

ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

CPA 29

Methane Recovery and Power Generation Project

Ref. No. 5979-0016

CPA-29 Methane Recovery and Combustion with Renewable Energy Generation from Anaerobic Animal Manure Management Systems under the Land Bank of the Philippines' Carbon Finance Support Facility

June 2019

LIST OF ABBREVIATIONS

BOD	Biological Oxygen Demand
CDM	Clean Development Mechanism
CFSF	Carbon Finance Support Facility
CMR	Compliance Monitoring Report
CSR	Corporate Social Responsibility
DENR	Department of Environment and Natural Resources
DNA	Designated National Authority
DO	Dissolved Oxygen
DOE	Designated Operational Entity
DP	Discharge Permit
ECC	Environmental Compliance Certificate
EMB	Environmental Management Bureau
EMF	Environmental Monitoring Fund
EPMD	Environmental Program and Management Department
ERPA	Emissions Reduction Purchase Agreement
ESMP	Environmental and Social Management Plan
ESSF	Environmental and Social Safeguards Framework
LBP	Land Bank of the Philippines
MOA	Memorandum of Agreement
MRF	Methane Recovery Facility
MSDS	Materials Safety Data Sheet
PCO	Pollution Control Officer
P.D.	Presidential Decree
PoA	Program of Activity
PPE	Personal Protective Equipment
PTO	Permit to Operate
R.A.	Republic Act
SMR	Self-Monitoring Report
SPA	Subproject Agreement
TSD	Treatment / Storage / Disposal
TSS	Total Suspended Solids
WTF	Water Treatment Facility

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PURPOSE OF THE DOCUMENT

This Environmental and Social Management Plan (ESMP) is prepared as part of the requirements of the Safeguards Framework for Clean Development Mechanism (CDM) projects implemented under the Carbon Finance Support Facility (CFSF) of the Land Bank of the Philippines (LBP). The Environmental and Social Safeguards Framework (ESSF) was developed to ensure the establishment of protection, compliance, and mitigation measures for relevant environmental and social aspects of projects under the CDM program which covers the Methane Recovery and Power Generation Projects in pig farms.

Scope

Since the Methane Recovery and Power Generation Project is a key component of CPA 29's wastewater treatment facility (WWTF) – which handles the primary waste (manure) produced by its operations – this ESMP thus encompasses the operations of the entire farm described herein

1 PROJECT SUMMARY

The Methane Recovery and Power Generation Project of CPA 29 is an initiative developed under LANDBANK's CFSF. Its goal is to capture greenhouse gases, particularly methane from piggery wastewaters that would otherwise dissipate into the atmosphere, and convert them into electrical energy.

1.1 Proponent Profile

Proponent: CPA 29
Business Address: Cauayan City, Isabela
President & CEO:
Farm Manager:

Farm Name: CPA 29
Project Site: Cauayan City, Isabela
Farm Coordinates:

Project Type: Livestock Project
Philippine Standard
Industrial Classification: 0145 - Hog Farming

Contact Persons **CPA 29**
Farm Manager:
Telephone No.:
Pollution Control Officer:
Telephone No.:

LANDBANK
Lending Programs
Management Group: Emellie V. Tamayo
Designation: Head / First Vice President
Telephone No.: (632) 405-7309
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Environmental Program
Management Department: Prudencio E. Calado III
Designation: Head / Assistant Vice President
Telephone No.: (632) 405-7339
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1.2 Pig Farm Profile



Figure 1. Site layout of CPA 29

Farm area:	171,918 m ²
Production:	Farrow-to-Finish
Housing type:	Tunnel-ventilated
Capacity:	1,200 sow level
Average population:	34,615 heads (yearly)
No. of Employees:	37
Operating hours:	24

Facilities at the farm, as per its Environmental Compliance Certificate (ECC) are as follows:

Phase 1 – Wean to finish buildings (10), farrowing building (1), gestation building (1), boar stud building (1), laboratory building (1), selection area (1), shower room (1), biogas recovery facility (1), feed warehouse (1), mortality pit (1), marketing building (1), quarantine building (1), staff house and office building (1), guard house (1), truck bath (1), power house (1), water pump (1), elevated water tank (1), and generator sets (2).

Phase 2 – Wean to finish buildings (10), farrowing building (1), gestation building (1), gestation building (1), boar stud building (1), laboratory building (1), selection area (1), shower room (1), biogas recovery facility (1), feed warehouse (1), mortality pit (1), marketing building (1), quarantine building (1), staff house and office building (1), guard house (1), truck bath (1), power house (1), water pump (1), elevated water tank (1), and generator sets (1).

As of the site visit on December 2018, pig wastes are still being stored in the uncovered anaerobic lagoons and are to be discharged to the biodigester (currently under construction). The Farm is currently entirely powered by a grid of a local concessionaire, Isabela Electric Cooperative (ISELCO I), but will soon also utilize electricity from generators run by biogas obtained through the Project.

Water for the Farm's operations is sourced from five deep wells within and without its premises. The biodigester facility is 80% complete, with a target completion date of January 2019.

1.3 Project Description

The project covers the operation and installation of an anaerobic digester system and its ancillary facilities, including post-treatment wastewater lagoons and a biogas-powered electricity generation system. These are collectively referred to as the farm's methane recovery facility (MRF).

1.3.1 Components and Design

CPA 29's wastewater treatment process is as follows:

- *Pre-Treatment*, which involves the breaking down of relatively large digestible particles in wastewaters prior to entering the reactors;
- *Anaerobic digestion*, or the disintegration of biodegradable materials in the wastewaters through biological processes facilitated by microbes which thrive in the conditions promoted by the reactor; and
- *Post-Treatment* of biogas, effluent, and sludge resulting from anaerobic digestion.

The farm's wastewater treatment facility is composed of drainage canals, a collection tank, an underground concrete biodigester, a steel methane collection tank, and clarifying lagoons/sludge drying beds.

The biodigester, by design, is able to accommodate wastes for up to 1,000 sow level and capture enough methane to power the project facilities with a net energy requirement of zero. The design and layout of the WWTF are in the construction plans in Appendix A. Properties and specifications of the WWT-MRFs, including capacities, outputs, and efficiencies, will be detailed in the succeeding version of this ESMP (see Section 4).

TO BE UPDATED, Biodigester not operational as of last site visit

Figure 2. Floor plan of the biodigester of CPA 29

Table 1. Specifications of CPA 29's Wastewater Treatment Facility-Methane Recovery Facility

Phase	Process	Component	No. of Units	Description / Equipment
Pre-treatment	settling	Pre-settling storage tank		TO BE UPDATED Biodigester not operational as of the last site visit
Anaerobic treatment	anaerobic digestion / fermentation	Biogas reactor fermentation chamber		
Post-treatment	Biogas	combustion	scrubber system	
			generator set	
	Effluent	clarification (settling, aeration)	Water recovery system	
	Sludge	drying	drying bed	

1.3.2 Operation

As per the biodigester technical layout, wastewaters from the pig houses will be directed towards a collecting tank via drainages constructed around and within the pig houses. Wastewaters then flow through a sand trap in order to prevent solid materials from entering the biodigester. Once contained in the biodigester, the wastewater undergoes anaerobic digestion to produce methane to be converted to electricity.

The methane produced in the biodigester will be directed to the generator sets for conversion to electricity.

The sludge produced will be removed via a sludge drain and placed on a drying bed. Once dried, the sludge can be used as fertilizer for crops.

The treated wastewater will then be directed to an effluent box and then to four post treatment ponds. Wastewater that was processed by the post treatment ponds are intended to be used for irrigation or for cleaning.

1.4 Existing Environmental Conditions in the Farm

1.4.1 Land Classification and Use

The project's facilities were built inside the premises of CPA 29, a 171,918 m² property in Cauayan, Isabela which is located in an agro-industrial area.

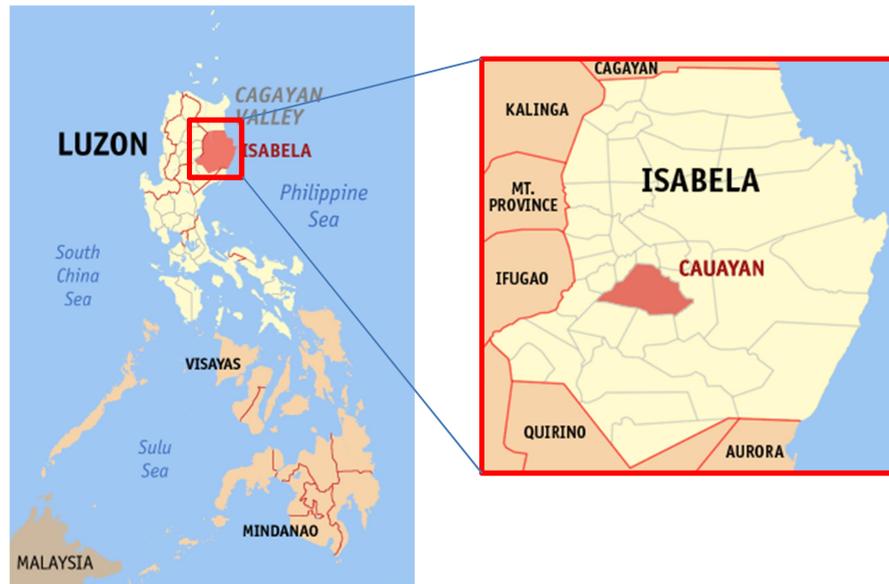


Figure 3. Map of the Philippines showing the location of Cauayan City

Figure 4. Satellite image showing the location of CPA 29

1.4.2 Climate

Köppen-Geiger system classifies the climate in Cauayan, Isabela as tropical, with rainfall in most months of the year. Cauayan has an average annual temperature of 26.8 °C and average precipitation of 1959 mm. (climate-data.org)

1.4.3 Topography and Soil

The Farm sits on land that is sloping, increasing elevation towards the south-southeast and primarily composed of rice and corn fields.

1.4.4 Water Resources

No water bodies are present within the immediate vicinity of the farm.

1.4.5 Natural Hazards

As per the Landslide and Flood Susceptibility Map of Cauayan Quadrangle, Isabela Province published by MGB, the area, wherein the farm is located, has a low susceptibility to landslides and low to moderate susceptibility to flooding.

1.4.6 People and Communities

Low density residential areas are located north and south of CPA 29.

2 ENVIRONMENTAL DUE DILIGENCE

2.1 Impact Assessment

2.2.1 Positive Impacts

The Project will improve CPA 29's method of handling and disposing pig manure and liquid waste. At present, the farm uses an open lagoon to store their wastewaters while their biodigester facility is being completed. Once the facility is operational, it will provide a mechanism to capture methane and use it as a source of energy, which will aid in reducing the farm's greenhouse gas emissions.

Also, having been included in the CDM program, the farm has the opportunity to earn monetary incentives by selling their carbon credits.

2.2.2 Negative Impacts

Certain aspects of the pig farms' and the project's operations inevitably result in potential harm to the environment, including generation wastewaters; hazardous and non-hazardous wastes; air pollutants; foul odors, noise, dust and other nuisance; and depletion of natural resources. These pose inherent risks to environmental quality and natural ecosystems and to health and safety of workers, communities, and livestock.

2.2 Due Diligence

CPA 29 is compliant to all the regulatory safeguards as shown in the succeeding tables, as enforced by the Philippine government, demonstrating due diligence of the Proponent.

2.2.1 Legal Framework

The farm operates in the context of laws prescribing the regulatory safeguards in the tables below:

Table 1. Environmental documents and statutory requirements regulating the operations of CPA 29

Document	Particulars	
Environmental Compliance Certificate (ECC)	Reference No.	ECC-R02-1605-0054
	Issuing Agency	DENR-EMB Region 2
	Date of Issuance	May 6, 2018
	Validity	- no expiration -
	Conditions	<ul style="list-style-type: none"> • area of operation: 171,918 sqm • maximum population: 34,614 heads
Discharge Permit for Water Pollution Source / Control Facilities	Reference No.	2018-DP-F-0231H-067
	Issuing Agency	DENR-EMB Region 2
	Date of Issuance	June 1, 2018
	Validity	June 1, 2019
	Conditions	<ul style="list-style-type: none"> • Effluent discharge from 6,250 m³ capacity settling pond • Submission of Quarterly self-monitoring report
Permit to Operate Air Pollution Source Control Installations	Reference No.	018-POA-F-0231H-165
	Issuing Agency	DENR-EMB Region 2
	Date of Issuance	June 1, 2018
	Validity	June 1, 2023
	Conditions	<ul style="list-style-type: none"> • two units 275 KVA Stand-by Diesel Generator Set • Muffler
Hazardous Waste Generator ID	Registration No.	(For Application)
	Approving Agency	
	Date of Approval	
	Validity	
	Conditions	•
Water Permit	Reference No.	(For Application)
	Issuing Agency	National Water Resources Board
PCO Accreditation Certificate	Accreditation No.	2017-0020-R
	Issuing Agency	Prism Express Consulting, Inc.
	Date of Issuance	April 6, 2018
	Validity	-

^ Environmental Management Bureau

a Self-Monitoring Report; b Compliance Monitoring Report

Table 2. Permits ensuring the safety of CPA 29’s facilities and operation

Document	Particulars	
Business Permit	Permit No.	2018-2354
	Issuing Agency	Office of the City Mayor – City of Cauayan
	Date of Issuance	19 March 2018
	Validity	31 December 2018
	Prerequisites	<ul style="list-style-type: none"> • Building Permit • Occupancy Permit • Zoning Clearance • Fire Clearance • Sanitary permit
Zoning Clearance	Registration No.	AVAILABLE and UP TO DATE
	Approving Agency	
	Date of Approval	
	Validity	
	Prerequisites	<ul style="list-style-type: none"> • Inspection of facility
Fire Clearance	Conditions	•
	Accreditation No.	AVAILABLE and UP TO DATE
	Issuing Agency	
	Date of Issuance	
	Validity	
Sanitary Permit	Prerequisites	<ul style="list-style-type: none"> • Microbial water analysis • Pest control • Health certificate of employees
	Conditions	•
	Reference No.	• AVAILABLE and UP TO DATE
Sanitary Permit	Issuing Agency	•
	Date of Issuance	•
	Validity	•
	Prerequisites	•
	Conditions	•

2.2.2 Preventive and Mitigating Actions for Major Negative Impacts and Risks

Wastewaters

- ↪ Surfacewater contamination is prevented by treating all pig wastewaters in the WWTFs. The WWTF is kept in optimal working condition through regular inspection and maintenance activities. This ensures that effluents meet Class C quality standards set by EMB.
- ↪ Biodigesters are constructed with durable materials.
- ↪ Technical specifications and actual performance of the WWTF-MRF will be determined to know the system’s efficiency. Information on these will enable the farm to optimize its operations and improve (or maintain) the WWTF-MRF’s performance.

Hazardous Wastes

- ↪ Currently, pig carcasses and potentially hazardous wastes are placed in a mortality pit.

Odor

- ↪ Treatment in the WWTF-MRF will significantly abate odors coming from effluents.
- ↪ Trees have been planted within and around the farm.
- ↪ Concrete perimeter walls have been constructed to confine odor.
- ↪ The biogas collection system has been constructed with durable materials and is kept in good working condition through regular inspection and maintenance activities.

Groundwater Depletion

- ▯ Water conservation measures are being implemented in the farm.
- ▯ The farm will secure a Water Permit to comply with existing regulations and recompense for its consumption of groundwater.

2.2.3 Environmental Management and Monitoring Plan

Table 4 summarizes the measures intended to address the environmental impacts and risks identified in Section 2.1.2. Adequate training will be given to concerned employees to ensure that the content of this environmental management plan will be properly carried out.

Table 4. Environmental Management and Monitoring Plan of CPA 29

IMPACT	SOURCE / ACTIVITY	MEASURES	STATUS			MONITORING METHOD	FREQUENCY	PARAMETER / INDICATOR	RESPONSIBLE ENTITY	REPORTING TO	Cost, Php
			Existing / Current Practice	For Implementation / Under Construction	Adoption Under Review						
A. Wastewater											
a.1 generation of wastewater	pig raising	water conservation strategies	✓			quantify wastewater production	monthly	volume of wastewater produced	Farm personnel	Farm manager	Project cost for WWTF
		treatment of wastewater in WWTF	✓								
a.2 generation of domestic wastewater	general farm activities	water conservation strategies	✓			check siphoning and hauling records	every 5 years	volume of sewage hauled	Maintenance personnel	Farm manager, PCO	Construction costs for septic tank
		sewage septic tanks	✓								
		sewage disposal in treatment plants	✓								
B. Solid Waste											
b.1 generation of manure, sludge	pig raising, feed wastage, WTF	minimize feed wastage - automated feeding system; - regular inspection and maintenance of feed delivery system	✓			quantify (dried) sludge produced	annually	amount of sludge produced	Production personnel	Farm manager	Php 15,000 per feeder
		treatment of manure in WWTF	✓								
		sludge used as soil conditioner	✓								
b.2 generation of (non-infectious) carcasses, blood	injuries, adverse environmental conditions, etc.	observe sound pig raising practices and biosecurity measures	✓			weigh disposed materials	daily	weight of materials disposed	Maintenance personnel	PCO, Farm manager	Php 5,000 for maintenance works
		regular inspection and preventive maintenance of equipment regulating pig environment	✓								
		carcass disposal burial; composting is being considered	✓								
b.3 generation of general solid wastes	general farm activities	waste segregation	✓			weigh solid wastes disposed of (recyclables and residuals)	every hauling	weight / details on wastes generated, stored, and disposed of	All farm personnel	Farm manager	Php 2,500 for garbage bins
		provides adequate collection bins, storage area in strategic locations	✓								
		reduce, reuse, recycle / selling of recyclables	✓								
C. Hazardous Materials											
c.1 generation of hazardous, toxic wastes	facilities' operation and maintenance	monitor resource usage to avoid expiration of chemicals, etc.	✓			quantify each type of hazardous waste produced / stored and disposed of (check hazardous waste manifests)	every hauling and disposal	quantity of each hazardous waste type stored and disposed	Production personnel	PCO, farm manager	Php 5,000 for hauling
		disposal through accredited TSD	✓								
		reusing, recycling certain materials (for various construction and maintenance activities)	✓								
c.2 generation of infectious, pathological wastes, carcasses	veterinary activities, infections, outbreaks	carcass disposal through burial; composting is being considered	✓								
		pathological / infectious materials disposed in concrete septic vault	✓								
D. Air Pollution											
d.1 generation of biogas	anaerobic digestion	capturing through biodigesters and combustion using biogas-fueled engine	✓			record electric meter reading of biogas gensets	Daily	kWh produced	PCO	Farm manager	Project cost
d.2 generation of air pollutants	vehicles, stand-by generator sets (fossil fuel combustion)	operate machineries according to manufacturer's instruction	✓			review inspection and maintenance record	monthly	number and details of machinery issues noted	Maintenance personnel	PCO, Farm manager	Php 2,000 fuel costs
		use of diesel with low sulfur content	✓								
		regular inspection and preventive maintenance of equipment	✓			emission testing	annually or every 5 years	emissions standards			Php 5,000 maintenance costs
E. Risk of Environmental Degradation											
e.1 (risk of) surface water and groundwater quality degradation, disruption of soil properties, contamination	e.1.1 wastewater collection, transport, treatment, disposal	operates WWTF as prescribed	✓			effluent sampling and testing by an EMB-accredited laboratory	quarterly - more frequently during rainy seasons	effluent quality indicators: BOD, TSS, ammonia, phosphate (must meet standards for Class C effluent)	Maintenance personnel	Farm manager	Landscaping costs
		regular inspection and preventive maintenance of WWTF; regular desludging	✓								
		maintainance of vegetation (filter strips) around lagoons	✓								
		ensures effluents meet EMB standards^	✓								
	e.1.2 sludge management, storage, leachate	drying of sludge and using it as soil amendment	✓			review inspection and maintenance record	monthly - more frequent during rainy seasons	number and details of leak / breach incidents	Maintenance personnel	Farm manager	Landscaping costs
		regular inspection and preventive maintenance of drying bed	✓								
		maintainance of vegetation (filter strips) around drying bed	✓								

	e.1.3 pathological wastes, carcass disposal, leachate	establish vegetative filter strips around disposal site	✓			review inspection and maintenance record	monthly - more frequent during rainy season	number and details of leak / breach incidents	Maintenance personnel	Farm manager	Landscaping costs
	e.1.4 handling, transport, storage, disposal of hazardous and infectious materials	uses materials according to registered use / manufacturer's instruction	✓			review inspection and maintenance record	weekly	number and details of leak / breach incidents	PCO	Farm manager	
		use of suitable containers with labels	✓								
		provides secured collection and storage area	✓								
		regular inspection of storage, disposal facilities	✓								
		will make MSDS available on-site of use		✓							
		will develop and observe safety protocols		✓							
		will install appropriate signage, warnings		✓							
		will provide spill kits on storage areas		✓							
		will prepare a contingency response plan		✓							
	will provide adequate training to staff on handling of hazardous materials		✓								
e.2 (risk of) pollution from fugitive biogas	biogas collection, storage, combustion	operates MRF as prescribed	✓			review inspection and maintenance record	monthly	number and details of leak / breach incidents (odor detection)	PCO	Farm manager	Php 5,000 maintenance costs
F. Health and Safety – Anaerobic Digester System											
			✓								
			✓								
			✓								
			✓								
			✓								
G. Health and Safety – General Farm Operations											
f.1 odor - nuisance, discomfort, health issues	f.1.1 pig houses, manure	regular cleaning of pig houses and flushing of drains	✓	✓		review complaints register	every two weeks - more frequent during typhoon (windy) season	number and details of odor complaints	Maintenance and production personnel, PCO	Farm manager	-
		tunnel ventilated buildings	✓	✓							
		maintains existing vegetation, will plant trees	✓	✓							
		provision and use of appropriate PPE	✓	✓							
	f.1.2 WTF, effluent, MRF	gas trapping and combustion through MRF	✓	✓							
		will ensure adequate retention time of wastewaters in the biogas digester is achieved	✓	✓							
		regular inspection and preventive maintenance of WWTF-MRF	✓	✓							
		prevent overtopping, spillage (see e.1.1)	✓	✓							
	f.1.3 decomposing materials (sludge and organic solids)	provision and use of appropriate PPE	✓	✓							
		ensure sludge pile is well aerated, prevent waterlogging	✓	✓							
	f.1.4 decomposing materials (placental materials and carcasses)	disposal through burial, composting	✓	✓							
		prevent leakage of leachate in disposal sites (see e.1.3)	✓	✓							
		provision and use of appropriate PPE	✓								
f.2 noise - nuisance, discomfort	f.2.1 pigs	automated feeding system	✓			review complaints register	monthly	number and details of noise complaint	Maintenance personnel	Farm manager	Php 5,000 maintenance costs PPE costs
		provision and use of appropriate PPE	✓								
		Maintains existing vegetation, will plant trees	✓								
	f.2.2 vehicles, machineries	operate equipment, machineries according to manufacturer's instruction	✓								
		regular inspection and preventive maintenance of machineries	✓								
		generator sets are fitted with mufflers	✓								
	provision and use of appropriate PPE	✓									
f.3 dust - nuisance, discomfort, health issues	f.2.1 pig houses, feed handling	limits dust-generating activities during day time, low wind movement (as much as it is practical)	✓			review complaints register	quarterly - more frequent during typhoon (windy) season	number and details of dust complaints	Maintenance and production personnel	PCO, Farm manager	-
		tunnel ventilation system prevents dust build up	✓								
		use of appropriate containers, barriers	✓								
	f.2.2 composting areas, dried compost handling	damping of dried materials	✓								
		limit dust-generating activities during day time and low wind movement (as much as it is practical)	✓								
		provision and use of appropriate PPE	✓								
			✓								

	f.2.3 vehicles, machineries	sealing and damping of unpaved roads	✓								
		limits vehicular speed on unsealed roads	✓								
		operates feedmill in an enclosed area	✓								
		limit dust-generating activities during day time, low wind movement (as much as it is practical)	✓								
		provision and use of appropriate PPE	✓								
f.4 pest and vermin proliferation / infestation - nuisance, health issues	decomposing materials and sources of odors	implement odor control measures (see f.1)	✓			review inspection results records and complaints register	monthly - more frequent during rainy season	number and details of incidents, complaints	Administration and maintenance personnel	PCO, Farm manager	Pest control costs
		implement pest, vermin control measures (use of baits and traps)	✓								
		observes good housekeeping practices	✓								
		regular inspection of farm facilities, surroundings	✓								
f.5 health hazards, (risk of) contracting infectious diseases, sustaining injuries, livestock outbreak	handling, transport, storage of hazardous and infectious materials, movement of carrier pests and vermin, handling of ill pigs	adequate training on handling of hazardous, infectious materials	✓			review incident reports, inspection records and complaints register, results of employees' regular health checks	monthly	number and details of illness, injury incidents, complaints	Maintenance and production personnel	Farm manager	Training costs, Equipment costs
		provision and use of appropriate equipment for handling and storage of hazardous and infectious materials	✓								
		enforce, observe biosecurity measures, health and safety protocols	✓								
		observe measures for safe handling of hazardous and infectious materials (see e.1.3 & e.1.4)	✓								
		implement pest and vermin control measures (see f.4)	✓								
		regular inspection of farm facilities, surroundings	✓								
f.6 explosion, fire hazard	biogas collection, storage, combustion	WWTF-MRF constructed with durable materials	✓			review inspection and maintenance records, incident reports, complaints register	monthly	number and details of explosion, fire incidents	Maintenance personnel	PCO, farm manager	Project cost
		operates WWTF-MRF according to design	✓								
		regular monitoring of pressure within the MRF system	✓								
		regular inspection (leak test) and preventive maintenance of MRF	✓								
		restricts access to MRF	✓								
		prohibits ignition sources (smoking) near MRF			✓						
		will install signage and warnings			✓						
		reporting and recording of explosion, fire incidents			✓						
f.7 drowning hazard	open ponds, lagoons, tanks	restrict access to WTF, install fences			✓	review incident reports	monthly	number and details of drowning incidents	Maintenance and administration personnel	PCO, Farm manager	Fencing costs, signage costs
		install signage and warnings			✓						
		reporting and recording of drowning incidents			✓						
f.8 freshwater depletion	pig raising and general farm activities	water conservation strategies	✓			quantify volume of freshwater consumption	monthly	volume of freshwater consumed	Maintenance and production personnel	PCO, farm manager	-
		effluent recycling	✓								
f.9 consumption of non-renewable resource (fossil fuels for power)	pig raising and general farm activities	energy conservation strategies	✓			estimate power consumption from billing for electricity	monthly	kWh consumed	All farm personnel	Farm manager	-
		use of energy-efficient equipment	✓								
		uses electricity generated using biogas	✓								
		pig buildings have concrete walls and roofing, providing efficient insulation against ambient heat	✓								
		thermostat controlled cooling system have auto shut off feature	✓								
f.11 (risk of) erosion	rainwater runoff	plant various tree species and vegetation along roads and slopes	✓			review inspection records	monthly - more frequent during rainy season	number and details of erosion incidents	Maintenance personnel	Farm manager	Landscaping costs

BOD Biological Oxygen Demand
MSDS Materials Safety Data Sheet
PCO Pollution Control Officer
PPE Personal Protective Equipment
SMR Self-Monitoring Report
TSS Total Suspended Solids

2.2.4 Contingency Response

Below is an overview of CPA 29's current preparation and action plan in response to the following:

- a. Fire
 - Fire extinguishers are available at strategic locations around the farm. Pig houses are also equipped with water taps and sprinklers from which water for putting out fire can be sourced.
- b. Earthquake
 - The open grounds at the exterior of the farm are designated as evacuation areas for when an earthquake occurs.
- c. Outbreak
 - In the event of a livestock disease outbreak, quarantine measures are instinctively applied. Movement of humans and animals in and out of the farm is restricted and instructions from the farm's consultant veterinarian are carried out.
- d. Power outage
 - Should there be power interruption, a diesel-fueled standby generator is able to supply the farm's electricity needs, in addition to the biogas genset.
- e. Health emergencies
 - First aid kits are readily available on site for minor injuries. Farm personnel also have access to vehicles which can be used for transporting cases needing more advanced medical care.

In the interim, CPA 29 hereby commits to develop a more comprehensive contingency preparedness and response plan that will address incidents of fire; natural hazards (typhoon, earthquake); outbreak; health emergencies; and environmental emergencies (leaks and spills of wastewaters and hazardous wastes, WWTF-MRF system breakdowns). This plan will be appended in the succeeding version of this ESMP.

2.2.5 Occupational Health and Safety

In addition to the health and safety measures presented in Table 3, CPA 29 will develop a more comprehensive health and safety risk management plan which will deal with general occupational health and safety issues associated with work in the farm. Health complaints and accidents will be recorded in a register and will serve as indicators of the plans effectiveness, together with results of workers' annual health check-ups. This plan will be appended in the succeeding version of this ESMP

2.2.6 Biosecurity

The particulars of the farms' biosecurity protocol will be appended in the succeeding version of this ESMP.

2.4 Monitoring, Reporting and Auditing

The proponent will perform the monitoring plan in Table 3 and conduct regular inspection of its facilities not only for internal purposes but also to satisfy the requirements of the Environmental Management Bureau (EMB) for periodic self-monitoring reports (SMR). In addition, assessments will also be initiated during or immediately after incidents that may have compromised the integrity of the farm's facilities, especially the WWTF-MRF, and caused the release of pollutants in the environment. A registry of such incidents and other environmental emergencies and accidents will be maintained in the farm and its details reported in the SMR.

The SMR will contain the results of audits on the farm's environmental performance in terms of resource utilization, waste management, regulatory compliance, and fulfillment of environmental commitments among others. This document will be tendered to EMB quarterly. LBP-EPMD (Environmental Program and Management Department) will also be provided with copies of this document for reference and review purposes.

The owner and the farm's Pollution Control Officer (PCO), has been tasked to ensure that the farm is compliant with pertinent environmental regulations, including those listed in Table 3, and is performing its environmental commitments, including the implementation of this ESMP.

During the implementation of the CDM Program, LBP-EPMD will conduct monitoring activities in the farm at least twice a year to help the proponent execute, identify gaps in, and improve and update this management plan.

3 SOCIAL DUE DILIGENCE

Below are some of the Proponents efforts to ensure that CPA 29 does not infringe upon the social rights of its employees and the Farm's host community.

3.1 Consultation and Participation

Prior to construction, the Proponent, together with LBP-EPMD, identified the Project's stakeholders who were afterwards invited, through letters and notices, to a consultative meeting for the Project's establishment. The stakeholder consultation was held on November 14, 2016 with 24 attendees from various institutions including farm representatives, Landbank personnel, and members of the barangay council and barangay health center.

All relevant information, especially those that pertain to the Project's environmental and social impacts, were communicated to the stakeholders during the consultations. Issues and queries raised all satisfactorily addressed by the Proponent and the other presenters.

3.2 Grievance Redress Mechanism

The Farm's manage and PCO are hereby designated to be the main contact person for stakeholders regarding grievances, feedbacks, and queries related to the Project. He is also to be in charge of ensuring that the details of complaints and the actions made to address the same will be recorded truthfully.

Such information shall be part of the regular monitoring report for the Project and will be made available to relevant stakeholders.

Issues not resolved at the Project level (by the Proponent) will be raised to the following third party institutions for arbitration and possible resolution:

- Office of the Barangay Chairman
All complaints shall be initially entertained and attempted to be resolved in the *barangay* where the Farm is situated. The *barangay* concerned will facilitate the negotiation process and LBP-EPMD will ensure that the complainant is properly represented.
- Municipal Office

Should no agreement be reached at the *barangay* level, the matter will be elevated to a municipal government office. Depending on the nature of the complaint, grievances may be addressed to the Municipal Health Office, Agriculturist Office, Environment and Natural Resources Office, or any relevant municipal agency.

- **LBP**
LBP through EPMD will take part on the resolution process only after the aggravated party has gone through the previous levels and finds the decisions rendered there unacceptable. EPMD will coordinate with the Proponent to ensure that issues regarding the latter's project are resolved to the best interest of the complainant.

To further ensure the Proponent's accountability, contact details of the Farm's management and LPB-EPMD shall be provided to stakeholders during consultations and through postings at public notice boards (including at the Farm's main gate). For the Project of CPA 29, the following individuals will serve as grievance administrators:

- Prudencio E. Calado III
Head/Assistant Vice President, LBP-EPMD
Telephone No.: (632) 405-7339
Fax No.: (632) 528-8484
- Farm Manager, CPA 29
PCO, CPA 21
Telephone No.:

3.3 **Information Disclosure**

This ESMP and other relevant information regarding the Project will be published in LANDBANKS's website where it can be readily accessed by the public. Printed copies of this document will be submitted to DENR-EMB Region 2 and will also be available in the local barangay's office, in LANDBANK's library (1598 M.H. Del Pilar cor Dr. J. Quintos St., Malate, Manila, Philippines), and in World Bank's Infoshop.

3.4 **Equal Opportunity**

CPA 29 is an equal opportunity employer, not regarding gender, age, disability, and ethnicity in evaluating and hiring potential employees. The farm employs 37 personnel (29 male and 8 female). Male personnel are primarily assigned to pig handling activities, whereas females are mostly assigned to farrowing activities and administration matters.

3.5 **Resettlement**

The Project is located inside the premises owned by CPA 29, a private property. No individual was displaced for nor were there any indigenous peoples affected by the establishment of the Farm and the Project.

3.6 **Others**

Employees of CPA 29 receive standard basic salary (at the minimum), 13th month pay, sick and vacation leaves, as well as SSS (social security) and HDMF (housing loan) privileges.

4 ESMP REVIEW AND UPDATING

This ESMP shall be reviewed and updated as needed to keep pace with and adapt to changes and developments related to the Project. The Farm's manager and PCO shall initiate and lead this initiative in consultation with relevant Farm personnel and Project partners.

5 INSTITUTIONAL ARRANGEMENTS

5.1 **The Proponent**

The Proponent will be responsible in all aspects of the Project, including the implementation of this ESMP. He will shoulder all costs associated with the construction and operation of the Project, internal monitoring activities, and meeting various statutory requirements. Specifically, he shall cause the accomplishment of the following:

- exercise environmental and social due diligence in implementing the Project
- incorporate sound practices in environmental, health, and safety management
- comply with relevant national and local laws and satisfy regulatory obligations
- perform diligent environmental and system monitoring
- prepare and submit on schedule accurate monitoring reports to EMB and LBP
- cooperate with the LBP and other regulatory agencies by providing assistance and correct and relevant information regarding the Project and its environmental performance for reference, review, and monitoring purposes
- promote transparency by maintaining open lines of communication with project stakeholders and giving them access to relevant information
- initiate resolution of conflicts that may arise as a result of the Project's operation
- disseminate all relevant information to stakeholders

The Proponent, in close coordination with LBP, shall implement the Project based on LBP's ESSF and on the agreed activities and timelines stipulated in the MOA and subproject agreement (SPA) between the said entities.

5.2 **LANDBANK**

LBP shall serve as the financial and technical intermediary for the CDM Program of Activity (PoA) under which the Project of CPA 29 is being implemented. It shall provide the Proponent carbon and investment finance assistance for the installation of an anaerobic wastewater treatment facility equipped with a biodigester and methane-fueled power generator. Moreover, it shall act as the entity in charge of project validation and verification activities, and of collation of relevant information and monitoring data for the undertakings mentioned. Specifically, LANDBANK, through EPMD, shall:

- make available financing facilities to the Proponent, subject to existing lending policies of LBP
- coordinate and facilitate communications and transactions between the Proponent and World Bank or other Carbon Buyers, Designated Operational Entity (DOE), and when necessary, with other project partners
- administer the agreements (MOA, SPA) forged between LBP and the Proponent
- provide technical support and relevant trainings to farm owners and personnel in partnership with donors and other institutions
- ensure compliance of the Project and its proponent with the rules governing PoAs and with its commitments in the MOA and SPA
- ensure compliance of the Project and its proponent with relevant standards and regulations and environmental commitments by conducting on-site monitoring and evaluation and desk reviews
- provide assistance to the Proponent in complying with statutory requirements for the Project
- ensure the Project's sustainability by monitoring the long-term implementation of the safeguards specified in this ESMP and its environmental performance in general
- gather, collate, and review pertinent information and documents (including safeguard instruments, reports, and permits and clearances) concerning the Project
- participate in conflict resolution initiated by the Proponent
- prepare and submit monitoring reports to World Bank regularly
- satisfy its obligations under the Emissions Reduction Purchase Agreement (ERPA) between LBP and World Bank

LBP shall assist the Proponent in its implementation of the Project based on LBP's Safeguards Framework and on the agreed activities and timelines stipulated in the MOA and SPA.

5.3 **Department of Environment and Natural Resources**

The Department of Environment and Natural Resources (DENR) is the primary government institution mandated to manage and protect the Philippines' environment and natural resources. It is also the Designated National Authority (DNA) of the CDM Program in the Philippines. As DNA, its main role is to review and endorse PoAs to the United Nations Framework Convention on Climate Change (UNFCCC).

5.3.1 Environmental Management Bureau

Through the EMB, DENR sanctions and regulates the activities of the Project by means of various legal instruments. EMB also leads (whether or not as part of an MMT) the periodic compliance and impact monitoring of the Project, including the fulfillment of commitments stated in this ESMP. Prior to construction, EMB was the agency tasked to review and evaluate the environmental soundness of the Project and authorize its establishment through the issuance of an Environmental Compliance Certificate (ECC).

5.4 World Bank

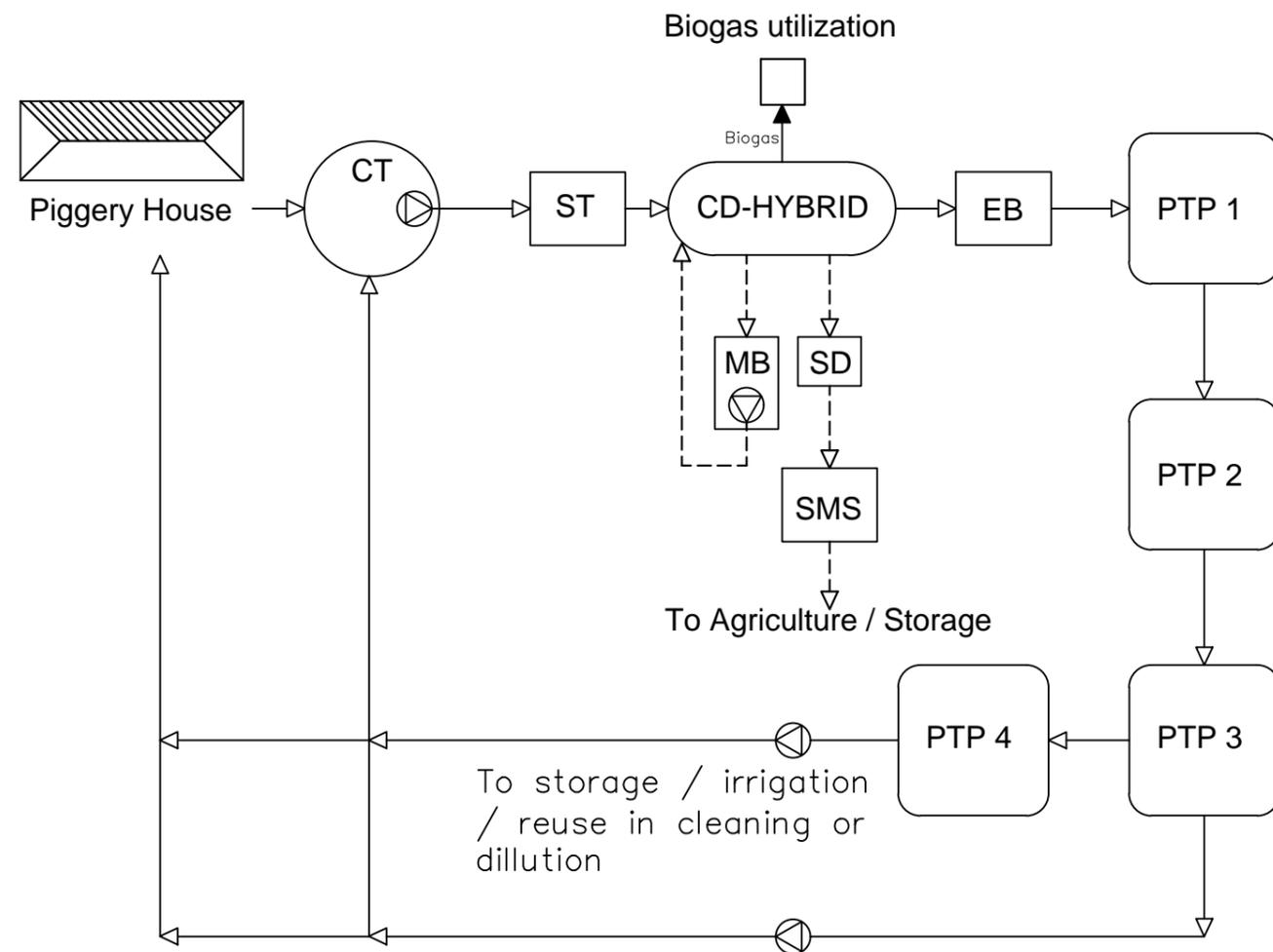
The World Bank is the main Carbon Buyer of the Project, but will also serve as an advisor to LPB in carrying out the latter's responsibilities as the coordinating and managing entity for CDM projects. The Bank will conduct regular monitoring, audits, and appraisal reviews on the Project's safeguard performance against its established policies as well as provide technical guidance to LBP and to the Proponent.

6 SUB-PROJECT ACCOUNTABILITY

In line with Section 3.02 on *Sub-Project Development and Operation by the Sub-Project Entity*, Item (q) of the Sub-Project Purchase Agreement (SPA) signed by the Farm Management, stating that the Sub-Project Entity (Farm Management) agrees and undertakes to:

- (q) implement and operate the Sub-Project in compliance with the World bank Operational Policies, including without limitation and as applicable, the Environmental Management Plan, Resettlement Plan, Indigenous Peoples Plan, and any other requirement resulting from the application of the World Bank Operational Policies.

Having signed the SPA, the Farm Management is accountable to comply with the commitments stated in this document.



Legend

CT - Collecting Tank
ST - Sand Trap
CD-HYBRID - the biogas digester (Channel Digester-Hybrid)
MB - Mixing Box
SD - Sludge Drain
SDB - Sludge Management System
EB - Effluent Box
PTP - Post Treatment Pond
→ Flow of waste water
→ Flow of Biogas
→ Flow of sludge

1
GN-03

AGRICULTURAL WASTEWATER TREATMENT PROCESS FLOW

Scale: NTS

<p>Technology Principal: Energy Research and Development Institute- Nakornping, Chiang Mai University, Thailand</p>  <p>Business Principal: Tetra Products and Consulting Corporation Athene Tower, Pathumwan, Bangkok, Thailand</p>  <p>Local Implementer: Alterna Verde Corporation L2B2, Rockwood Homes, Brgy Saguin, City of San Fernando Pampanga</p> 	<p>JAYKIE HOMER P. HERNANDEZ Professional Agricultural Engineer</p>		<p>Sanitary Engineer/Master Plumber</p>		<p>Scaled As Shown</p> <p>Sheet Contents: AGRICULTURAL WASTEWATER TREATMENT PROCESS FLOW</p> <table border="1"> <thead> <tr> <th colspan="3">Revision</th> </tr> <tr> <th>No.</th> <th>Date</th> <th>Details</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	Revision			No.	Date	Details				<p>Checked by:</p> <p>Approved by: Eric Guinto</p> <p>Date:</p>	<p>Sheet No.</p> <p>GN-03</p>
	Revision															
	No.	Date	Details													
<p>PRC Reg. No.: 6618</p>	<p>PTR No.: 2485044</p>	<p>PRC Reg. No.:</p>	<p>PTR No.:</p>													
<p>Valid Until: March 2018</p>	<p>Place Issued: Taguig City</p>	<p>Valid Until:</p>	<p>Place Issued:</p>													

Appendix B. Health and Safety Risks Management Plan of CPA 29

Hazard	Possible Harm	Source / Cause	Prevention / Minimization	Person/s Responsible
physical				
Noise	discomfort, hearing damage	pig squeals	<ul style="list-style-type: none"> - pigs consistently feed to prevent stress - PPEs (ear protection) 	Farm Personnel Supervisors
		running machineries and vehicles	<ul style="list-style-type: none"> - install noise-control devices, when applicable - regular equipment inspection and maintenance - limit noise-generating activities during day time - rotating work schedule - signage and warnings - PPEs (ear protection) 	Farm Manager Supervisors Farm Personnel
vibration	discomfort, ergonomic and nerve injuries, fatigue	running machineries	<ul style="list-style-type: none"> - install shock absorber - ensure all loose equipment are securely placed - regular equipment inspection and maintenance - signage and warnings - rotating work schedule 	Farm Manager Supervisors Farm Personnel
electricity	shock, electrocution, burns	faulty machineries and power lines	<ul style="list-style-type: none"> - get services of a licensed electrician - consult equipment manual - regular equipment inspection and maintenance 	Farm Manager Supervisors Farm Personnel
		improper use (or servicing) of electrical equipment	<ul style="list-style-type: none"> - restrict access to equipment - signage and warnings - train staff (consult equipment manual) - ensure electricians are provided with proper PPEs for working with electrical equipment (insulated gloves, boots, etc.) 	
heat	burns	running machineries (hot surfaces, vapors, liquids)	<ul style="list-style-type: none"> - use insulation where possible - install machine guards - signage and warnings - ensure workers wear proper PPE such as long sleeved shirts. 	Farm Manager Supervisors Farm Personnel
	discomfort, heat exhaustion, heat stroke	adverse hot weather working in enclosed spaces with limited ventilation	<ul style="list-style-type: none"> - adequate hydration and rest breaks 	Farm Manager Supervisors
dust	irritation, respiratory distress / diseases	Feeds, ambient dust	<ul style="list-style-type: none"> - Tunnel ventilated pig houses - spray amounts of water during feeding to limit the dissipation of small feed particles and dust; - calm work pacing to avoid exciting the pigs - thorough cleaning of indoor spaces - PPEs (mask) 	Supervisors Farm Personnel
poor lighting	eye strain, can't see hazards	unlit / inadequately lit areas	<ul style="list-style-type: none"> - install light sources - carry portable light sources 	Farm Manager
chemical				
harmful gases, dust, vapors (inhalation)	discomfort (odor), asphyxiation, poisoning, respiratory distress / diseases	degrading organic wastes hazardous substances (cleaning and pest control chemicals, veterinary medicines, fuels, hazardous wastes, etc.)	<ul style="list-style-type: none"> - measures for odor control (see Table 5) - signage and warning (- train staff (handling hazardous substances and wastes and working in confined spaces; review MSDS / product information sheets) - PPEs (mask) - ensure first aid kits are readily available 	Farm Manager Supervisor PCO
		fuel burning (machineries, vehicles)	<ul style="list-style-type: none"> - air pollution control device - regular equipment inspection and maintenance 	

hazardous substances (contact, ingestion)	irritation, burns, poisoning, skin problems	hazardous substances (cleaning and pest control chemicals, veterinary medicines, fuels, hazardous wastes, etc.)	<ul style="list-style-type: none"> - proper labeling, containers, and storage - restrict access to chemical and hazardous waste storage - train staff (handling hazardous substances and wastes; review MSDS / product information sheets) - only competent staff should administer veterinary medicines - ensure first aid kits are readily available - PPEs (gloves, eye glasses) 	Farm Manager PCO
biological				
pathogens / infectious agents, toxins and other products	various infectious diseases, parasites, irritation	pathological materials / tissues	<ul style="list-style-type: none"> - proper disposal of animal and veterinary wastes (see Table 5) - quarantine measures - good housekeeping practices (disinfection) - practice hygienic practices (especially hand hygiene) - workers' regular health examination - train staff (animal handling, proper waste handling and disposal) - PPEs (gloves, etc) 	Veterinarians PCO
		sick animals		
		animal excretions and fluids		
		manure (wastewaters)		
		Sludge		
		veterinary wastes (especially sharps)		
		potential disease carriers (objects, people, dust)		
		insects, pests, vermin	<ul style="list-style-type: none"> - proper disposal of odororous wastes (see Table 5) - good housekeeping practices - keep an acceptable number of cats at the farm - pest control 	Farm Personnel PCO
ergonomic				
ergonomic stress	ergonomic injuries	repetitive actions, forceful exertions, sustained awkward posture	<ul style="list-style-type: none"> - use aid of appropriate equipment for lifting/moving heavy objects - use of proper lifting techniques - buddy system - job rotation / adequate rest (in between tasks) 	Farm Manager Farm Personnel
		improper use of equipment	<ul style="list-style-type: none"> - train staff (consult manuals) 	Farm Manager Farm Personnel
		use of faulty equipment	<ul style="list-style-type: none"> - repair or replace equipment 	Farm Manager Farm Personnel
other accidents and contingencies				
slips, trips, falls	injuries, wounds, contusions	spills (slips)	<ul style="list-style-type: none"> - proper maintenance of walkways - daily safety briefings and regular trainings - barricading of work areas - PPEs 	Farm Manager Farm Personnel
		various objects, debris (trips)		
		heights, slips (falls)		
entanglement	injuries, wounds, strangulation	machineries	<ul style="list-style-type: none"> - install machine guards - tie back long hair - wear long sleeve shirts - avoid wearing loose-fitting clothes and personal accessories - regular equipment inspection and maintenance 	Farm Manager Farm Personnel
blows, punctures	injuries, wounds, contusions	pig handling	<ul style="list-style-type: none"> - animal restraints - ensure enough space to maneuver - train staff (animal handling techniques) - wear appropriate PPE (boots, gloves etc) 	Farm Personnel
Sharps	sharps injuries, wounds	veterinary activities, waste handling	<ul style="list-style-type: none"> - ensure only trained personnel conduct veterinary activities - PPEs (gloves, goggles) 	Farm Manager PCO
fires	Burns	faulty electrical systems, explosions, fugitive gases, accidental ignition	<ul style="list-style-type: none"> - comply with requirements and regulations of fire authorities - provide adequate and proper (multipurpose) fire protection equipment - designate smoking areas away from digester, gas tanks, and electrical equipment and storage of combustible materials (compost, sludge, chemicals)) - regular clearing of vegetation near farm structures - signage and warnings - train staff (on contingency plan and proper equipment use) - regular inspection and maintenance of electrical systems and equipment 	Farm Manager Farm Personnel

blast	blast injuries	excessive pressure in biodigester, fugitive gases, contained gases in confined spaces, fires	<ul style="list-style-type: none"> - keep sources of heat, including machineries, at a safe distance from biogas facility - prohibit smoking and use of cellphones around biogas system and gas storage facilities - regular inspection and maintenance of MRF - signage and warnings - consider the purchase of gas monitoring equipment 	Farm Manager Farm Personnel
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[REDACTED]

November 2, 2016

The City Health Officer
Cauayan City, Isabela

Dear Sir/Madam:

Warm Greetings!

[REDACTED] in cooperation with the **Land Bank of the Philippines**, will conduct a Stakeholder Consultation for our proposed Biogas Project that will be conducted on **November 14, 2016, 1:00PM** at Community Center, Brgy. Sinippil, Cauayan City, Isabela

Key points on CDM and in-depth information on the project, such as Environmental Management Plan and Sustainable Development benefits, will be presented. An open forum will be held after the presentation to allow participants to raise inquiries and clarification on the proposed Biogas Project.

In this regard, we would like to invite you or a representative from your office to participate in this consultation. Attached is the agenda of the program.

Should you need more information or confirmation of your attendance, please feel free to contact us at tel. no(s) **(078) 652-0155 or 0916-339-9096**.

Hope to hear your favorable reply.

Thank you

[REDACTED]

NOV 02 2016
Michael Reyes
MICHAEL REYES

[REDACTED]

November 2, 2016

The City Environment & Natural Resources Officer (CENRO)
Cauayan City, Isabela

Dear Sir/Madam:

Warm Greetings!

[REDACTED] **FARM**, in cooperation with the **Land Bank of the Philippines**, will conduct a Stakeholders' Consultation for our proposed Biogas Project that will be conducted on **November 14, 2016, 1:00PM** at Community Center, Brgy. Sinippil, Cauayan City, Isabela.

Key points on CDM and in-depth information on the project, such as Environmental Management Plan and Sustainable Development benefits, will be presented. An open forum will be held after the presentation to allow participants to raise inquiries and clarification on the proposed Biogas Project.

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Hope to hear your favorable reply.

Thank you.

[REDACTED]

*CFURD
Received
11-02-2016*



November 2, 2016

The City Agricultural Officer
Cauayan City, Isabela

Dear Sir/Madam:

Warm Greetings!

 FARM, in cooperation with the **Land Bank of the Philippines**, will conduct a Stakeholder Consultation for our proposed Biogas Project that will be conducted on **November 14, 2016, 1:00PM** at Community Center, Brgy. Sinippil, Cauayan City, Isabela.

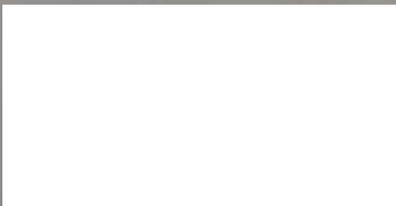
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Hope to hear your favorable reply.

Thank you.



RECEIVED By:
KC
11-02-16
DA-Office

[REDACTED]

Oktubre 28, 2016

Ginoo/Ginang Celso E. Andres
Brgy. Sinippil, Cauayan City, Isabela

Mahal naming Celso E. Andres

Pagbatil

Kami po sa [REDACTED] FARM, sa pakikipag-ugnayan at pakikipagtulungan ng Land Bank of the Philippines, ay magdaraus ng isang pampublikong konsultasyon sa mga kinauukulan o stakeholders na malapit sa aming proyekto upang mapag-usapan ang plano naming pagtatayo ng Biogas Project. Ito po ay gaganapin sa **ika-14 ng Nobyembre, 2016, 1:00 PM** sa Community Center, Brgy. Sinippil, Cauayan City, Isabela.

Kasama po sa mga mahahalagang paksang pag-uusapan ay ang tungkol sa Clean Development Mechanism, Environmental Management Plan, at mga benepisyong maidudulot ng aming Biogas Project. Magkakaroon din po ng maiksing palitan ng mga kuro-kuro, suhestyon, paglilinaw at rekomendasyon patungkol sa nabanggit na proyekto.

Dahil po dito, malugod naming kayong inaanyayahan na dumalo sa nasabing konsultasyon o pagtitipon. Kalakip sa liham na ito ay ang programa ng mga paksang pag-uusapan natin.

Maaari po kayong makipag-ugnayan sa amin sa telepono **(078)-652-0155** o **0916-339-9096** para sa mga detalye ng nasabing konsultasyon.

Maraming Salamat po!

[REDACTED]

[Handwritten Signature]

[REDACTED]

Oktubre 28, 2016

Ginoo/Ginang Lorna Babaran
Brgy. Sinippil, Cauayan City, Isabela

Mahal naming Lorna Babaran :

Pagbatil

Kami po sa [REDACTED] sa pakikipag-ugnayan at pakikipagtulungan ng Land Bank of the Philippines ay magdaraos ng isang pampublikong konsultasyon sa mga kinaaukulan o stakeholders na malapit sa aming proyekto upang mapag-usapan ang plano naming pagtatayo ng Biogas Project. Ito po ay gaganapin sa **ika-14 ng Nobyembre, 2016, 1:00 PM** sa Community Center, Brgy. Sinippil, Cauayan City, Isabela.

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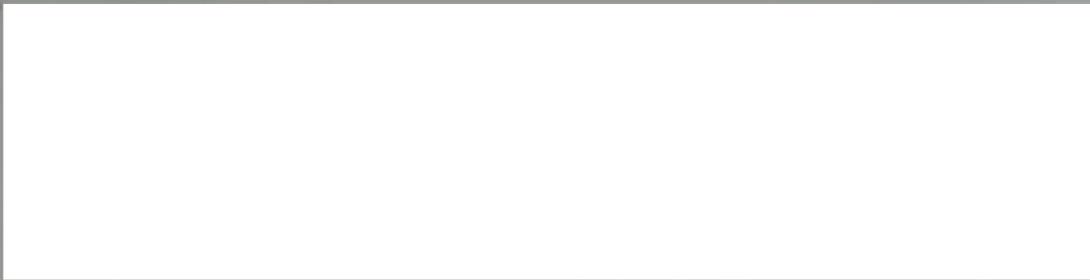
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Maaari po kayong makipag-ugnayan sa amin sa telepono (078)-652-0155 o 0916-339-9096 para sa mga detalye ng nasabing konsultasyon.

Maraming Salamat po!

[REDACTED]

B



Oktubre 28, 2016

Ginoo/Ginang ROMEO GALAPIN
Brgy. Sinippil, Cauayan City, Isabela

Mahal naming ROMEO GALAPIN

Pagbatil

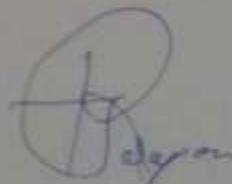
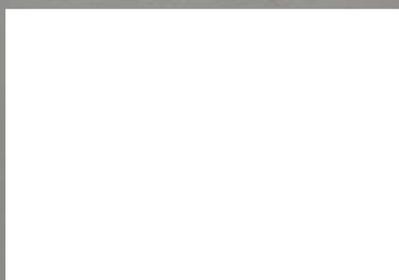
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Maaari po kayong makipag-ugnayan sa amin sa telepono (078)-652-0155 o 0916-339-9096 para sa mga detalye ng nasabing konsultasyon.

Maraming Salamat po!



MUST READ! 😊

Notice of Vacancy

NOTICE OF PUBLIC CONSULTATION

TO ALL CONCERNED STAKEHOLDERS

Subject: **2015/2016** for the **20th** Developmental Maintenance (DDM) project - **NORTH LIZON DAM LINE MAINTENANCE** for the **2015/2016** year.

DATE: November 14, 2015 (Monday)
TIME: 1:00 PM
VENUE: Community Center, 4400 - 44th Street, Concord, CA, 94521

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David E. Jones

ANNOUNCEMENT:
The **CIVIL SERVICE EXAMINATION (CSC-PPT)** is rescheduled on **NOVEMBER 20, 2016**

Stakeholder Consultation Clean Development Mechanism (CDM)

“Proposed Methane Recovery and Combustion System (Biogas Project) (

November 14, 2016, 1:00 pm
Community Center. Brgy. Sinippil, Cauayan City, Isabela

PROGRAM

Registration	1:00 - 1:30 pm
Opening Program	1:30 – 1:45 pm
• <i>Opening Prayer</i>	<i>Lauren Moises, Rancho Oro</i>
• <i>Introduction of Participants</i>	<i>Pablito Madriaga, Rancho Oro</i>
• <i>Messages</i>	<i>Pablito Madriaga, Rancho Oro</i> <i>Isabela LC representative</i>
LANDBANK	1:45 – 2:30 pm
• <i>Climate Change</i>	<i>Renee Evangeline Granadino</i> <i>Program Assistant, LBP-EPMD</i>
• <i>Clean Development Mechanism</i>	<i>Renee Evangeline Granadino</i>
• <i>Carbon Finance Support Facility</i>	<i>Renee Evangeline Granadino</i>
Snacks	2:30 – 2:45 pm
RANCHO ORO	2:45 – 3:30 pm
• <i>BIOGAS Project</i>	<i>Alterna Verde / Rancho Oro</i>
• <i>Environmental Management</i> <i>Plan & Benefits</i>	<i>Alterna Verde / Rancho Oro</i>
OPEN FORUM	3:30 – 4:30 pm
• <i>Closing Remarks</i>	<i>c/o LBP-EPMD</i>

MINUTES OF THE MEETING

The Stakeholders' Consultation was conducted at the _____ temporary office last November 14, 2016 at about 2 :00 PM. Key stakeholders listed below include representatives of the people living in the vicinity and those that have administrative, social or political interest in the area are invited.

- a) Seven (7) community members from Brgy. Sinippil, Cauayan City, Isabela, including members of the Barangay Council and barangay health center;
- b) Representatives of the Municipal Health Office of Cauayan City, Isabela; and
- c) Land Bank of the Philippines Personnel

A copy of the attendance sheet is also attached.

Opening of the Consultation Meeting

The program started at 2:00 in the afternoon with a prayer led. Ms. Monaliza Marayag, Account Officer of Isabela Lending Center, opened the meeting. In her opening remarks, she welcomed and thanked _____ and the participants in the meeting. She gave an overview on the current situation of our environment and mentioned LANDBANK's commitment to participate in the Global effort to reduce Greenhouse Gas (GHG) emissions and its role as a government financial institution.

Overview of Climate Change, Clean Development Mechanism (CDM), & LBP's Carbon Finance Support Facility

Ms. Renee Granadino of LANDBANK-EPMD presented the overview of Climate Change, Clean Development Mechanism, and LANDBANK's Carbon Finance Support Facility. The basics on climate change covered discussion on the greenhouse gases (GHG's) which absorb solar radiation into the surface of the earth. The global warming potential of the said gases were also discussed. Sources, effects and consequences of global warming of greenhouse gases were also illustrated in the presentation. Ms. Granadino further discussed the Kyoto Protocol and Clean Development Mechanism and its purpose: (1) to assist Parties not included in Annex I in achieving sustainable development and in contributing to the ultimate objective of the Convention and (2) to assist Parties included in Annex I in achieving compliance with their quantified emission limitation and reduction commitments.

Moreover, LANDBANK's Carbon Finance Support Facility (CFSF) was discussed. Ms. Granadino emphasized that the consultation was conducted as part of the requirements _____ be an eligible project under the CDM. Under the CDM, Rancho Oro Corporation will have good environmental practice mitigating the emission of Greenhouse Gases (GHGs). She also enumerated various benefits and services under the CFSF which includes financing support, annual revenue stream and other co-benefits.

MINUTES OF THE MEETING

Rancho Oro Corporation's CDM Project Overview and Environmental Management Plan (EMP)

Dr. Nervy Santiago, the biogas designer under Alterna Verde, discussed the entire biogas system of _____ le also explained the technical description and rationale behind each component.

Dr. Santiago also presented the farm's Environmental Management Plan. He discussed in detail the parameters that are being mitigated in the proposed biogas digester system. He mentioned the following parameters:

- 1) Odor Reduction
- 2) Fly Control Program
- 3) Sustainability Program
- 4) Biogas Facility including waste water to solid waste management.

Open Forum

The following are the set of questions raised during the open forum with the corresponding answers:

Issues Raised	Responses/ Recommended Measures to Address Response
Mr. Angelo Ramirez, Environmental & Sanitation Officer of the City Health Office of Cauayan, inform_____ at _____ there is a rule / directive from the Department of Health to study projects like biogas. As such, he is inquiring where to request for the farm's blueprint or engineering design of the system.	Dr. Nervy Santiago, the technology provider of biogas system, mentioned that he already provided the design with _____. While Ms. Monaliza Marayag, LBP Account Officer, informed Mr. Ramirez that such document is usually provided to the city engineering office for permits.
Ms. Rubyn Andres, a resident near the farm, raised concern on the disruption of water supply to their community. Accordingly, the quality of their water supply has been affected when the construction of _____ started.	Dr. Santiago said that as of the moment the cause cannot be directly associated with the construction without a study from experts. He mentioned that he will coordinate with _____ Corporation's management and with specialists to study the concern as this can also disrupt the farm's operation in the future.

There having no other matters to be discussed, the stakeholder's consultation meeting adjourned at 5:00pm.

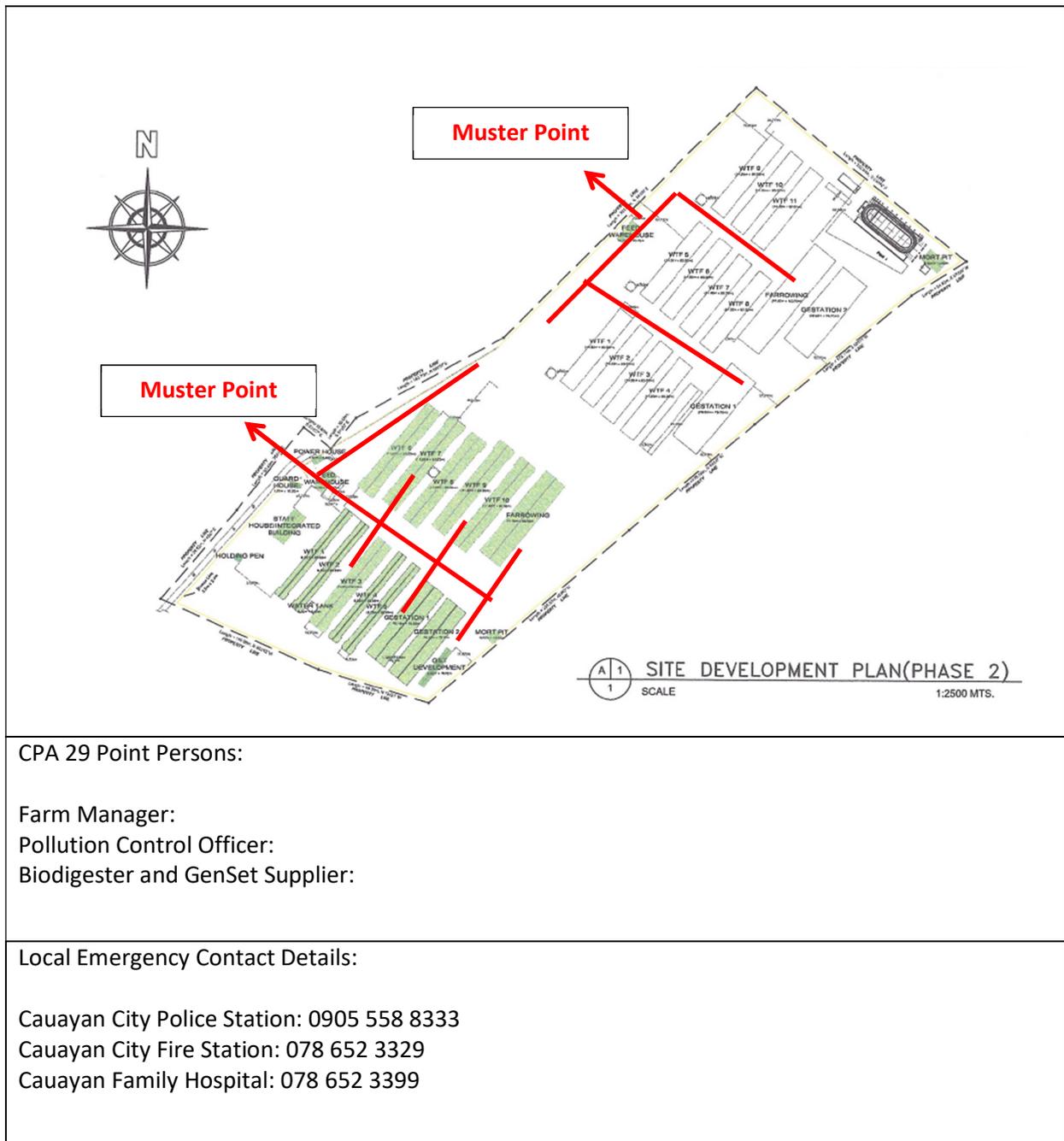
Land Bank of the Philippines
 Environmental Program and Management Department

MINUTES OF THE MEETING

Cauayan City, Isabela
 November 14, 2016

Name	Organization / Affiliation	Address	Signature
Rubyn andree		Siniguel	[Signature]
Felina G. Melina		Siniguel	[Signature]
Eduardo B. Batac		Siniguel	[Signature]
MARILYN P. MALING	LAND BANK - CAUAYAN	Isabela LC	[Signature]
Rence Granado	LBP-EPMD	MANILA	[Signature]
WITORN TENNAJIRANWUK	TPCC - THAILAND	BANGKOK - THAILAND	[Signature]
JHONG	LANCASHIRE	UK	[Signature]
Aracelis Batac	Dep. Capt.	Siniguel	[Signature]
ANGELA RAMIREZ	CHD - 2	CAUAYAN CITY	[Signature]
Rolando A. Alonzo	CHD 2	"	[Signature]
Jake Santos	Rancho Oro	Cauayan City	[Signature]
Princess Lano	"	Siniguel	[Signature]
Eritha Lano	"	Siniguel	[Signature]
Cesar Alvarez	"	"	[Signature]
Emmanuel Quins	"	Siniguel	[Signature]
Jhony Lano	"	"	[Signature]

Appendix D. Site Evacuation Plan



CPA 29 Point Persons:

Farm Manager:

Pollution Control Officer:

Biodigester and GenSet Supplier:

Local Emergency Contact Details:

Cauayan City Police Station: 0905 558 8333

Cauayan City Fire Station: 078 652 3329

Cauayan Family Hospital: 078 652 3399