Poor site management	• Air pollution • Visual pollution • Soil and water pollution • Impact on economic and agricultural activity • Conflict	

Construction

Project related activities	Source of potential impacts	Potential Impacts	
		Negative	Positive
• Vehicles and heavy machineries movement • Excavation	• Poor site management • Inexperienced workers and drivers • Poor soil and rock piles management • Fuel and lubricant leakages	• Air pollution • Noise and vibration pollution • Impact on workers' health and safety • Soil and water pollution • Fire or/and explosion • Conflict	• Employment opportunity
• Concrete mixtures for construction of walls, floor, supporting office, retention basin, pumps island and etc.	• Poor site management • Inexperienced workers • Fuel and lubricant leakages	• Air pollution • Noise and vibration pollution • Impact on workers' health and safety and community • Soil and water pollution • Fire or/and explosion • Conflict	
• Installation of tanks, Fuel pipes, canopy and dispensers electrical system and etc.	• Inexperienced workers • Not follow procedures	• Air pollution • Noise and vibration pollution • Impact on workers' health and safety and community • Fire or/and explosion • Conflict	
• Wastes production	• Improper disposal of wastes • Poor site management	• Visual pollution, • Soil and water pollution • Conflict • Impact on economic and agricultural activity	

Operation

Facility related activities	Source of Potential impact	Potential Impacts	
		Negative	Positive
Exchange of LPG ISO tanks	• Inexperienced and untrained staffs • Leaking from ISO tanks (body, seal and valves) • Carelessly handling ISO tanks • Safety procedure negligence • ISO tank fall	• Fire in the facility • Explosion in the facility • Air pollution in and outside the facility • Loss of life • Impact on health and safety of the workers and community	• Employment opportunity
Refilling the LPG cylinders	• Inexperienced and untrained staffs • Leak from cylinder valves • Leaking from cylinders' body • Leak from the filling plant components (seals, pipe, hoses and valves) • Safety procedure negligence	• Fire in the facility • Explosion in the facility • Loss of life • Air pollution in and outside the facility • Impact on health and safety of the workers and community	
Cylinder delivery and Road ISO tanks trucks movements in the facility	• Unlicensed and inexperienced driver • Crash into other vehicles • Poor maintenance of trucks • Cylinders falling off • Safety procedure negligence	• Air pollution in and outside the facility • Traffic in the facility • Traffic accident in the facility • Fire and explosion • Loss of life • Impact on health and safety of the workers • Damage to facility	
Cylinder delivery and Road ISO tanks trucks movements outside of the facility	• Unlicensed and inexperienced driver • Crash into other vehicles • Poor maintenance of trucks • Cylinders falling off • Safety procedure negligence	• Air pollution in and outside the facility • Traffic outside of the facility • Traffic accident outside of the facility • Fire and explosion outside of the facility • Loss of life outside of the facility • Impact on health and safety of the community • Damage to public and private facility and property	
Community activities	• Rubbish burning • Burning house • Burning for agriculture purposes	• Air pollution in and outside the facility • Fire in the facility • Explosion in the facility • Loss of life • Impact on health and safety of the workers	
Produce solid and liquid wastes	• Improper management of wastes	• Soil quality • Water quality • Land field	

Vandalism	• Set up fire in the facility or outside of the facility	• Fire in the facility • Explosion in the facility • Loss of life • Impact on health and safety of the workers and community	

Maintenance

Facility related activities	Potential Source impact	Potential Impacts	
		Negative	Positive
Repair cylinders (valves and bodies)	• Inexperienced and untrained staffs • Improper use of equipment • Safety procedure negligence	• Impact on health and safety of the workers	• Employment opportunity
Repair ISO tank (bodies and parts)	• Inexperienced and untrained staffs • Improper use of equipment • Safety procedure negligence	• Impact on health and safety of the workers	
Repair Filling Plant (hoses, valves, seals, bolts and etc.)	• Inexperienced and untrained staffs • Improper use of equipment • Safety procedure negligence	• Impact on health and safety of the workers	
Repair canopy/fence/concrete floor	• Inexperienced and untrained staffs • Improper use of equipment • Safety procedure negligence	• Impact on health and safety of the workers	
Repair truck (ISO tank road truck and cylinders delivery truck)	• Inexperienced and untrained staffs Improper use of equipment • Safety procedure negligence	• Impact on health and safety of the workers	
Produce solid and liquid wastes	• Waste Vehicles maintenance • Wastes ISO tanks and Cylinders maintenance • Leak from cylinder or ISO tanks or vehicles • Improper management of wastes	• Soil quality • Water quality • Air quality • Land field	

.

Decommissioning

Facility related activities	Source of Potential impact	Potential impacts	
		Negative	Positive
Dismantle of canopy, fence and removing concrete floor	• Inexperienced staffs • Improper use of equipment • Safety procedure negligence	• Noise pollution • Air pollution • Impact on staffs occupational health and safety • Impact on community health and safety	• The place can be rehabilitated and use for other purpose
Removing filling plant from the facility	• Removing filling plant without proper equipment • Safety procedure negligence	• Impact on staffs occupational health and safety	
Removing ISO tanks (poor condition and good ones) from the facility	• Removing ISO tanks from the facility without using proper equipment • Safety procedure negligence	• Impact on staffs occupational health and safety	
Removing Cylinders (poor condition and good ones)	• Removing heavy cylinders without proper equipment • Safety procedure negligence	• Impact on staffs occupational health and safety	
Movement of vehicles inside the facility	• Movement of people and other vehicles inside the facility • Safety procedure negligence	• Impact on staffs occupational health and safety • Damage to facility	
Movement of company's vehicles outside of the facility	• Movement of people and other vehicles outside the facility • Safety procedure negligence	• Impact on staffs occupational health and safety • Impact on community health and safety • Damage to public and private facility and property	
Produce Solid and liquid wastes	• Dismantle of the facility components • leaks	• Soil quality • Water quality • Air quality • Land field	
• Decommissioning	• Employees losing their job	• Impact on family economy	

i. The result of the measurement that conducted by the consultant to air quality in the proposed location is shown: **PM 2.5**: 9 µg/m3, **PM 10**: 14 µg/m3, **SOx**: 2 µg/m3, **O3, NOx** and **CO**: 0 µg/m3, CO_2 : 565 ppm. The noise level at proposed location is 44.2 dBA and the pH of soil is 7.

*Resultadu sukat ne'ebe halao husi konsultan ba kualidade ar hatudu katak: **PM 2.5**: 9 µg/m3, **PM 10**: 14 µg/m3, **SOx**: 2 µg/m3, **O3, NOx** and **CO**: 0 µg/m3, CO_2 : 565 ppm. Nivel Barulhu iha area projetu mak 44.2 dBA no pH rai mak 7*.

j. The monitoring program is established to measure the impacts that may occur as a result of the project.

Programa Monitorijasaun ne'e estabelese atu sukat impaktu ne'ebe bele akontese husi projetu

No	Monitoring Program	Scope	Responsibility
1	Inspection	**Cylinder inspection** • Check for proper labelling of cylinders and painting • Check for the sign of damage and corrosion on the cylinder body, including the welded parts • Check for the sign of damage or corrosion on the bottom of the cylinder • Check for dust in the cylinder neck threads • Check for the sign of damage on cylinder valve, valve pad and collar/valve protection ring • Make sure empty cylinders are not mixed with filled ones and vice versa • Ensure cylinder valves are not loosen	SUPERVISOR OF ETO LDA
		Filling plant • Ensure cylinders scale is clear of dust • Filling hoses are in good condition • Ensure connection between hoses and line are not loosen • Ensure valves and seals are in good condition • Ensure electrical switch board working properly	SUPERVISOR OF ETO LDA
		Compressor • Ensure air hoses to filling plant are in good condition, • Ensure no leaks in fuels tanks, • Ensure no air leak from compressor body • Ensure compressor belt are in good condition • Ensure bolts and nut are not loosen	SUPERVISOR OF ETO LDA
		Floors • Floor area where there is possibility of spills such as dispensing and unloading of bulk delivery area is cemented and graded to contain polluted runoff, • The cemented surface ground need to be maintained so that no cracks or faulty joints between concrete slabs that would allow liquid penetration (sign of deterioration), • Ensure that the marking for safety zones on the pavement are visible	SUPERVISOR OF ETO LDA
		Lightning • Check lighting system to ensure that all areas have adequate lighting level	SUPERVISOR OF ETO LDA
		Electrical and back up generator • Ensure electrical system and back are in good condition to support the filling activity	SUPERVISOR OF ETO LDA
		LPG ISO Tanks • Check for sign of damage or corrosion on ISO tank frame, access ladder, walkways and safety grid • Check the labelling for sign damages or fading • Check the ISO tanks for sign damages, leaks or corrosion on the body • Check the condition of pressure/vacuum relief valves if there is sign of damage • Check the condition of filling port and top discharge valves if there is sign of damage and	SUPERVISOR OF ETO LDA

		corrosion • Check the condition of electrical box and electrical heating if there is sign of damage • Check the condition of emergency shut off valve if there is sign of damage • Check the condition of bottom outlet if there is sign of damage or corrosion • Check the condition of thermometer if there is sign of damage • Check the any structure that ISO tanks are place on for condition of damages	
		Notice and signs • Ensure that none of the notices and signs posted are missing, damage or illegible, • Emergency telephone number are up to date and displayed	SUPERVISOR AND STAFF OF ETO LDA
		Firefighting equipment • Ensure that fire extinguishers are present in the correct number, fully charged and no sign of damage, • Carry out a regular inspection on the fire extinguishers (at least once a month) and inform a competent third party who is responsible in providing services on fire extinguishers if there is any damage or malfunction on it • Regularly check if there is always enough water to be used on fire	SUPERVISOR AND STAFF OF ETO LDA
		Emergency equipment • Check contents of first aid kit are all present and correct (*i.e.* include necessary supplies and medication), • Check all emergency switches and loud speaker or alarm system and telephone are functioning properly • Constantly check the gas detectors if it works	SUPERVISOR AND STAFF OF ETO LDA
2	Emergency response plan and its procedures	**Equipment and procedures** • Description of emergency response equipment, function(s) and how to operate, • Identify fixed firefighting facilities, such as raising alarm system, electrical shut down of pumps/dispensers or other equipment, emergency routes and assembly point for staffs and customers, • Portable fire fighting, including fire extinguishers, its type and location • Ensure that emergency procedures are understood by all employees on site, for instance by using appropriate language and/or utilize pictogram	SUPERVISOR AND STAFF OF ETO LDA
		Training and practice in emergency procedure • Provision of training to the employees, include but not limited to (i) unloading or replacement of empty LPG ISO tanks with filled ISO tanks; (ii) practical experience of using portable fire extinguishers; (iii) familiarity with different classes of fire and appropriate type of fire extinguishers for each class; (iv) safe cylinder filling procedures; (v) recognizing and reporting fault in equipment; (vi) dealing with small leaks • Ensure all employees attend first aid training	SUPERVISOR AND STAFF OF ETO LDA

		• Ensure all employers attend firefighting training and refreshment training and should have certificate	
3	Maintaining records and documentation	**Documents** • Records of maintenance history, faults detected and repairs or modifications carried out at the site (on ISO tanks, Cylinders, Filling Plant, Cylinder Delivery Truck, LPG ISO Tanks Road Truck, Firefithing equipment, Emergnecy Equipment and Comporessor) • Incident reporting, • Inventory check on the LPG stock, • Inventory check on the LPG cylinder stock, • Up-to-date Health, Safety and Environmental (HSE) Plan	SUPERVISOR AND STAFF OF ETO LDA
4	Traffic monitoring	**Traffic safety** • Ensure accesses are not obstructed in any manner, including obstruction by parked vehicles, • Ensure the vehicles are parked in a designated area while refuelling, • Place restriction on circulation of people and other vehicles at the unloading or replacement zone during unloading or replacement of empty ISO tanks with filled ISO tanks. • Place restriction on circulation of people and other vehicles at the loading and unloading of filled and empty cylinders	SUPERVISOR AND STAFF OF ETO LDA
5	Implementation of current procedures in place	**Procedures** • Filling the fuel to storage tank through the fuel tanker, • Filling the fuel to the tank of vehicles, • Count the volume of fuel in the storage tank and record the result, • Make the inspection to the fire extinguisher, • Job Safety Analysis and reporting	SUPERVISOR AND STAFF OF ETO LDA

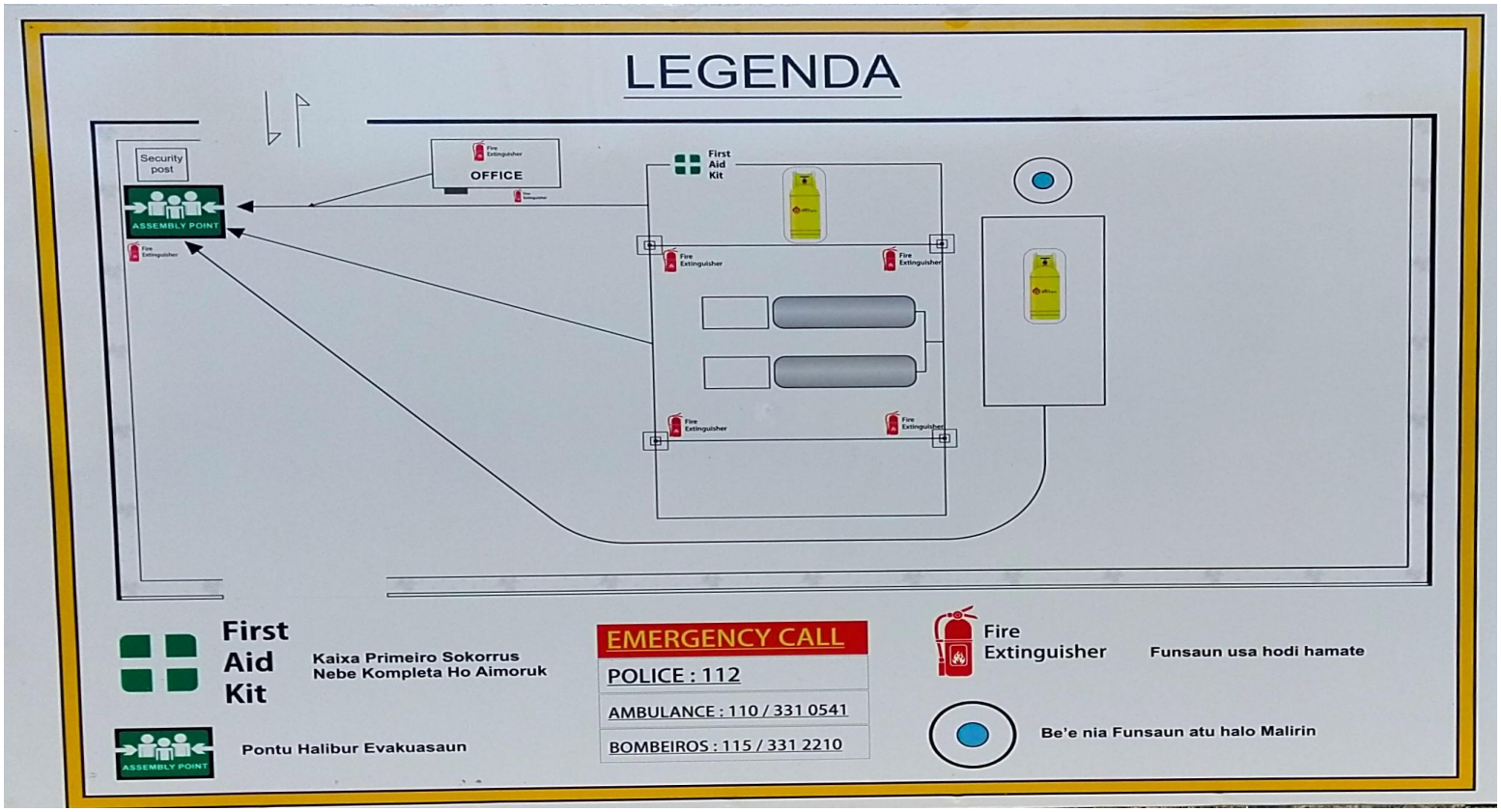
k. The environmental management plan would require reporting arrangements for the purposes of assisting with effective implementation and with external reporting *Planu Jestaun ambiental sei percija atu aranja relatoriu ho objetivu atu asiste implementasaun ne'ebe efetivu no relatoriu external*

Tipo Relatoriu	***Frekuensia ba relatoriu***	
	Relatoriu internal	***Relatoriu external (aturidade/ regulador)***
Monitorizasaun Internal no Inspesaun 1. *Relatoriu ba lalaok manutensaun, deteksa failansu, hadiak ou halo modifikasaun* 2. *Inventariu ba LPG nia stok*	*Bainhira atividade lao* *Relatoriu loron loron*	*bainhira husu*
Incidente, acidente no relatoriu emergenjia ***Incident, accident and emergency reporting*** 1. *Relatoriu ba acidente mina nakfakar* 2. *Ahi lakan no emergenjia seluk* 3. *Incidente trafiku* 4. *Violencia ou vandalism seluk*	*Relatoriu hirak ne tenke rai kedan wanhira acindete / incidente akontece ona, no managementu kompanha halo kedan kombate ba emergenjia ne*	*Iha incidente seriu nebe akontese, tenke fo hatene kedan ba autoridade relevante depois akontesimentu no rai relatoriu atu kombate.*
Relatoriu ba performasaun indikador 1. *Incidente* 2. *Trainamentu* 3. *Hato'o keixa no nia relatoriu*	*Relatoriu ba performasaun indikador presija iha tinan tinan ou relatoriu pronto wainhira presija*	
Treinamentu	*Kada tinan*	*Relatoriu inklui mos evidencia (ex; copy certificado) no rai ba autoridade relevente wainhira renova treinamentu.*

l. The company, Eto Lda has primary responsibilities for implementation of the proposed mitigation measures and monitoring programs. The company also is in liaison with other relevant institutions and authority bodies to ensure that the installation and operation of the automotive fuel filling station is aligned with the national laws and regulations, and industrial best practice.

Kompania Eto Lda iha responsabilidade atu implementa proposta mitigasaun no programa monitorizaun. Kompania mos iha linha kordenasaun ho instituisaun relevante no autoridade atu garante ba instalasaun no operasaun husi fatin abastesimentu kombustivel alinhadu ba lei no regulamentu nomos industriais praktika ne'ebe diak.

m. Evacuation Route
Rota Evakuasaun



n. Eto Lda is committed to facilitate all of its employees at the LPGas station with training courses from accredited training providers. Every employee is obligated to attend and complete the training while actively working at the LPGas station.

Eto Lda iha komitmentu atu fasilita nia trabalhador iha fatin abastesimentu LPGas ho treinamentu husi fatin ne'ebe akreditadu. Trabalhador hotu iha obrigasaun atu atende no kompleta treinamentu wainhira sei servisu ativa iha fatin abastesimentu LPGas.

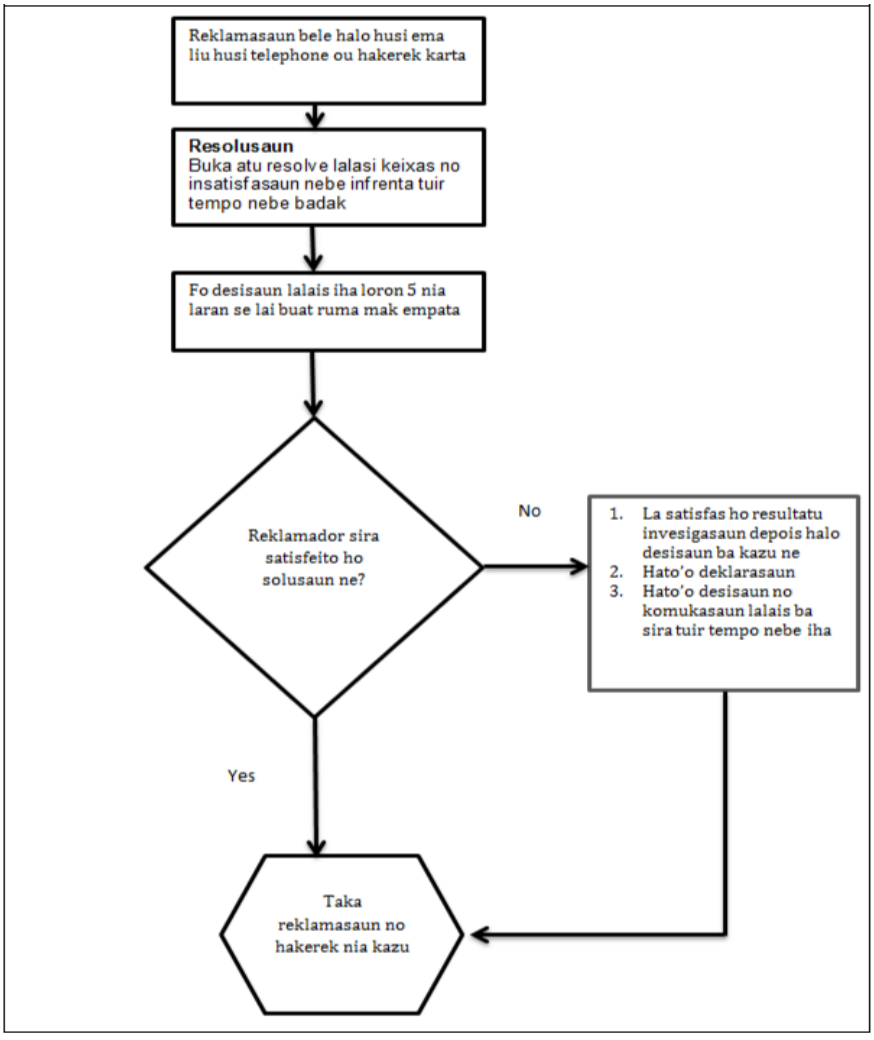
o. Public consultation is conducted by project owner and supported by Hersege Consultant with the objective to obtain constructive opinion or comments from affected community including negative and positive comments. The method of public consultation is door-to-door and by forum.

Konsultasaun publika halao husi projetu nain no suporta husi Hersege Konsultan ho objetivu atu hetan opiniaun ou komentariu ne'ebe konstrutivo husi komunidade ne'ebe afeitadu no komentariu ne'ebe positive ou negative. Metodu husi konsultasaun publika husi uma ba uma ou via forum.

p. The mechanisms are set in complaints handling procedure flowchart to address the complaints from the affected persons or communities.

Mekanizmu sira estabelese ona iha prosedinamentu tratadu reklamasoens flowchart atu responde ba reklamasaun hosi pesoal ou komunidade afetadu

Fluxograma procedimento no tratamento ba reklamasaun



r. Eto Lda is established on 2000. Therefore, the company has started to arrange the relevant licensing to operate the LPGas station.

Eto Lda hahus estabelese iha 2000 Tamba ne'e, kompania komesa aranja ona licensa relevante atu halo operasaun ba fatin abastesementu LPGas.

s. The total estimated costs of items relevant to the control and mitigation measures at the LPGas station is $ 200,000

Total estimasaun kustu ba item ne'ebe relevante atu kontrola no halao nia mitigasaun ba fatin abastesimentu LPGas mak $ 200,000

t. A review or amendment to the EMP may be needed during the life of the project as a part of important aspect for improving the LPGas station's environmental management. The review of the EMP would be submitted to the Environmental Authority for approval

Revijaun ou amandamentu ba PJA sei persija durante projetu lao hanesan aspeitu parte importante atu melhora manajemntu ambiental ba fatin abastesimentu LPGas. Revijaun PJA sei submete ba autoridade ambiental atu aprova.