REPUBLIC OF TH E PHILIPPINES

MANAOAG WATER DISTRICT

Aquino St., Poblacion, Manaoag, Pangasinan

Tel. No.: (075) 5290254

DISASTER RISK REDUCTION PLAN - EMERGENCY RESPONSE PLAN

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INTRODUCTION

Background

Climate change is real and is here to stay, potentially inducing weather-related disasters that could be very destructive to human life and settlement. As it is happening now, it is leading to a rise in sea level, more severe droughts and floods, heat waves, water shortages and increased threats to human health.

The recent deluge of disasters in many parts of the globe has provoked governments around the world to put in place disaster risk management and mitigation plans. In the Philippines, we have Republic Act 10211 or the Philippine Disaster Risk Reduction and Management Act of 2010 which institutionalizes risk reduction and management plans at the local level. Among others, the law mandates the creations of local risk reduction and management office in all provinces, cities, municipalities and barangays which shall be responsible for setting the direction, development, implementation and coordination of disaster risk management programs within their territorial jurisdiction.

Located along the typhoon belt and the Pacific Ring of Fire, the Philippines is one of the countries poised to take the brunt of climate change. Data from PAG-ASA show that every year, we experience at least 22 typhoons. Since the Philippines is one of the countries with the longest coastlines, it is also vulnerable to tsunami which comes after an earthquake. The country is also teeming with 352 volcanoes, 22 of them active while 27 others are potentially active.
From 1990-2011, the country was visited by several ravaging disasters:

- A strong earthquake hit Northern Luzon on July 16, 1990, affecting 23 provinces in six regions nationwide, and devastating 90 percent of Baguio City. The death toll reached an estimated 1,666 persons, and 1,495 people injured. Property damages were estimated atP12.2 billion.

- Between November 10 and 14, 1990, Typhoon Ruping (International Codename: Mike) devastated the Eastern Visayas with its 240-kph winds. Twenty-nine provinces

were declared under a state of calamity; 588 deaths were reported, and 1,270 injured. Damages were estimated by the Office of Civil Defense at P10.8 Billion.

- In June 1991, Mt. Pinatubo, a long dormant volcano in Central Luzon, emerged from a 600- year slumber, exploding in what would later be recognized as the world's worst volcanic eruption of the century, burying Central Luzon in tons of volcanic ash. The initial eruption alone accounted for more than 800 deaths, with damage estimated at P10.6 billion.

- On November 5, 1991, Typhoon Uring brought heavy rains to Leyte and Samar, resulting in flashfloods that killed about 6,000 people in the city of Ormoc. It was later ascertained that massive deforestation of the surrounding watershed was the cause of disaster.

- Other major disasters included El Niño, the impact of which ravaged the Philippines in1998, with approximately 985,000 families suffering from hunger due to severe lack of water.

- The most tragic event was a landslide at the Cherry Hills Subdivision in Barangay San Luis, Antipolo City, on August 3, 1999. The descent of loosened earth and mud on the subdivision left at least 58 dead and 31 injured.

- Typhoon Ondoy (2010) which caused weeks-long flooding in Metro Manila and a large part of Central Luzon submerged water systems, forcing many water districts to temporarily shut down operations. Typhoon Sendong in 2011 sent Cagayan de Oro Water District running to other water districts for help not only for its damaged water systems but also for its employees whose homes were destroyed by the floods.

- Typhoon Yolanda (2013), one of the strongest cyclones to hit Southeast Asia, and particularly Tacloban City in the Philippines, considered one of the deadliest on record, killed more or less 6,300 persons in the Philippines alone.

In addition to natural disasters, man-made disasters such as terrorist attack, chemical spills, massive and lengthy power failure, and fire pose a threat to water supply systems and the continuity of service

Most water districts in the country have no disaster preparedness and response plan in place that would reduce the risk of water supply shortage and interruptions and water quality deterioration both due to natural and man-made disasters. Consequently, water districts are caught flatfooted during a disaster; thus, facilities that took years to build are destroyed in an hour, or even minutes.

Likewise, the public trust earned by the water district is destroyed when disaster is not properly addressed and managed.

Purpose of Emergency Response Plan

The purpose of this Emergency Response Plan (ERP) is to provide the Manaoag Water District (MANWAD) with a standardized response to emergencies and calamities specifically typhoons, flooding, drought, earthquake and others that my result in disruption of water supply service, sickness, and epidemic.

This ERP was developed from the experience of Pangasinan, in particular and North and Central Luzon, in general, of some destructive calamities that hit the area, such as Typhoons Cosme in 2008, Ondoy and Pepeng in 2009, Pedring in 2011, and Ompong in 2018. During the 1990s, Pangasinan was one of the provinces devastated by the earthquake that hits Northern Luzon. During summer season, Pangasinan experiences extreme dry weather that greatly affects water supply for irrigation due to depletion of water levels on rivers and dams and lower water tables on underground water sources.

This ERP is provided to prevent, minimize, and mitigate injuries to personnel and damage to vital facilities during the onslaught of disasters.

The objectives of this ERP are the following:

1. To rapidly restore water service after an emergency;
2. To minimize damage to vital facilities during an emergency;
3. To mitigate the impact of disasters on water users;
4. To minimize injuries to employees during an emergency;
5. To minimize negative impact on public health;
6. To provide efficient information dissemination to stakeholders.

Definition of Terms

Unless otherwise specified, the following words shall mean:

Crisis - any unexpected event or series of events that has the potential to, or does presently, significantly impact and/or challenge the public's perception of the safety of the product, and the integrity of service of MANWAD

Crisis Communication - the flow of information during a crisis among an organization, its employees, the media, the government, law enforcement and the general public

Controversial issues - situations of growing controversy or negative climate that threaten the reputation, organizational, legal, or financial stability of MANWAD. It may include police investigations, protests and similar situations.

Emergency - an abnormal situation requiring prompt action beyond normal procedures as it threatens human life, safety, health, property or the environment.

Response - The actions taken during a crisis to minimize the impact of an emergency, protect the water supply, and return the water system to normal operating conditions.

Service - as used in this document shall mean water supply service unless otherwise specified

Triage - the process of sorting victims, as of a battle or disaster, to determine medical priority in order to increase the number of survivors.

Acronyms

BFP – Bureau of Fire Protection

DILG - Department of the Interior and Local Government

DOH - Department of Health

DOST – Department of Science and Technology

ERP – Emergency Response Plan

EMT - Emergency Management Team

EOC – Emergency Operations Center

ERT - Emergency Response Team

FOD - Field Operations Division

HOA - Homeowners' Association

LGU - Local Government Unit

LPS – Liters per Second

LWUA – Local Water Utilities Administration

MANWAD – Manaoag Water District

MDRRMC – Municipal Disaster Risk Reduction and Management Council

NDRRMC – National Disaster Risk Reduction and Management Council

NAWASA – National Waterworks and Sewerage Administration

NGA - National Government Agency

PAGASA – Philippine Atmospheric Geophysical Services Administration

PNA – Philippine News Agency

PNP - Philippine National Police

PVC – Polyvinyl Chloride

SOP - Standard Operating Procedure

WFP – World Food Program

I. EMERGENCY PLANNING INFORMATION

Emergencies Experienced by MANWAD

Typhoons/Storms. Pangasinan has experienced different typhoons of different intensity. Some are more devastating than others. Fortunately for MANWAD, there was no incident serious enough to damaged its water sources. The deepwells were undisturbed. The power outage that resulted from destroyed powerlines though caused some pump stations without generator sets to not operate. The outage however lasted only for maximum of 72 hours which means the full operation of the District came back with it.

Droughts / El Niño Phenomenon. Pangasinan has also experience droughts in the past. The latest occurrence was around 2015-2019. On 2019, PAGASA (Philippine Atmospheric Geophysical and Astronomical Services Administration) published an article through the Philippine News Agency (PNA) that Pangasinan may experience a two-months delay in rainy season which means that summer or drought on that year may extend to September due to El Niño *(PNA, March 29, 2019)*. Also, in 2021 the World Food Program (WFP), the world's largest international humanitarian organization dealing with saving lives in times of disasters and climate change, conducted a study and declared Pangasinan, among other provinces in Visayas and Mindanao to be most exposed to flooding and drought due to climate change *(Manila Times, October 20, 2022).*

The drought somehow affected the production of deepwells. Some wells exhibited lower water levels. Supply distribution was slightly affected and customers on the extremities of the service area and those lying on higher elevations experienced lower water pressure and volume, especially during peak hours. This, however did not affect the overall service of MANWAD.

Partnership and Coordination

Barangays. Manaoag has a total of 26 barangays. MANWAD coordinates with these barangays for information dissemination and access to affected customers and MANWAD facilities. (*see Appendix 5: List of Barangays and Barangay Captains)*

Banks. The current bank of MANWAD is the Land Bank of the Philippines, specifically Land Bank – Mangaldan branch. MANWAD coordinate with this bank for special or priority arrangements on releasing of fund during emergency. Land Bank – Mangaldan is located at VG Maningding Bldg., Rizal St., Poblacion, Mangaldan, Pangasinan. Telephone numbers: *(075) 615 0483* and *(075) 615 0462.*

Dagupan Electric Corporation (Decorp). Decorp is the electric utility supplier for Manaoag. MANWAD coordinates to them regarding power shut offs and restoration. It also coordinates to them immediate repairs of damage cables, transformers, and poles that might affect the operation and restoration to normal water supply of MANWAD. Decorp Hotline numbers:

Customer Service / Billing / Collection

(075) 522 2940
(075) 522 2782
(075) 522 0562
09178960562 – Globe
09257100494 – Sun

No Light / Line Trouble / Others

(075) 522 4145
(075) 522 5433
(075) 515 2870
09178970562 – Globe
09257269546 – Sun

Hospitals. MANWAD coordinates with nearest hospitals for emergency and immediate treatment.

Name of Hospital	Location	Contact Person	Contact Information
Manaoag Community Hospital	Brgy. Baritao, Manaoag, Pangasinan	Dr. Donn P. Doria	(075) 519 4833 manaoagcommunityhospital2013@yahoo.com
Mapandan Community Hospital	#24 Fire Tree St., Poblacion, Mapandan, Pangasinan	Dr. Nario G. Ferrer	(075) 632 0491 mapandancommhosop@yahoo.com
Pozorrubio Community Hospital	Talogtog, Pozorrubio, Pangasinan	Dr. Julian B. Rose	(075)-632-3978 pozmunhospital@gmail.com
Urdaneta District Hospital	Dilan Paurido, Urdaneta City, Pangasinan	Dr. Edgardo C. Espinosa	(075) 636-0690 urdanetadistricthospital@gmail.com
St. Camillus Hospital	Brgy. Licsi, Manaoag, Pangasinan	Dr. Ma. Camille G. Mendoza	(075) 529 1909
Urdaneta Sacred Heart Hospital	Mac Arthur Highway, San Vicente, Urdaneta City	Dr. Rodolfo Parayno	(075) 568 2294 urdanetasacredhearthospital@gmail.com
Pangasinan Provincial Hospital	Brgy. Bolingit, San Carlos City, Pangasinan	Dr. Cipriano C. Fernandez	075-5322603 pphscgh@yahoo.com

Local Water Districts (LWD) Around Manaoag. MANWAD coordinates with neighboring water districts for assistance such as supply of materials, rental or barrowing equipment, vehicle, and additional manpower if need arises. The LWDs accessible to MANWAD are the following:

LWD	Location	Contact Person	Contact Information
Binalonan Water District (BIWAD)	Mac Arthur Highway, Binalonan, Pangasinan	Engr. Dominador Castañeto, Jr. (General Manager)	(075) 6374238 biwad_binalonan@yahoo.com
Mangaldan Water District (MAWAD)	Poblacion, Mangaldan, Pangasinan	Engr. Marcelo M. Petonio (General Manager)	(075) 5235884 (075) 653 0574

Municipal Disaster Office. The Municipal Disaster Office, under the direction of the Municipal Disaster Risk Reduction and Management Council - Manaoag (MDRRMC-Manaoag) is the agency where MANWAD coordinates its effort during and after every disaster or emergency event. On this coordination meetings, strategies for evacuation, rescue, supply of potable water, and post disaster action are discussed. The MDRRMC and the Municipal Disaster Office are located at the 2nd Floor of the New Municipal Building and currently headed by Hon. Mayor Jeremy Agerico Rosario and Mr. Carlito Hernando, respectively.

Municipal Fire Department. The Municipal Fire Department, or the Bureau of Fire Protection - Manaoag (BFP - Manaoag) is an agency under the umbrella of Department of Interior and Local Government (DILG). During disasters and emergency events, MANWAD coordinates with BFP for the use of their firetrucks for the delivery of water to areas affected. The BFP is located just beside the Municipal Hall and currently headed by Acting Fire Marshal FInsp. Virgilio A. Mamitag III.

WASH Cluster. MANWAD, being the water utility provider of Manaoag, and under the supervision of Local Water Utilities Administration (LWUA), is a member of WASH Cluster. WASH is operationalized during emergencies by virtue of the *Department of Health Administrative Order Number 2020-0032 (DOH A.O. No. 2020-0032) dated July 22, 2022 with Subject: National Policy on Water, Sanitation, and Hygiene (WASH) in Emergencies and Disasters.*

Sources of Information

Weather Updates. Weather updates can be sourced generally from PAGASA (www.pagasa.dost.gov.ph). This agency announced its regular advisory and other news mainly through media (print and broadcast) and through its social media platform, www.facebook.com>PAGASA.

Earthquake / Volcanic Activities. Earthquakes and volcanic activities bulletins, information and updates can be sourced through PHIVOLCS (Philippine Institute of Volcanology and Seismology). They can be access through their website www.phivolcs.dost.gov.ph and social media page www.facebook.com>PHIVOLCS.

II. WATER DISTRICT INFORMATION

The water utility operation of the Municipality of Manaoag before was under the National Waterworks and Sewerage Authority (NAWASA) until its abolition on 1969. After the NAWASA was dissolved, it was transferred to the Local Governement. On May 26, 1980, through the Sanggunian Bayan Resolution Number 34, Manaoag Water District (MANWAD) was established and took over its operation. Presently, the water utility operation of the Municipality of Manaoag is handled and managed by MANWAD, based on the national policy, the P.D. 198 known as *Provincial Water Utilities Act of 1973 favouring local operation and control of water systems; authorizing the formation of local water districts and providing for the government and administration of such districts; chartering a national administration to facilitate improvement of local water utilities; granting said administration such powers that are necessary to optimize public service from water utility operations, and for other purposes.* On September 12, 1980 the Local Water Utilities Administration (LWUA) issued Conditional Certificate of Conformance (CCC) No. 128 to MANWAD.

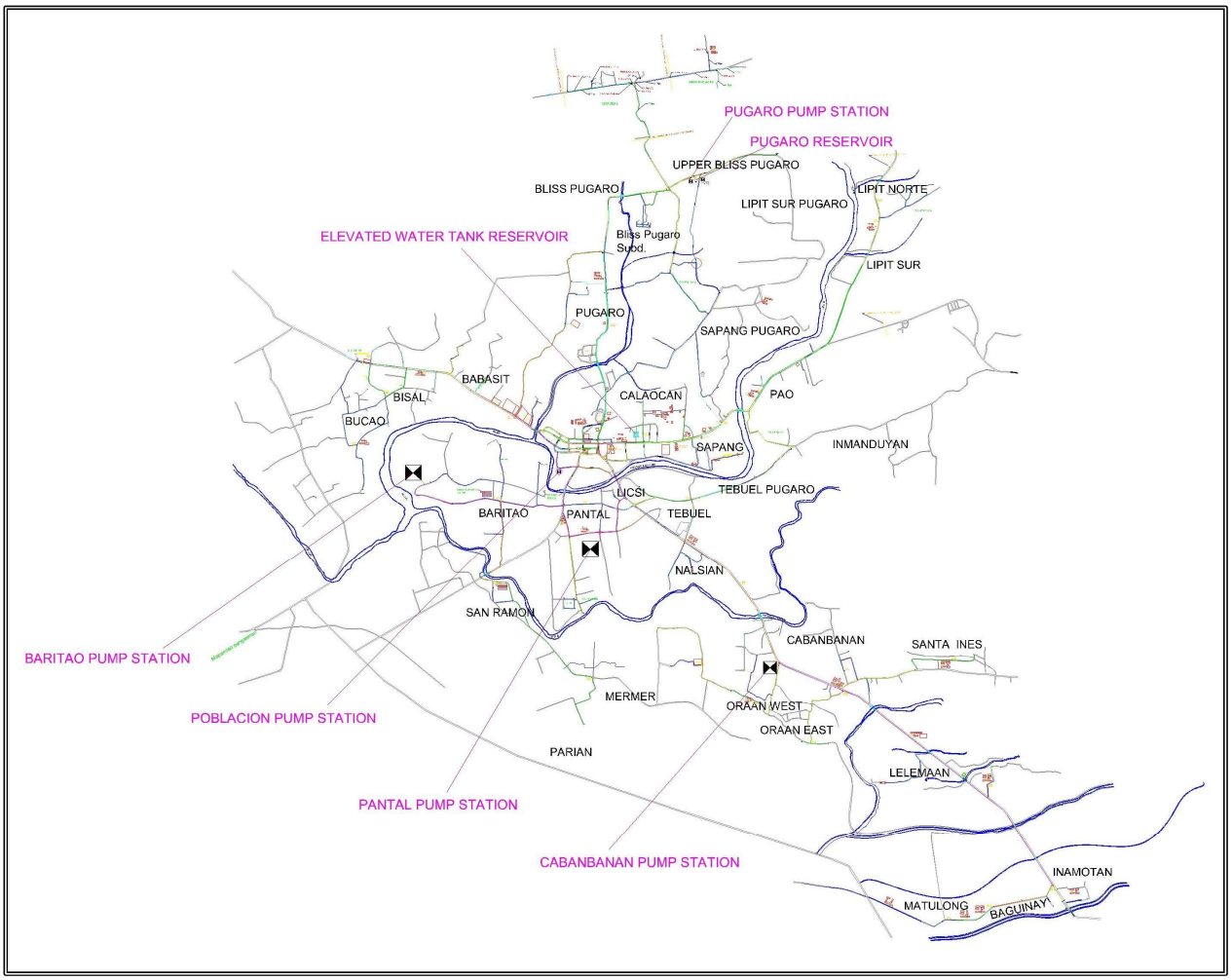
Currently, Manaoag Water District is the only water utility provider in the Municipality of Manaoag. It is a non-profit oriented and receives no subsidy from the national and local government. The revenue raised is solely from the costumers' monthly payments of water bills and other installation costs. Local Water Districts were declared a Government Owned Controlled Corporation (GOCC) by Supreme Court as of 1992.

The district is currently managed by its General Manager, MS. FLORDELIZA N. TEJANO. It has four divisions namely: Administrative and General Services Division headed by MS. MARLENE CONSTANCIA F. MANAOIS, Finance and Commercial Division headed by

MR. RUSTY MARK V. FLORES, Production and Water Quality Division headed by ENGR. CASIMERO G. CLAVERIA, Engineering and Construction Division headed by ENGR. AQUILEO F. MISAGAL.

Number of Employees	58	
Permanent	48	
Job Order	7	
Temporary	2	
Co-terminus	1	
Ratio of Connection per Employee	148	
Total Number of **Active** Service Connections	8,459	
Number of Domestic Connection	7,968	
Number of Commercial Connection	400	
Number of Government Connection	91	
Population Served	42,295	
Sources of Supply		
Deep Wells	5	
Average Monthly Production	246,626	cu.m
Average Monthly Billed Water	194,430	cu.m
Unaccounted for Water	21.16	%
Average Monthly Consumption per Connection	10	cu.m
Average per Capita per Day Consumption	9,705	lpcm

Service Coverage



Transmission and Distribution Line. The interconnected transmission pipelines originating from the five water sources namely, Baritao, Cabanbanan, Pantal, Poblacion, and Pugaro. However, 100mm, 150mm and 200mm to 250mm transmission pipelines are interconnected to each other also to the Elevated Steel Tank. The existing transmission line have a carrying capacity of about 90-120 lps. This was based on the hydraulic analysis of the 200mm transmission pipelines and actual recorded production.

Length of the following Transmission and Distribution Lines:

250 mm	PVC	4.178 KM
200 mm	PVC/FIBERGLASS	0.591 KM
150 mm	PVC, GI	27.859 KM
100 mm	PVC, GI	0.123 KM
75 mm	PVC, GI	0.123 KM
63 mm	PVC	0.035 KM
50 mm	PVC	3.2677 KM
25 mm	PVC	0.035 KM
	TOTAL LENGTH:	**36.3057 KM**

Service Area. The Municipality of Manaoag is composed of twenty-six (26) barangays. Manaoag Water District is currently serving eight thousand four hundred fifty-nine (8,459) households within the municipality. This comprises to more or less 42,295 out of 76,045 population (*based on 2020 census*) or around *55.62%* population coverage. The farthest delivery to the South is Barangay Matulong, about ten (10) kilometres from Barangay Poblacion. Farthest Northern delivery point is Barangay Pugaro, about seven (7) kilometres away from Barangay Poblacion. Currently, MANWAD serves 25 out of 26 barangays of Manaoag, one (1) barangay from the Municipality of San Jacinto, two (2) barangays from the Municipality of Pozorrubio, one (1) barangay from the Municipality of Laoac, and three (3) barangays from the city of Urdaneta.

Number of service connection per barangay.

Babasit	787	Ma-tulong	140	Sta. Ines	110
Baguinay	238	Mermer	24	Tebuel	459
Baritao	709	Nalsian	274	Inmanduyan, Laoac	2
Bisal	228	Oraan East	59	Sta. Maria, San Jacinto	10
Bucao	179	Oraan West	116	Maambal, Pozorrubio	167
Cabanbanan	302	Pantal	455	Nantangalan, Pozorrubio	123
Inamotan	240	Pao	544	Catablan, Urdaneta City	1
Lelemaan	160	Poblacion	1,603	San Jose Leet, Urdaneta City	84
Licsi	320	Pugaro	1,132	Sitio Isla Pinmaludpod, Urdaneta City	48
Lipit Norte	149	San Ramon	371		
Lipit Sur	248	Sapang	110		

Supply Source, Transmission, Distribution. The District currently has five water sources, namely, Baritao, Cabanbanan, Pantal, Poblacion and Pugaro. Storage facilities are the Elevated Steel Tank at Brgy. Calaocan and a Glass Fused Reservoir at Brgy. Pugaro.

Baritao Pumping Station

The Pumping Station is Located at Barangay Baritao Manaoag, Pangasinan or Latitude of 16°02'19.8" and Longitude 120°28'0.72".

Year constructed: 2022

Discharge Capacity: 35 LPS (90,720 m³)

Cabanbanan Pumping Station

The Pumping Station is Located at Barangay Cabanbanan, Manaoag, Pangasinan or Latitude of 16°01’44” and Longitude 120°30’09”.

Year constructed: 2004

Discharge Capacity: 20 LPS (51,840 m³)

Pantal Pumping Station

The Pumping Station is located Barangay Pantal Manaoag, Pangasinan or Latitude of 16°02’20” and Longitude of 120°28’58”.

Year constructed: 1994

Discharge Capacity: 30 LPS (77,760 m³)

Poblacion Pumping Station

The Pumping Station is located at Aquino Street Barangay Poblacion Manaoag, Pangasinan or Latitude of 16°02’28” and Longitude of 120°29’08”.

Year constructed: 2017

Discharge Capacity: 30 LPS (77,760 m³)

Pugaro Pumping Station

The Pumping Station is Located at Barangay Pugaro Manaoag, Pangasinan or Laltitude of 16°04’25.8” and Longitude 120°29’55.1”

Year constructed: 2017

Discharge Capacity: 30 LPS (77,760 m³)

380 m³ Elevated Steel Water Reservoir

This Reservoir is located at Barangay Calaocan Manaoag, Pangasinan or Latitude 16°2'44" and Longitude 120°29'28".

Year constructed: 1994

380 m³ Glass Fused to Steel Reservoir with Booster Pump and CPS

The Reservoir is Located at Barangay Pugaro Manaoag, Pangasinan or Latitude of 16°04'25.8" and Longitude 120°29'55.1"

Year constructed: 2022

MANWAD PRODUCTION CAPACITY

(Under Normal and Standby Power)

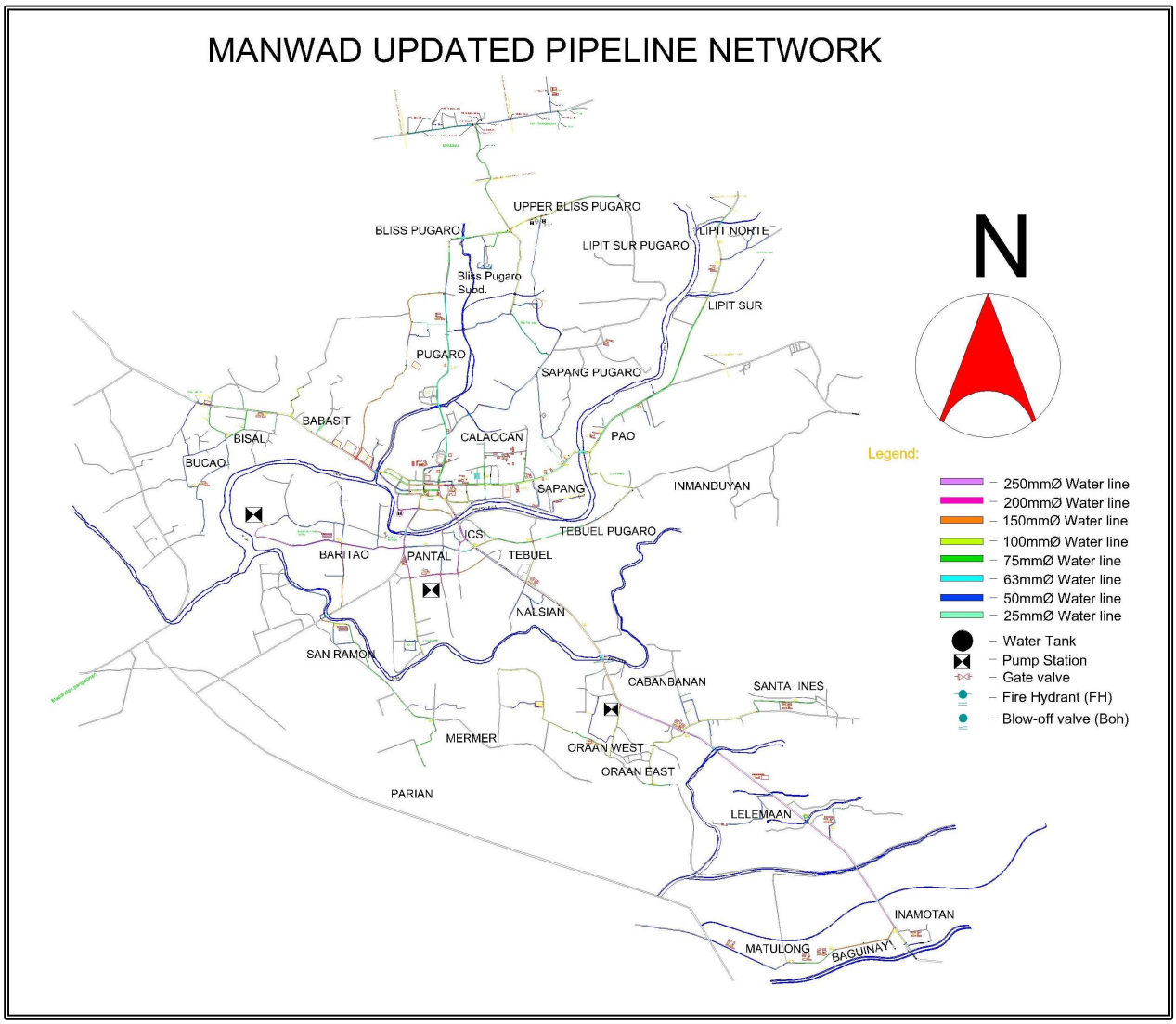
SUPPLY SOURCE INFORMATION

Pump Station	Location	Pump Type / Brand	HP	Capacity (m^3/hr) Normal Power Supply	Capacity (m^3/hr) Emergency Power Supply	Normal Static Water Level (m)	Normal Pumping Water Level (m)	Status
Pantal	Brgy. Pantal	Submersible / Grundfos	40	108	108	7.5	12	Operational
Cabanbanan	Brgy. Cabanbanan	Submersible / Grundfos	30	72	72	2.5	8	Operational
Poblacion	Brgy. Poblacion	Submersible / Grundfos	30	108	108	6	12	Operational
Pugaro 2	Brgy. Pugaro	Submersible / Grundfos	10	19	19	9.3	13	Operational
Baritao	Brgy. Baritao	Submersible / Grundfos	40	126	126	8.5	12	Operational
TOTAL				**433**	**433**			

LIST OF EMERGENCY POWER FACILITIES

No.	Location	Brand	KVA	Fuel Consumption (Lit / Hr.)	Fuel Storage (Liters)	Estimated Operating Hours	Status	Responsible Person/Contact Number
1	Pugaro	Cummins	100	5	200	As needed	Operational	Dominador Yaranon - 09189673631
2	Pugaro	Perkins	40	4	200	As needed	Operational	
3	Pantal	Perkins	100	10	200	As needed	Operational	
4	Cabanbanan	Perkins	80	10	200	As needed	Operational	
5	Poblacion	Perkins	100	13	200	As needed	Operational	
6	Baritao	Cummins	100	12	200	As needed	Operational	

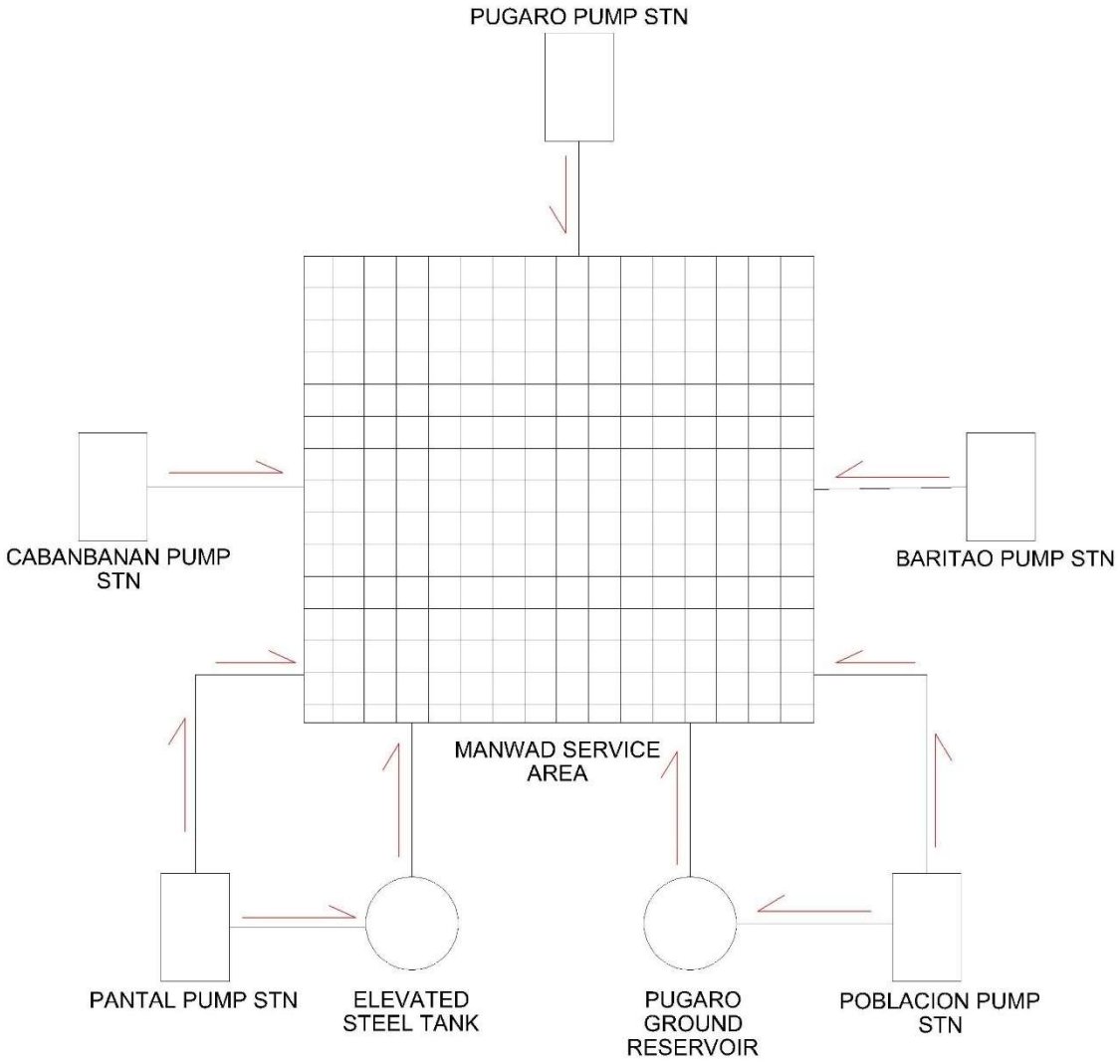
UPDATED PIPELINE NETWORK



OTHER CRITICAL INFRASTRUCTURE

No.	Infrastructure / Description	Location	Capacity (m^3)	Mode of Operation	Remarks
1	Elevated Steel Tank	Brgy. Calaocan	380	Gravity Type	Operational
2	Glass Fused to Steel Reservoir	Brgy. Pugaro	380	Pump Operated / CPS	Operational

MANWAD SERVICE AREA SCHEMATIC DIAGRAM



LIST OF EMERGENCY EQUIPMENT

Equipment Supply Description	Location	Function	Responsible Person / Title	Contact Number
Transport Equipment				
1. Hilux	Head Office	Transport of Personnel	Edwin Mendoza	0998-5101312
2. Multi Purpose Vehicle (Chariot)	Head Office	Transport of Equipment	Vittorio Veloria	0920-9702505
3. Motorcycles with Sidecar (6-units)	Head Office	Transport of Materials	Jelynne Barrozo / Irish Sobrepeña	0998-5538760
Communication Equipment				
1. Cellular Phones	Head Office	Communication and Coordination	Assigned Personnel	
Emergency Equipment				
1. Flashlight / Flood Lights	Head Office	Visibility	Rodell Soriano	0918-9657814
2. Tool Kits	Head Office	Various	Rodell Soriano	0918-9657814
3. First Aid Kit	Head Office	Medical Emergency	Isaac Juaquin	0920-9764671
4. Mobile Generators	Head Office	Temporary Power for Tools and Other Equipment	Mario Moral	0939-9746202

LIST OF EQUIPMENT FOR PURCHASE

- Water Tanker
- Small Truck (Elf)
- Chainsaws
- Additional Flood Lights
- Radio
- Chain Blocks

III. EMERGENCY OPERATIONS

Types of Emergencies

Depending on their origin emergencies may be classified into two:

a. Those caused by natural phenomena

b. Those caused by human activity

Those emergencies may further be categorized into two:

a*) **Water Supply Service Emergency*** - those which may potentially and directly affect the water system, and consequently, the continuous provision of water supply, and

b) ***Non-Water Supply Service Emergency*** **-** those that will not affect provision of water supply but will potentially harm or distort the public image of MANWAD and the goodwill that it has established, or put to risk the health and life of its employees or its customers.

Water Supply Emergency Situations

SITUATION	DESCRIPTION	EFFECTS ON WATER SUPPLY SYSTEMS
Earthquake	Movement in the earth's crust, the main cause of earthquakes, deform the rocks below the earth's surface and build up energy that is suddenly released in the form of seismic waves that shake the surface. Earthquakes are one of the most serious hazards, given their enormous destructive potential, the extension of the areas affected, and the impossibility of forecasting their occurrence.	• Total or partial destruction of deepwells, transmission, storage, and distribution systems • Rupture of transmission and distribution pipes • Interruption of electric power, communication lines, and access routes • Deterioration of the water quality at the source due to landslides and other phenomena • Loss or reduction in yields from groundwater sources and surface water sources

Volcanic eruptions	Volcanic eruptions result from the release of energy caused by the movement of magma near the earth's surface. The volume and magnitude of the eruption varies depending on the quantity of gases, the viscosity of the magma and the permeability of the ducts and chimneys of the volcano.	• Total destruction of the infrastructure in the areas directly affected by pyroclastic flows and surges • Obstruction caused by ash infiltrating surface water intakes, intake screens, transmission pipes, flocculators, clarifiers, and filters • Deterioration of the water quality at surface intakes and open reservoirs due to ash falls • Contamination of rivers, streams and springs in lahar deposition areas
Landslides	Landslides are the result of sudden or gradual changes in the composition, structure, hydrology or vegetation of sloping terrain. They are often closely linked to primary hazards such as earthquakes or water saturation caused by hurricanes or intense rainfall.	• Changes in the physical or chemical characteristics of intake water, which will affect treatment • Total or partial destruction of the facilities, particularly intake and transmission components in the path of active landslides; • Contamination of the water at surface intakes located in mountainous areas
Floods	Floods are the result of excessive rainfall, unusually high sea levels, or the rupture of dams and dikes. Increasingly, floods result from human activities causing environmental degradation, deforestation, and inappropriate land use. On the other hand, some floods are the result of the changes in geomorphology and climatology of water catchment areas	• Damage to pumping stations close to flooding waterways • Rupture of exposed pipes across and along rivers and streams • Power cuts, road lockages, and disruption of communications • Intrusion of salt water into continental aquifers, contaminating or reducing the availability of groundwater
Drought	Droughts are prolonged dry periods during natural climatic cycles, caused by a complex set of hydrometeorological elements that affect the soil and the atmosphere	• Loss or reduction of surface and groundwater sources and deterioration of water quality • A decline in water levels at intake points and in storage facilities • Compulsory rationing of water supply

Hurricanes/ Severe Storms/ Typhoons	Depending on wind speeds, these natural phenomena are called tropical depressions (winds up to 63 km/h accompanied by changes in atmospheric pressure), tropical storms (winds between 64 and 119 km/h accompanied by intense rainfall), or hurricanes (wind speeds of 120 km/h or higher, accompanied by heavy rainfall and significant changes in atmospheric pressure)	• Partial or total damage to facilities, command posts and buildings, including broken windows, damaged roofs, and flooding • Rupture of mains and pipes in exposed areas, such as over rivers and streams • Rupture or disjointing of pipes in mountainous areas due to landslides and water torrents • Rupture and damage to tanks and reservoirs; • Damage to electrical transmission lines and distribution systems.
Massive Power Failure	It is a short- or long-term loss of the electric power covering a very wide area.	• Total or partial disruption of water supply

Non- Water Service Emergency Situation

SITUATION	DESCRIPTION	POTENTIAL EFFECTS
Robbery	Robbery is the crime of taking or attempting to take something of value by force or threat of force or by putting the victim in fear. Among the types of robbery are armed robbery involving use of a weapon.	• Panic among employees and customers within the premises of MANWAD • Affect cash flow • Injury, or possibly death, if not properly managed
Theft	Theft is the taking of another person's property without that person's permission or knowledge with the intent to deprive the rightful owner of it	• Negative impact on public image (erosion of public trust and confidence on capability to deliver service) • Negative impact on employee's morale and performance • May affect cash flow

Bomb Threat/ Explosion	A bomb threat is generally defined as a threat, usually verbal or written, to detonate an explosive or incendiary device to cause property damage, death, or injuries, whether or not such a device actually exists. Explosion is a violent release of energy that may cause injury and/or damage to property	• Panic among employees and customers within the premises of MANWAD • Affect cash flow • Injury, or possibly death, if not properly managed • Damage to facilities • Water service interruption
Terrorist Attack/ Sabotage	A situation involving actual or threatened violence, which can be sudden and random in nature. In a workplace setting, sabotage is the conscious withdrawal of efficiency generally directed at causing some change in workplace conditions.	• Panic among employees and customers within the premises of MANWAD • Water service interruption • Injury, or possibly death, if not properly managed
Fire / Arson	The destructive burning of a building and other Water District facilities.	• Negative impact on public image (erosion of public trust and confidence on capability to deliver service) • Panic among employees and customers within the premises of MANWAD • Possible water service interruption • Injury, or possibly death, if not properly managed
Work Stoppage	Mass refusal of employees to work, usually taking place as a result of unresolved employee grievances.	• Negative impact on public image (erosion of public's trust and confidence on capability to deliver service) • Sales Drop • Slower productivity

Misinformation	The act of disseminating false/malicious information among the customs the employees or other stakeholders of the agency either by somebody within the agency or a third person with the intent of destroying the public image of the agency	• Negative impact on public image (erosion of public's trust and confidence on capability to deliver service) • Conflict among the employees which may affect productivity
Chemical Spills	Chemical spillage/leak that may pose a threat to the environment, and human life and health.	• Cause death or injury if inhaled by humans • Degrade the environment • Pollute the atmosphere, groundwater, soil, wetlands and waterways causing danger to human health and even deaths
Scandal	Refers to the behavior or widely publicized allegation or set of allegations that damages (or tries to damage) the reputation of an institution, individual or creed. These may be based on true or false allegations or a mixture of both.	• Negative impact on public image (erosion of public's trust and confidence on capability to deliver service) • Negative impact on employee's morale and productivity

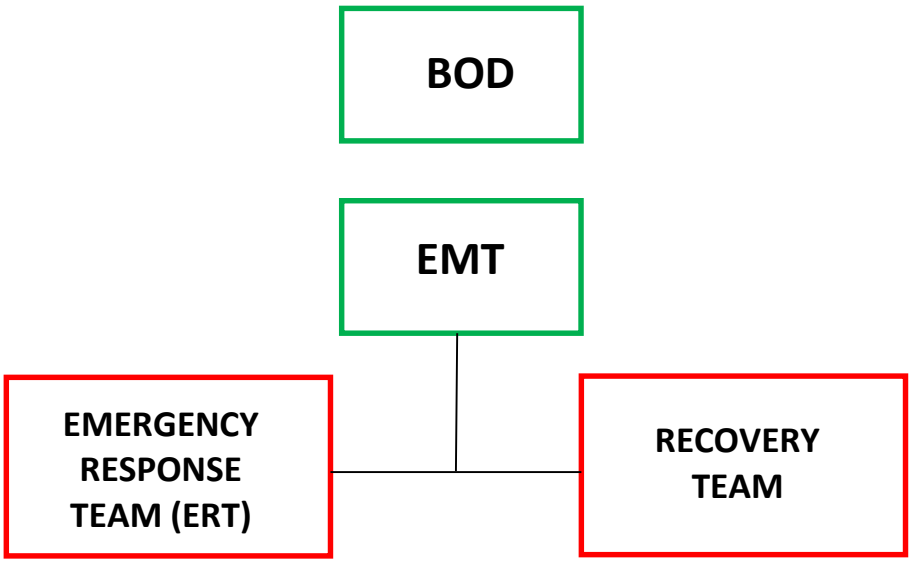
Emergency Management Team (EMT)

There shall be an Emergency Management Team which shall immediately convene in the event of a crisis for the declaration of alert levels and such other instructions to cope with the crisis. The EMT is broken down to smaller sub-teams to respond to specific crisis situations. These sub-teams are called Emergency Response Teams (ERT) and the Recovery Team which are subordinate to the EMT.

Upon the occurrence of an emergency, the EMT shall convene at the Emergency Operations Center (EOC) which is located at the GM's Office, MANWAD Head Office, Aquino St., Brgy. Poblacion, Manaoag. An alternate site of the EOC shall be identified by the EMT Team Leader in case the main EOC will not be accessible.

During the post emergency event and repair and recovery stage, coordination and first contact with local, national and international organizations and agencies extending aid and assistance shall be done with the Office of the General Manager. At any given instant, the General Manager may call at any time for a briefing of the prevailing situation.

EMERGENCY MANAGEMENT TEAM CORE STRUCTURE



Composition of Emergency Management Team

The Emergency Management Team is the functional organ in charge of planning, organizing and guiding the use of human, material and financial resources, and implementation of any mitigation, prevention, preparedness, response, rehabilitation or reconstruction activities regarding emergencies or disasters. It is directly accountable to the Board of Directors and will assume maximum authority in crisis and disaster situations.

The EMT is composed of the following:

REGULAR TEAM COMPOSITION	ALTERNATE	RESPONSIBILITY
General Manager (Team Leader)	Officer assigned by the GM or the designated OIC for the period	• Direct and coordinate all aspects of the organization's response during a crisis situation • Directs and monitors the emergency activities. • Assigns personnel as needed.
Division Manager- Engineering and Construction	Designated OIC for the period	• Oversees repair of damaged facilities and equipment and takes actions to prevent further deterioration
Division Manager- Production and Water Quality	Designated OIC for the period	• Notifies and updates the EMT on the status of water quality, production and distribution immediately before, during and immediately after the crisis • Assists in determining when the resumption of normal operation can begin. • Assesses the conditions of structural, electrical, and mechanical components of all facilities of MANWAD including but not limited to the pumping stations and reservoirs
Division Manager- Finance and Commercial	Designated OIC for the period	• Ensures that available funds are mobilized quickly and effectively for the procurement of supplies and payment for services • Ensures availability of in-house and rental vehicles and machinery for quick mobilization • Maintains an updated list of suppliers and contracts or agreements specifically designed for emergency response

		• Provides the EMT with information regarding customer feedback and complaints and facilitates flow of information to costumers • Ensures that official statements regarding the crisis is communicated to all customers
Division Manager – Administration and General Services	Designated OIC for the period	• Ensures availability of personnel and materials and maintains a current list of personnel location • In the event of evacuation, account for all personnel and immediately inform EMT of any missing personnel • Facilitates flow of information to employees • Coordinates the administration of First Aid, including the identification and disposition of people receiving such care. • Determines the safest route out of an emergency area and ensures security of people and property
Community Relations Officer		• Establishes and manages a Public Relations area and Media Room during an emergency situation • Serves as liaison to the media, and issue official statements during and in the immediate wake of a crisis. • Coordinates the flow of information • Briefs the media regarding the situation

		• Maintains a list of people who are authorized to speak to the media, and consult/brief these spokespersons before and after they speak with the media.

The Emergency Response Team (ERT)

The Emergency Response Team (ERT) is the first line of defense in emergencies. The ERT confronts an emergency situation and carry out the rehabilitation of the services according to the Emergency Response Plan, and cooperates in the execution of the vulnerability analyses and the prevention and mitigation programs.

Specifically, the ERT coordinates and guides emergency preparedness, response and rehabilitation efforts in their respective areas of responsibility as well as other functions designated by the EMT:

- Participates in post-disaster reconstruction to ensure that the rehabilitated system's vulnerability is reduced;

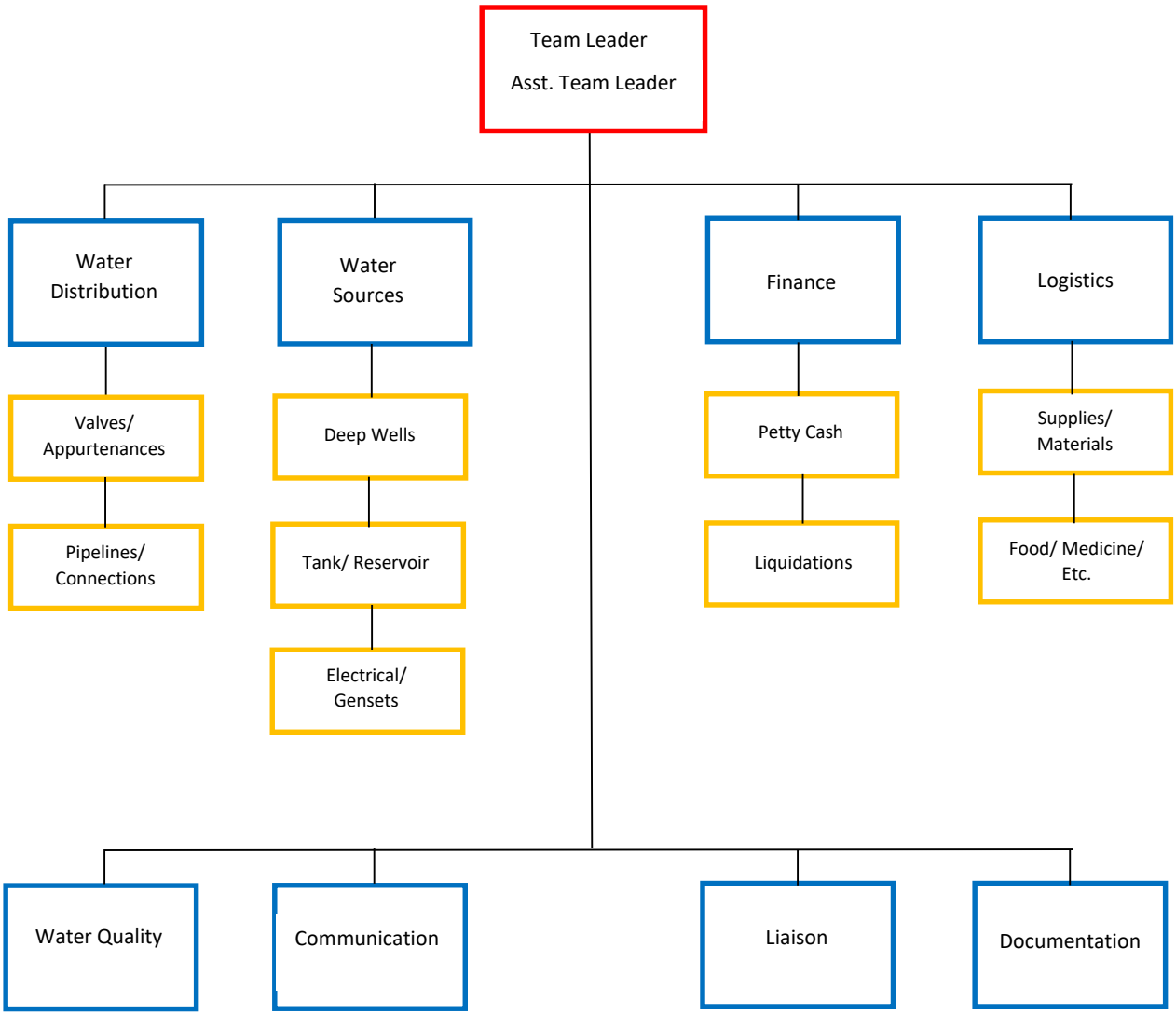
- Designs or carries out the vulnerability assessment and water supply mitigation programs;

- Participates in the improvement of the company's Emergency Response Plan and helps ensure that it remains up to date.

The **Emergency Response Team** shall be composed of the following:

Team Leader	-	Vittorio Veloria
Assistant Team Leader / Recovery Manager	-	Dominador Yaranon
Water Distribution Lead	-	Mario Moral, Jr.
Valves/Appurtenances	-	Lawrenze Magno
Pipelines/Connections	-	Arturo Genita, Jr.
Water Sources Lead	-	Menardo Sotto
Deepwells	-	Archilles Aguilan
Tank/Reservoir	-	Christopher Sagun
Electrical / Gensets	-	Reynald Cariño
Logistics Lead	-	Cecilia Pinpin
Supplies/Materials	-	Rodell Soriano
Food/Medicine/Etc.	-	Isaac Joaquin
Finance Lead	-	Arliza Sotto
Petty Cash	-	Phanela de Castro
Liquidation/Documentation	-	Bernadette Embuido
Water Quality	-	Romulo Prangan IV
Communication	-	Anabelle Ferrer
Liaison (Gov./ Private Entities)	-	George Ildefonso Cristobal
Documentation	-	Rhenelie Irish Sobrepeña

Emergency Response Team Organizational Structure



ERT Roles and Responsibilities

Team Leader. The Team Leader ensures that the ERT functions during an emergency. He leads the team's preparation, response, and recovery efforts. He is responsible for consolidating all important information that shall be reported to the General Manager at the end of every day during the emergency response and recovery period. He also ensures that each component of the team have the capability and resources to operate well. He shall assist the Recovery Manager in the recovery efforts after the emergency.

Assistant Team Leader. The assistant team leader is the designated Recovery Manager. He is in charge of the recovery efforts after an emergency events.

Water Distribution. This team shall ensure that all distribution facilities are intact during emergencies and will conduct assessment and emergency repairs of breakages that may occur. They will also ensure that when some water sources are lost, water pressure is maintained and will not dissipate in the system, through valve manipulation or throttling. This team will also ensure the installation of temporary water connections at fire hydrants and other service connections. It will also be the responsibility of this team to identify strategic location for emergency public water access points. Delivery of water to evacuation centers, in coordination with other teams from other agencies, will be spearheaded also of this team.

Water Sources. This team will ensure the operation of all pumping stations, the tank and the reservoir during emergencies or ensure the proper shutdown of these facilities when necessary. This team will be in-charge of transferring and transporting of generators to designated areas. Likewise, this team shall also conduct an immediate survey and assessment of any damage that may occur and submit a report to the ERT Team Leader.

Water Quality. The assigned person for Water Quality shall ensure the maintenance of water quality throughout the distribution system. He shall establish a protocol for the treatment of water delivered to evacuation centers. He is also in-charge of monitoring water quality of the reservoir and tank. Water quality test results shall be furnished to the ERT Team Leader.

Logistics. Logistics shall ensure availability or procurement of needed supplies and materials for Water Distribution and Water Sources teams. When the appropriate government office declares a state of calamity in Pangasinan, this team shall ensure that the needed documentation for passing MANWAD Board Resolution authorizing emergency procurement is in order. This team shall also be responsible for provisions that the EOC may require as well as those in the evacuation center for MANWAD employees.

Finance. This team shall setup a procedure, if not yet one in place, for payment of supplies and materials that will be procured through emergency purchase as may be authorized by the MANWAD Board. They shall ensure the availability of petty cash fund that will allow for purchasing emergency supplies. They shall also ensure that financial documents that may be needed for liquidation and auditing are in order.

Communications. This team shall prepare and release media updates and information to the public in general on a regular basis. When necessary, this team will spearhead the conduct of media conferences. In addition to providing information to the public, they shall also provide updates to the MANWAD employees on the status of emergency and recovery efforts.

Liaison. A liaison officer for coordinating with the MDRRMC or Municipal Disaster Office or with other appropriate government agencies shall be assigned. This person shall report to the ERT Tearm Leader updates or information gathered from these external entities.

Documentation. The documentation lead shall provide secretarial assistance to the ERT and the Team Leader. Historical documentation of all events as well as measures that were developed by the ERT shall also be the responsibility of this person. Specifically, this lead will be in charge in consolidating the damage assessment reports from the different field teams as well as the drafting of comprehensive report from preparation stage up to the completion of the recovery works. Status updates, whenever possible and necessary, like submission to regulatory agencies, donors, and local and national agencies, shall also be its responsibility.

IV. PRE-EMERGENCY PREPARATION AND PLANNING

The success of the implementation of this ERP depends on the planning and preparation before any emergency occurs. To ensure its effectiveness, the following activities shall be carried out:

No.	Activity	Responsible Team/Personnel
1.	Constant information gathering on weather updates, drought, floods and other calamities	Communications

2.	Ensure road accessibility to all pumping stations, tank, and reservoir	Water Sources
3.	Make sure personnel are available, prepared, and ready on their assign post and tasks	EMT
4.	Ensure availability of chemicals/equipment for water quality test	Water Sources
5.	Meet personnel to discuss alternatives on possible scenarios to happen	EMT
6.	Ensure availability of First-aid kits	Logistics
7.	Evaluate the areas of weak protection of structures (office, pump houses, fencing, ect.)	EMT, ERT
8.	Ensure availability & test operability of Communication Equipment	Logistics
9.	Ensure that standby transport and equipment are ready, in good condition and operational	Logistics
10.	Ensure safety of data by securing back ups	Logistics, Recovery
11.	Conduct regular ERP drill	EMT

V. EMERGENCY ACTION PLANS (EAP)

1. Emergency Action Plan for Storms

The hazard that is introduced by storms in Pangasinan and in Manaoag in particular, is very strong winds. The emergency action plan for storms therefore covers contingencies against this hazard. In the past experience of MANWAD, strong winds caused damages to offices, pumphouses and other above ground structures constructed of light materials. Access roads to pump stations were blocked by toppled trees and electrical utilities. There were flooding in some parts of Manaoag only, specifically those places near the banks of the rivers. Water sources facilities of MANWAD, especially submersible pumps are somewhat resilient to floods.

Sources of Information. The initial source of information that will be available and accessible is the Typhoon Warning Bulletins of PAGASA. The ERT Team Leader or an assigned Emergency Operations Officer, in lieu of the ERT Team Leader, shall monitor the bulletins weekly. As soon as PAGASA issues information on a weather disturbance in the area that will affect the Philippines, monitoring shall be done in a daily basis. When PAGASA issues information of a storm heading towards the country, *EAP Level 1* shall be activated. At this stage monitoring for information will include local announcement. As soon as PAGASA declared information that the

storm is already inside the Philippines' Area of Responsibility (PAR), *EAP Level 2* shall be activated.

Upon issuance of Storm Signal Number 1 over Pangasinan, *EAP Level 3* shall be activated.

Upon issuance of Storm Signal Number 2 over Pangasinan, *EAP Level 4* shall be activated.

Upon issuance of Storm Signal Number 3 or above over Pangasinan, *EAP Level 5* shall be activated.

EMERGENCY RESPONSE PLAN (ERP) PROTOCOL

Condition	EAP Level Activation
PAGASA issues information of a storm heading towards Philippines but outside PAR	Level 1
PAGASA issues information that a storm already inside PAR	Level 2
PAGASA issues storm signal number 1 over Pangasinan	Level 3
PAGASA issues storm signal number 2 over Pangasinan	Level 4
PAGASA issues storm signal number 3 and above over Pangasinan	Level 5

Emergency Action Plan (EAP) Levels

At the start of the typhoon season, around last week of May up to September, the Production and Water Quality Division shall check the availability and operability of all generators.

Upon activation of Level 1, the EOC shall operate for 16 hours with two shifts. Vehicles with assigned drivers shall be readied for gathering the members of the ERT who are on call.

Level 1: *Storm outside PAR*

Activity	Location	Required Logistics	Responsible Team	Responsible Person
Check and seal all openings of production wells	Pantal, Cabanbanan, Poblacion, Pugaro, Baritao	Vehicle, sealing materials	Water Sources	
Check status of elevated steel tank and ground reservoir and its booster pump	Calaocan, Pugaro	Vehicle	Water Sources	
Ensure availability of on-call technicians of suppliers of pumps, motors, controls, gensets	*Pumps and Motors*- Keylargo Industrial Sales – Quezon City *Generators* – Hexagon Distributing Corp – Quezon City		Water Sources Logistics	
Ensure availability and operability of vehicles to be used during emergency	MANWAD Head Office, Aquino St., Poblacion		Logistics	

Level 2: *Storm within PAR*

Activity	Location	Required Logistics	Responsible Team	Responsible Person
Back up all data	MANWAD Office	PC, Laptops, Backup Drives	Logistics	
Check availability of fuel for generators	Pugaro, Poblacion, Pantal, Cabanbanan, Baritao	Vehicle, fuel	Water Sources	
Check availability and functionality of communication, clearing tools, and the provisions and supplies for evacuated MANWAD employees at evacuation center	Head Office	Per list	Logistics	

Level 3: *Storm Signal **Number 1** over Pangasinan*

Activity	Location	Required Logistics	Responsible Team	Responsible Person
Convene Emergency Response and Recovery Team	GM's office, MANWAD Head Office, Brgy. Poblacion		ERT Team Leader	

Activate Emergency Operation Center (16-hour operation)	GM's office, MANWAD Head Office, Brgy. Poblacion	As listed	ERT Team Leader	
Monitor water levels of rivers near MANWAD facilities, and to evacuate facilities if flooding is inevitable	Baritao, Poblacion	Vehicle, flashlights, communications	Water Sources	
Ensure communication lines between MANWAD facilities and EOC		Cellular phones	Logistics	
Confirm coordination with nearest or available laboratory for water quality test		Per list	Water Sources	
Negotiate and confirm location or site for evacuation of affected MANWAD employees and officers and their families	Manaoag Area or immediate adjacent towns	Vehicle	Logistics	

Level 4: *Storm Signal **Number 2** over Pangasinan*

Activity	Location	Required Logistics	Responsible Team	Responsible Person
Coordinate with Manaoag LGU / MDRRMC for distribution of water to evacuation centers	Evacuation Center-Bernal Road, designated schools for evacuation	Vehicles, communication, manpower	Water Distribution	
If flooding is imminent, evacuate MANWAD facilities near rivers to high ground	Pugaro Pump Station-evacuation site	Vehicles, communication, manpower	Water Sources Logistics	
Prepare and ready equipment (e.g. key valve, wrenches, Teflon, etc) to be used for accessing available hydrants and blowoff for loading to trucks for water distribution	Poblacion, Baritao, Cabanbanan, other areas with blow off and hydrants	Vehicle, communication, tools and equipment	Water Distribution	
Installation of temporary public faucets	Designated areas around Manaoag	Service connection materials	Water Distribution	
Prepare for 24-hour	GM's office,		ERP Team Leader	

operation of EOC	MANWAD Head Office, Brgy. Poblacion		Logistics	
Hauling of reserve fuel to genset locations (maintain fuel for at least 24-hours genset operation)	Pugaro, Cabanbanan, Pantal, Poblacion, Baritao	Vehicle, fuel containers, manpower	Water Sources	
Provide advisory to customers to store water	Head Office		Communication	
Set up evacuation center for affected MANWAD employees and officers and their families	Previously confirmed location	Vehicle, communication	Logistics	

Level 5: *Storm Signal **Number 3 and above** over Pangasinan*

Activity	Location	Required Logistics	Responsible Team	Responsible Person
Activate 24-hour operation of EOC	GM's Office, MANWAD Head Office	Per list	ERT Team Leader	
Filling of containers for drinking water at MANWAD Office for emergency use of employees	MANWAD Head Office	20-50 pieces Containers with faucet	Logistics	
Prepare emergency provision (emergency lights, water, foods) for personnel of EOC	GM's Office, MANWAD Head Office	Per list	Logistics	
Post-trauma debriefing of all affected MANWAD employees affected by calamity	MANWAD Head Office		Logistics Documentation	

2. Emergency Action Plan for Floods

Flooding can occur in Pangasinan in general and in Manaoag in particular during heavy monsoon rains and storm due to the presence of rivers within and around the municipality. Rivers that might swell and cause floods in Manaoag are the Angalacan River at Brgy. Licsi, Aloragat River near Brgy. San Ramon, Lipit Sur River at Brgy. Lipit

Sur, and the Bued River which is a major river that originates from Benguet passing through the municipality of Rosario in La Union and municipalities of Sison, Pozorrubio, Manaoag, Mapandan, and Mangaldan in Pangasinan and drains to San Fabian, Pangasinan beach. There is also the imminent threat of overflow from San Roque Dam located at San Manuel, Pangasinan.

As for MANWAD facilities, the Baritao and Poblacion pump stations are the ones at risk if flooding occurs. Together with the monsoon rains and storm, the occurrence of power outage is common during these events.

Sources of Information. The main source of information for flooding is the PAGASA. Upon issuance by PAGASA of a Weather Bulletin with a warning against flooding in Pangasinan, the EAP for planning should be activated.

Emergency Action Plan for Flooding:

Activity	Location	Required Logistics	Responsible Team	Responsible Person
Check and seal all opening of production wells especially the well near rivers	Poblacion, Baritao	Vehicle, sealing materials	Water Sources	
Closely monitor water swelling of rivers near MANWAD facilities and prepare to shut down and relocate equipment	Poblacion, Baritao	Vehicle, flashlight, equipment and tools, manpower	Water Sources	
Ensure availability of fuel (good for 24-hr operation) for all generators in anticipation of power outage	All pump stations	Vehicle, diesel fuel	Water Sources	

3. Emergency Action Plan for Drought

Drought is a common occurrence in Pangasinan as a result of climate change. It can be experienced around October to early parts of May.

Sources of Information. The main source of information for drought is PAGASA. This happens at the onset of El Niño phenomenon. Upon issuance of an El Niño advisory, EAP for Drought *Level 1* should be activated.

Level 1: Issuance of Drought / El Niño Advisory from PAGASA

Activity	Procedure	Required Logistics	Responsible Team	Responsible Person
Commence extensive water conservation campaign	Media and Social Media platforms		Communication	
Weekly monitoring of Pumping Water Level (PWL) or static water levels of all deepwells	Measure the PWL of all deepwells and submit report weekly to ERT Team and Management	Water level measuring tool, vehicle	Water Sources	

Upon occurrence of three successive 10-cm drops or a cumulative drop of 30-cm in the PWL of any one of the production wells, *Level 2* EAP is activated.

Level 2: 10-cm Successive PWL Drop or 30-cm Cumulative PWL Drop of any Well

Activity	Procedure	Required Logistics	Responsible Team	Responsible Person
Throttle or manipulate the discharge valve of the affected well to lower volume discharge	Throttle valves and reduce discharge by increments of 10% per week until the PWL increases back to original level or at least become stable	Vehicle, PWL measuring device, Key valve	Water Sources	
Continue monitoring the PWL of all other production wells	Measure the PWL in all wells and submit report weekly to ERT Team and Management	Vehicle, PWL measuring device	Water Sources	

Upon occurrence of three successive 10-cm drops or a cumulative drop of 30-cm in the PWL of two or more of the production wells, *Level 3* EAP is activated.

Level 3: 10-cm Successive PWL Drop or 30-cm Cumulative PWL Drop of Two or more Wells

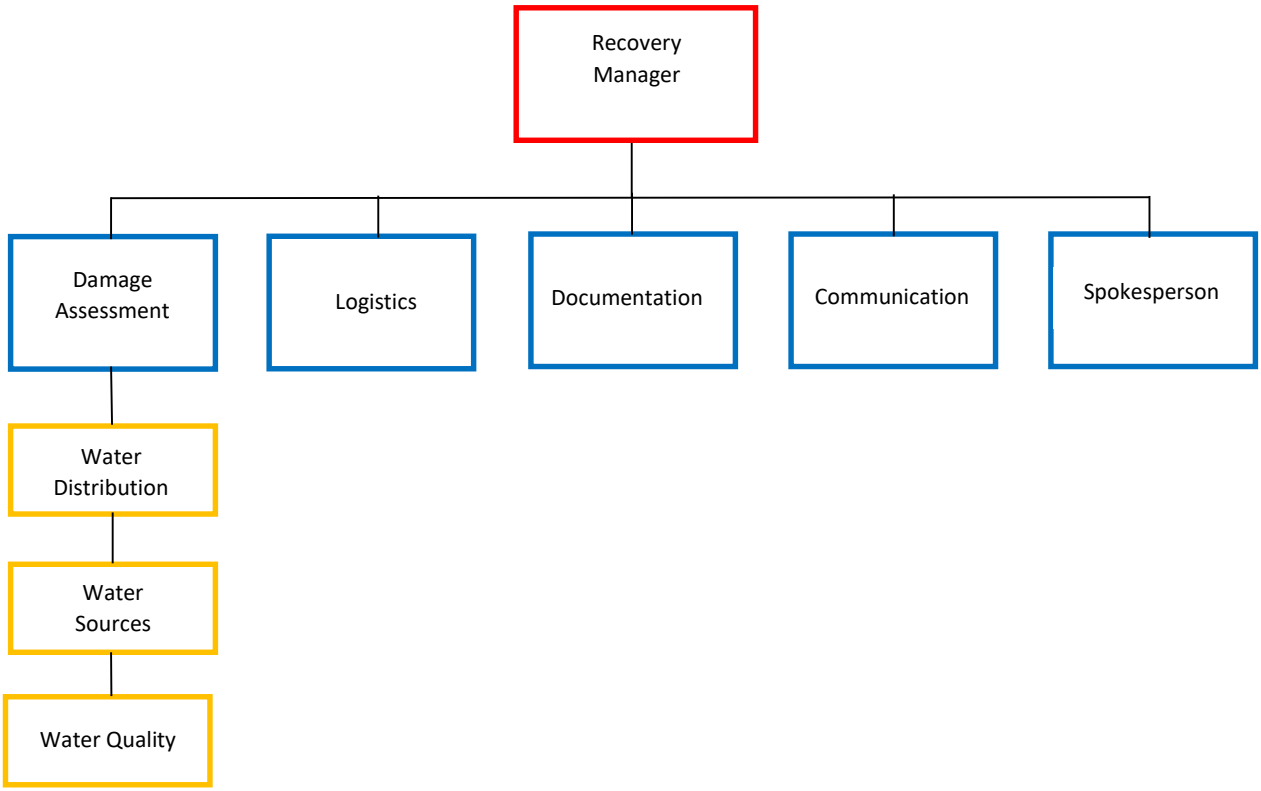
Activity	Procedure	Required Logistics	Responsible Team	Responsible Person
Throttle or manipulate the discharge valve of the affected wells to lower volume discharge	Throttle valves and reduce discharge by increments of 10% per week until the PWL increases back to original level or at least become stable	Vehicle, PWL measuring device, Key valve	Water Sources	
Lower pumps of all affected wells	Lower pumps to cover the maximum cumulative drop in the PWL	Riser Pipes, chain blocks, tripod, wrenches, connectors	Water Sources	
Implement water distribution rationing to accommodate majority of the service area	Throttle valves within service area closely monitoring rise and drop of pressure. Make sure that water is evenly distributed within the system	Key valves, vehicle, pressure monitoring device, pressure gauge, manpower	Water Distribution	
Implement water rationing through water delivery to severely affected areas (if necessary)	Coordinate with LGU with regards to the utilization of fire trucks or water tankers for distribution of water to severely affected areas. This is necessary if all other measures to distribute water evenly through valving fails.	Water tankers (external source)	Communication Water Distribution Logistics	
Monitor more closely water quality in the system	Increase the sampling to twice during normal operations		Water Sources	
Issue advisories on water quality	Issue advisories that MANWAD, despite the crisis, is continuing to implement rigorous water quality measures.		Communication	

	However, water distributed and delivered by tankers, while treated at source, may have been contaminated through handling and therefore MUST BE BOILED before drinking or use for cooking			

VI. RESPONSE PLAN - RECOVERY AND RESTORATION OF NORMAL OPERATION

Immediately within 12 hours after the disaster, the ERT shall commence response efforts during the repair and restoration activities. Coordination and first contact with all partner institutions and agencies extending aid shall be done by the office of the General Manager and the Recovery Team. ERT Assistant Team Leader shall be the Recovery Manager. He will have the responsibility and authority to coordinate recovery planning; authorize recovery activities; protect the health and safety of employees and the public; and initiate, change, or recommend protective actions. He shall be responsible for leading the efforts of the Emergency Response Team towards restoration and returning the system to normal operations.

RECOVERY TEAM ORGANIZATIONAL STRUCTURE



Recovery Team Composition:

Recovery Manager	-	Dominador Yaranon
Damage Assessment Sub Team:		
Team Leader	-	Mario Moral, Jr.
Members:		
Water Distribution	-	Ruel Pagaduan Brando Barroga, Jr. Lemuel Garcia Cesar Lazaro, Jr.
Water Sources	-	Jackson Esteves Christopher Sagun Archilles Aguilan Reynald Cariño
Water Quality	-	Romulo Prangan IV
Logistics	-	Charlie Lorilla
Documentation	-	Jelynne Barrozo
Communication	-	Annabelle Ferrer
Spokesperson	-	Philiamer Amity Celi

Recovery Team Roles and Activities

Water Distribution:

1. Assess and survey all transmission and distribution lines and facilities for any damage that may have been sustained and recommend plans to repair or rehabilitate. Emergency repairs could be performed if necessary to damaged lines to restore normal water delivery.

2. Assess all reservoir (elevated and ground) for any structural damage and recommend corrective or retrofitting measures.

3. Assess all valves and appurtenances for any damage and recommend action plan for repair and rehabilitation.

4. Secure damaged service connections and facilitate meter retrieval in affected areas and coordinate with logistics and commercial for proper disposition.

5. Facilitate installation of emergency water supply access point to hydrants and temporary public water faucet while response and recovery is ongoing and dismantling thereof until restoration of normal service.

Water Sources:

1. Assess all production wells for any damage or contamination sustained. Conduct emergency repair to restore normal operation. Implement protocol to ensure water quality prior to recommissioning of water sources. Submit report and recommendations to rehabilitate these wells and to become disaster resilient.

2. Assess all reservoir (elevated and ground) for any damages or contamination. Conduct emergency repair for immediate resumption of operation.

3. Assess all electrical facilities (controls, breakers, gensets, and related devices) for any damage and conduct emergency repair. Install temporary electrical supply, if necessary. Submit damage report and recommend a plan for replacement or rehabilitations.

4. Assess any structural damages on pumping facilities (perimeter fence, pump house) and submit damage report. Request for full security protection, if necessary, to all vulnerable and damaged pumping facilities.

Water Quality:

1. Assess water quality in the distribution system and recommend measures to ensure water safety.

2. Implement protocol for ensuring water safety in all water sources prior to recommissioning.

3. Monitor water quality from water truck deliveries to evacuation centers

4. Conduct massive flushing, chlorine residual monitoring and bacteriological tests after resumption of water supply.

Logistics:

1. Ensure the availability of materials, supplies, and equipment that may be needed for the recovery efforts.

2. Ensure that documentation of all procurement is complete whether done through emergency or regular procedures

Documentation:

1. Consolidate all damage assessment, repair, and recovery reports from all field teams.

2. Ensure that proper documentation of recovery efforts, including all financial transactions are complete.

3. Ensure that historical documentation is complete to enable the updating and appropriate revision of the ERP.

Communication:

1. Implement the communication plan (see Appendix 10) for disseminating recovery information and updates to the public.

2. Conduct media briefings, if applicable, in order to ensure that correct information will reach the public.

RECOVERY PLAN ACTIVITIES

No.	Activity	Particulars	Responsible Team	Report and Timeline
1.	Assess for the extent of damage (physical and cost of repair or replacement and estimated time to restore operation); with photos and/or video documentation	Transmission, main, distribution and service lines	Water Distribution Engineering and Construction	Report every meeting at 8:00 AM for updates
		Tank and reservoir	Water Sources Production	Report every meeting at 8:00 AM for updates
		Service connections	Water Distribution Engineering and Construction Commercial	Report every meeting at 8:00 AM for updates
		Service vehicles and equipment	Logistics	Report every meeting at 8:00 AM for updates
		Pumphouses, office buildings, etc	Water Sources Engineering and Construction Production	Report every meeting at 8:00 AM for updates
		Consolidated damage and restoration report		To be submitted within 48-hours and to be updated when necessary
2.	Implement procurement protocol under emergency cases	BOD Resolution for emergency purchases and facilitate emergency procurement	EMT, Finance Division, Procurement Section	Board resolution within 12-hours
3.	Assess affected employees and extent of damage sustained	- Survey all employees to determine extent of damage sustained and assistance needed - Conduct post trauma debriefing - Recommendation for employee financial assistance	EMT, Administrative and General Services Division, HR Section	Report to be submitted within 7-days, to be updated every meeting at 8:00 AM
4.	Assess evacuation centers, hospitals, and other areas for water delivery (in coordination with LGU, MDRRMC, Barangays)	Identify specific water needs at evacuation centers and other locations	Communications Team	Submit report within 24 hours and update on the daily meeting every 8:00AM
5.	Deliver water to evacuation	Coordinate with LGU, BFP	Water Distribution	Submit report

	centers, hospitals and other affected areas	for the schedule of delivery of water to evacuation centers and other affected areas	Logistics	within 24 hours and update on the daily meeting every 8:00AM
6.	Implement on site water treatment in all water tankers of BFP and other delivery modes before delivery	Water quality for delivered water shall be ensured through controlled chlorination	Water Quality Logistics	As needed
7.	Retrieve affected water meters, fittings, and other appurtenances. Turn over to property warehouse for documentation and proper disposition	Assess all affected areas for damages and secure MANWAD items	Commercial Section Water Distribution Engineering and Construction	Daily list of retrieved materials and accomplishment reports of turned over materials to warehouse, to be reported during 8:AM meeting
8.	Repair identified damaged facilities	Conduct immediate repair and clean up of facilities to restore services	Production Engineering and Construction Logistics	Report progress in daily meeting at 8:00AM
9.	Implement communication plan	Conduct team meetings, briefings, and media releases	EMT Communication Team ERT Recovery Team	Report activities in daily meetings at 8:00 AM
10.	Submission of Final Emergency Response and Recovery Report (Complete with pictures and videos)	Preparation of POW for the rehabilitation of affected facilities and compilation of response and recovery efforts during and after emergency	EMT All Teams All Divisions	Final Report within a month

VII. UPDATE AND TRAINING

UPDATE

The ERP shall be updated upon the occurrence of any of the following:

1. Changes in the assignments of personnel assigned in the ERT;
2. Addition of new personnel in the ERT;
3. Changes in the vulnerability assessment of MANWAD;

4. After the conduct of ERP exercise or simulation;
5. Changes in contact information of internal and external resources;
6. After significant water system modifications or improvements such as new water resources, adaption of Management Information System, automation, and upgrades of pipelines; and
7. Any significant changes on the characteristics of disasters or emergencies experienced by the locality.

TRAINING

All personnel who may be assigned to respond to emergencies, especially the members of ERT, shall undergo ERP trainings and refreshers annually. Such trainings and refreshers shall be conducted at least three (3) months before the typhoon season of Northern Luzon. This annual training and refresher shall include an ERP exercise and simulation which should allow MANWAD to update the ERP prior to the typhoon season.

The training shall be conducted when:

1. Revisions in procedures are introduced;
2. New personnel are hired especially new ERT members;
3. New equipment is introduced; and
4. Changes in responsibilities are made.

Course content of the training:

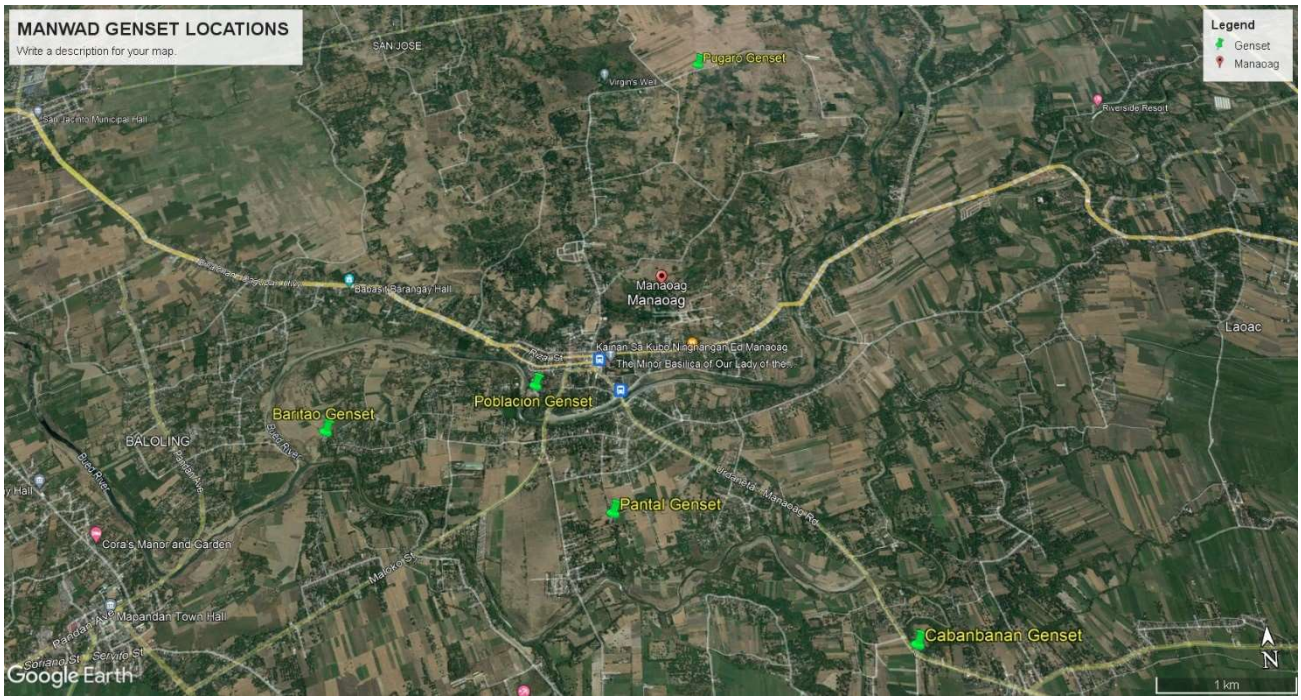
1. The main features of the Emergency Response Plan
2. The Emergency Action Plans in the ERP
3. The partner organizations and their roles in the ERP
4. Sources of information necessary for the activation of the EAP
5. Simulating the accessing of information, especially digital and over the wed

6. Simulating the activation of Emergency Operations Center
7. Simulating damage assessment and recovery
8. Assessment and determining of remaining gaps
9. Action planning to address the identified gaps

APPENDICES

Appendix 1

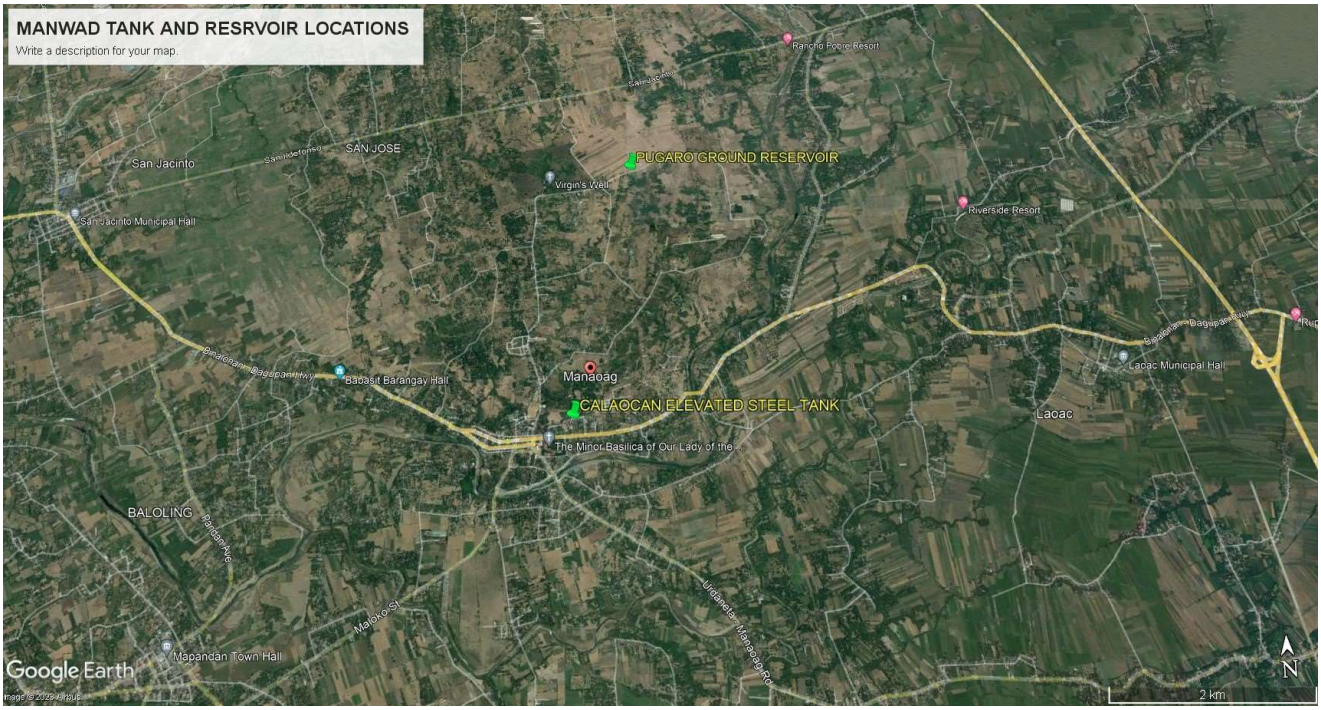
Location Map of MANWAD Gensets



1. Pugaro Genset – Brgy. Upper BLISS Pugaro
2. Poblacion Genset – MANWAD Office, Aquino St., Poblacion
3. Baritao Genset – Brgy. Baritao
4. Pantal Genset – Brgy. Pantal
5. Cabanbanan Genset – Urdaneta – Manaoag Rd., Brgy. Cabanbanan

Appendix 2

Location Map of Elevated Steel Tank and Glass-Fused to Steel Ground Reservoir

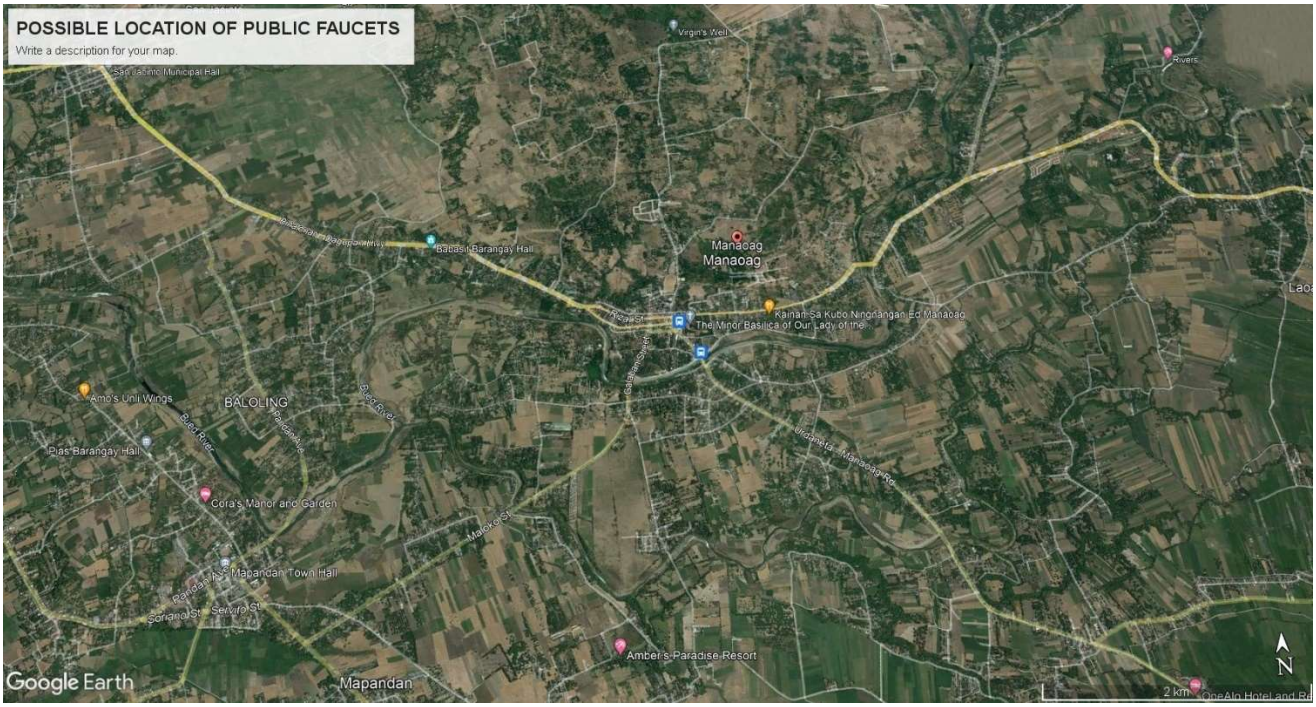


1. Elevated Steel Tank – Brgy. Calaocan
2. Glass-Fused to Steel Reservoir – Brgy. Upper BLISS Pugaro

Appendix 3

Possible Sites for Temporary Public Faucets

1. Manaoag Public Plaza / Rizal Park
2. Manaoag Central School
3. MDRRMC Evacuation Center
4. Pio Generosa Elementary School
5. Cabanbanan Elementary School
6. Lelemaan Elementary School
7. Other locations to be identified by ERT and MDRRMC



Appendix 4

Location of Blowoffs

No.	Location
1	AQUINO ST. GALABAN
2	BALOKING BRIDGE
3	BALOKING PUGARO
4	BABASIT BAYAOAS ROAD
5	BISAL BOUNDARY
6	BABASIT STA.MARIA BOUNDARY
7	BUCAO
8	BARITAO ZONE 3 (from zone 1)
9	BARITAO ZONE 4 (from zone 2)
10	BARITAO ZONE 7 (Sagor)
11	BARITAO BENITO RD.
12	AUCENA FARM
13	BARITAO-STA MARIA (San Ramon)
14	PANTAL (C. LORILLA)
15	AURORA HEIGHTS (NW)
16	AURORA HEIGHTS (SW)
17	PANTAL WEST
18	SAPANG STAR DAVID HOTEL
19	SAPANG KASERGUELASAN 1
20	SAPANG KASERGUELASAN 2
21	SAPANG BRIDGE 1
22	LIPIT SUR SMALL BRIDGE
23	LIPIT NORTE MALICDEM 1
24	LIPIT NORTE MALICDEM 2
25	LIPIT NORTE-DILAN BOUNDARY
26	MAAMBAL 1
27	MAAMBAL 2
28	LIPIT PUGARO
29	VILLA MANAOAG PUGARO
30	VIRGINS WELL 2"
31	VIRGINS WELL 4"
32	MOLDEX BRIDGE 3"
33	MOLDEX BRIDGE 2"
34	BERNAL ROAD (Evacuation)
35	MENDOZA ST. (likod ng senior high)
36	PANTAL EAST (F.TEJANO)
37	PANTAL EAST (BASANES)

38	CROWNVILLE 1 (LICSI)
39	CROWNVILLE 2 (LICSI)
40	LICSI NALSIAN BOUNDARY
41	TEBUEL RIOLA
42	TEBUEL PIA FARM
43	2" - TEBUEL PUGARO 1 (INMANDUYAN)
44	3" - TEBUEL PUGARO 2 (INMANDUYAN)
45	CABAOANGAN NALSIAN
46	NAMACPACAN NALSIAN
47	NALSIAN HIGHWAY
48	NALSIAN BRIDGE
49	CABANBANAN BRDGE (Alarogat)
50	CABANBANAN SLAUGHTER
51	ORAAN EAST
52	ORAAN WEST 1
53	ORAAN WEST 2
54	ORAAN WEST 3
55	MERMER BRGY HALL
56	MERMER RICE FIELD
57	STA.INES
58	CABANBANAN SITIO BERCELES
59	CABANBANAN SITIO PAYAS
60	CABANBANAN HIGH SCHOOL
61	LELEMAAN BRIDGE
62	LELEMAAN (CAMADUROAN)
63	LELEMAAN IRRIGATION
64	INAMOTAN URDANETA BOUNDARY
65	BAGUINAY 6"
66	MATULONG

Location of Fire Hydrants

1	BARITAO – SQUADRON FUEL STATION
2	CABANBANAN BRGY. HALL
3	RIZAL ST., CORNER MALVAR ST.
4	SORIANO ST. – MUNICIPAL HALL
5	TABAYOYONG ST. – MARKET AREA

NAMES AND CONTACT NUMBERS OF BARANGAY OFFICIALS
Manaoag, Pangasinan
As of December 09, 2022

Item	Barangay	Captain	Contact No.	Secretary	Contact No.	Treasurer	Contact No.	
1	Babasit	Constantino Z. Solomon	09774100784	Florida Q. Natividad	09550864997	Donna G. Lopez	09214809928	
2	Baguinay	Eduardo C. Ayap	09994520488	Irene Jimenez	09508101737	Noemi Rivera	09300570054	
3	Baritao	Emmanuel M. Angeles	09396228878	Maritess P. Mamaed	09454909662	Sanny Tibule	09183602519	
4	Bisal	Juanito L. Viray, Jr.	09167313152	Rizzalie Co	09385738181	Michelle C. Madrid	09274161184	
5	Bucao	Guillermo M. Aquino	09452784377	Haidelisa G. Dolor	09182301962	Rowenalyn D. Paglingayen	09513351233	
6	Cabanbanar	Jimmy E. Aquino	09275694008	Marife L. Rosario	09481941258	Benjamin Castillo	09771499588	
7	Calaocan	Leroy P. Ortiz	09451129552	Alfredo Descargar, Jr.	09472867140	Philip Cesar Estrada	09253260313	09396063748
8	Inamotan	Edison C. Pira	09777889487	Gilbert C. Pira	09555022032	Violeta Jacinto	09164216675	
9	Lelemaan	Richard F. Mendoza	09204428982	Jayson B. Sieten	09224781716	Jeffrey Caguin	09232719475	
10	Licsi	Dario S. Tabonda	09212864666	Myra Ella Cabingas	09707244641	Imelda Gubatan	09288711121	
11	Lipit Norte	Richell F. Gonzalez	09060223733	Geminiano V. Palaruan	09499446363	Romulo Bambalan	09617537194/09212982427	09517353137
12	Lipit Sur	Benedict V. Salon	09121853982	Alejandro A. Quinto, Jr.	09612983251	Rolando Escalona	09217919221	
13	Matulong	Angelito A. Arenas	09178508010	Violeta B. Quinto	09369380067	Nolito Perez	09279563977	
14	Mermer	Tito L. Barrozo	09060223679	John Warren F. Godoy	09667149982	John Roel Finuliar	09565909064	
15	Nalsian	Rex P. Marquez	09394673784	Alex M. Calicdan	09984388672	Angelo F. Nazareno	09453766230	
16	Oraan East	Edwin A. Lacaste	09308564851	Rufina Lacaste	09275572300	Jollyn M. Galera	09318405858	
17	Oraan West	Bobby B. Padilla	09300140042	Michelle Bermudez	09302379499	Genalyn h. Centino	09958899723	
18	Pantal	Norma M. Tabonda	09558219212	Casandra T. Malagayo	09679902705	Cresencia C. Madriaga	09304342167	
19	Pao	Eliseo S. Gabriel	09104815293	Jean V. Sotto	09469953124	Jozel C. Lazaro	09684453111	
20	Parian	Bernie A. Marcial	09466426677	Jean P. Carbonel	09262345923	Richard Cabico	09393514798	
21	Poblacion	Jefferson A. Ching	09338250879	Maria Sheila L. Joaquin	09475181992	Norberto T. Ferrer	09212571272	
22	Pugaro	Bonifacio N. Bigay	09277740886	Heidy P. Gamboa	09480565565	Wilfredo N. Muñoz	09487104353	09129359638
23	San Ramon	Frankie M. Galliguez	09283942575	Jovelyn A. Eufemiano	09919365581	Rochelle Domingo	09563602453	
24	Sapang	Robert F. Calachan	09156849527	Jennifer Rodriguez	09393507812	Carlos E. Pagaduan	09554893512	
25	Sta. Ines	Eduardo M. Valdez	09385738392	Ely Joyce Duot	09288135623	Samson V. Dulay	09166051686	
26	Tebuel	Petronila C. De Guzman	09612002754	Cynthia D. Fajarito	09282501125	Maria Jannete Arellano	09478360709	
	Maambal	Federico F. Narbarte, Jr.		Charito DC. Morales	09701136373			
	Sitio Isla Pinmaludpod							
	Nantangal	Ronnie N. Lictawa		Nestor Q. Fernandez,	09104723407			

Appendix 6

Protocol to Ensure Water Safety Prior to Recommissioning of Water Sources

1. When the pumping facility of a production well are already available after flooding incident, the water source must be pumped out in order to release any contaminated water that may have entered into it.

2. When the water coming out of the well is no longer turbid, pumping must be continued for at least one (1) hour more.

3. A water sample shall be taken from the well. This sample shall undergo Bacteriological Testing using any acceptable rapid testing analysis.

4. Pull out submersible pump and riser pipe after sample has been taken.

5. After taking of the sample and pulling out of the pump, the well shall be disinfected with chlorine according to the proper dosage.

6. After 16-hours, re-install the submersible pump and pump out the water until chlorine residual is no more than 1.50 ppm after which another sample shall be taken.

7. If the Bacteriological test would show a negative result for both Total Coliform and E.Coli, the well maybe recommissioned.

8. If the Bacteriological Test would show a positive result for Total Coliform and E.Coli, steps 3 to 6 shall be repeated until a negative result is attained.

Note:

1. Sample must be tested within 24-hours

Appendix 7

Protocol to Ensure Water Safety Prior to Recommissioning of Water Tank and Reservoir

1. Drain the tank/reservoir of any contaminated water that may have entered into it.

2. Check the stability of the structure to ensure safety prior to cleaning.

3. Once the structure is declared safe and stable after damage assessment, commence cleaning to remove any adhering dirt using cleaning tools and detergent.

4. Using power sprayer, wash the inside part of the tank/reservoir with detergent solution, especially the part where no water is in contact when it is full. Fill the tank/reservoir with water. Close the inlet and the outlet. Add chlorine to the water in a proper dosage.

5. After 24-hours, drain the tank/reservoir very well. Open the outlet or drain pipe while the inlet is flowing to wash remaining particles.

6. Fill the tank/reservoir with fresh water until full. Take a sample. This sample shall undergo Bacteriological Test using any acceptable rapid testing analysis.

7. If the Bacteriological test would show a negative result for both Total Coliform and E.Coli, the tank/reservoir maybe recommissioned.

8. If the Bacteriological Test would show a positive result for Total Coliform and E.Coli, steps 5 to 7 shall be repeated until a negative result is attained.

Notes:

1. The sample must be tested within 24-hours

2. Workers must work in pairs or more. One or two to go down and inside the tank/reservoir, others will keep watch of the workers insides.

3. Proper ventilation must be ensured at all times during the cleaning operations.

4. Workers must wear breathing apparatus and full protective gears and clothing.

5. After the disinfection job, all workers involve in the work must shower and wash their entire bodies thoroughly.

Appendix 8

Protocol to Ensure Water Safety Prior to Recommissioning of Transmission and Distribution Lines

1. When any transmission / distribution line is already repaired after a storm or flooding incident, the water inside the pipelines must be flushed out through a hydrant or a blowoff in order to release any contaminated water that may have entered into it.

2. When the water flushing out is no longer turbid, flushing must be continued for at least an hour more.

3. A water sample shall be taken.

4. A water sample shall be taken from the well. This sample shall undergo Bacteriological Testing using any acceptable rapid testing analysis.

5. If the Bacteriological test would show a negative result for both Total Coliform and E.Coli, the lines maybe recommissioned.

6. If the Bacteriological Test would show a positive result for Total Coliform and E.Coli, steps 2 to 4 shall be repeated until a negative result is attained.

Note:

1. Sample must be tested within 24-hours

Appendix 9

Logistical Requirements

This section deals with logistical requirement and protocol that must be done prior, during, and after an emergency.

1. Secure approval from the MANWAD Board of Directors to procure supplies and materials through Negotiated Procurement under emergency cases pursuant to Section 53.2 of R.A. 9184.

2. The Logistics Team shall cause the preparation of Purchase Requisition (PR) for the items needed in the response effort. Such PR goes to normal approval process.

3. Issue a Request for Quotation (RFQ) to suppliers for the items needed as reflected in the approved PR. Requesting from one (1) supplier only is acceptable.

4. The lowest quotation submitted may undergo further negotiation.

5. Award is made to the supplier submitting the lowest quotation.

Note:

Advertisement, issuance of bid documents, formal bidding process is not required for this kind of purchase.

Appendix 10

Communication Plan

Communication Type	Participant / Audience	Frequency	Responsible Person
Team Meetings	ERT Members	Daily	ERT Team Leader General Manager
MANWAD Management Briefings	BOD, GM, Management	Weekly or as needed	ERT Team Leader General Manager
Media Updates (Interviews)	Media	As needed	Spokesperson
Customer Updates Disseminated Through Available Communication Channels	Customers General Public	Regular	Spokesperson
Press Conference (if any)	Media, Public	As needed	General Manager and Spokesperson

Appendix 11

Emergency Response Team Member Directory / Contact Numbers

ROLE	NAME	CONTACT NUMBER
General Manager	Flordeliza N. Tejano	0998 845 2939
Division Manager- Production and Water Quality	Engr. Casimero Claveria	0998 510 3689
Division Manager- Administrative and General Services	Marlene Constancia Manaois	0920 976 6271
Division Manager- Finance and Commercial	Rusty Mark Flores	0998 510 3124
Division Manager- Engineering and Construction	Aquileo F. Misagal	0918 902 8254
Team Leader	Vittorio Veloria	09209702505
Assistant Team Leader / Recovery Manager	Dominador Yaranon	09189673631
Drills and Training	Charlie Lorilla	09189673149
	Jennifer Misagal	09214553649
Water Distribution Lead	Mario Moral, Jr.	09399746202
Valves / Appurtenances	Lawrenze Magno	09383955580
	Mark Lester Aquino	09518650743
Pipelines / Connections	Arturo Genita, Jr.	09100161225
	Josedillo Escosio	09637178316
Water Sources Lead	Menardo Sotto	09171096703
Deepwells	Archilles Aguilan, Jr.	09695258537
	Jackson Esteves	09638796993
Tank / Reservoir	Christopher Sagun	09565276653
Electrical / Gensets	Reynald Cariño	09060222842
Logistics Lead	Cecilia Pinpin	09992237108
Supplies / Materials	Rodell Soriano	09189657814
	John Bryle Laminatao	09951440011
Food / Medicine / Etc	Isaac Joaquin	09209764671
Finance Lead	Arliza Sotto	09285549116
Petty Cash	Phanela de Castro	09485127735
Liquidation / Documentation	Bernadette Embuido	09098018083
Water Quality	Romulo Prangan IV	09493453413
Communication	Annabelle Ferrer	09088933182
Liaison (Government / Private Sectors)	George Ildefonso Cristobal	09312182008
Documentation	Rhenelie Irish Sobrepeña	09071724432
	Jelynne Barrozo	09985538760
Spokesperson	Philiamer Amity Celi	09360351766

FORMS / CHECKLIST

Checklist / Form No.	Title
MWD-ERP-001	Production Wells Sealing
MWD-ERP-002	Standby Generators Operability
MWD-ERP-003	Vehicle and Equipment Operability
MWD-ERP-004	Weekly PWL Monitoring of Deepwells
MWD-ERP-005	Production Wells Discharge Valve Throttling Monitor
MWD-ERP-006	Water Rationing Implementation by Water Truck Delivery
MWD-ERP-007	Water Rationing Implementation by Gate Valve Throttling
MWD-ERP-008	Damage Assessment for Transmission and Distribution Lines
MWD-ERP-009	Damage Assessment for Tanks and Reservoirs
MWD-ERP-010	Damage Assessment for Booster Pump
MWD-ERP-011	Damage Assessment for Production Wells
MWD-ERP-012	Damage Assessment for Service Connections
MWD-ERP-013	Damage Assessment for Service Vehicles and Equipment
MWD-ERP-014	Damage Assessment for Buildings and Offices
MWD-ERP-015	Damage Assessment for Office Equipment
MWD-ERP-016	Consolidated Damage Restoration Report
MWD-ERP-017	Assessment of Employees and Extent of Damage Sustained

REPUBLIC OF THE PHILIPPINES

MANAOAG WATER DISTRICT

Aquino St., Poblacion, Manaoag, Pangasinan

EMERGENCY RESPONSE PLAN

Form No.: MWD-ERP-001

PRODUCTION WELLS SEALING

(SUBMIT WITHIN 8 HOURS FROM NOTICE)

Date Submitted: _____

Production Well											Remarks
Location											
Sounding Tube	Sealed		Sealed		Sealed		Sealed		Sealed		
	Unsealed		Unsealed		Unsealed		Unsealed		Unsealed		
Base Drop Wire	Sealed		Sealed		Sealed		Sealed		Sealed		
	Unsealed		Unsealed		Unsealed		Unsealed		Unsealed		
Discharge Base Plate	Sealed		Sealed		Sealed		Sealed		Sealed		
	Unsealed		Unsealed		Unsealed		Unsealed		Unsealed		
Open Discharge Pipe	Sealed		Sealed		Sealed		Sealed		Sealed		
	Unsealed		Unsealed		Unsealed		Unsealed		Unsealed		

Remarks: _____

_____

_____

_____

_____

Submitted by:

_____

Deepwells, ERT

Noted by:

_____

Water Sources Lead, ERT

REPUBLIC OF THE PHILIPPINES

MANAOAG WATER DISTRICT

Aquino St., Poblacion, Manaoag, Pangasinan

EMERGENCY RESPONSE PLAN

Form No.: MWD-ERP-002

STANDBY GENERATORS OPERABILITY

(SUBMIT WITHIN 8 HOURS FROM NOTICE)

Date Report Submitted: _____

Check on the box if inspected:

Facility _____

Pre Start Up Check		**Remarks**
☐	Check Up Radiator Water Level	_____
☐	Check Up Oil Level	_____
☐	Check Fuel Level	_____

Warm Up Check Start:_____ Stop:_____

☐	Check Battery Charge	_____
☐	Check Oil Pressure	_____
☐	Check Water Temp	_____

Fuel Stoage Tank

☐	Fuel Tank Cover Lock	_____
☐	Check Fuel Tank Breather	_____

Submitted by:

_____

Electrical / Gensets, ERT

Noted by:

_____

Water Sources Lead, ERT

REPUBLIC OF THE PHILIPPINES
MANAOAG WATER DISTRICT
Aquino St., Poblacion, Manaoag, Pangasinan

EMERGENCY RESPONSE PLAN

Form No.: MWD-ERP-003

VEHICLE AND EQUIPMENT OPERABILITY

(SUBMIT WITHIN 24 HOURS FROM NOTICE)

Date Report Submitted:_____

SERVICE VEHICLE PLATE NO.	DESCRIPTION	DRIVER	CONTACT NO.	REMARKS

EQUIPMENT NO.	DESCRIPTION	OPERATOR	CONTACT NO.	REMARKS

REMARKS: _____

_____

_____

Submitted by:

_____
Supplies / Materials, ERT

Noted by:

_____
Logictics Lead, ERT

REPUBLIC OF THE PHILIPPINES

MANAOAG WATER DISTRICT

Aquino St., Poblacion, Manaoag, Pangasinan

EMERGENCY RESPONSE PLAN

Form No.: MWD-ERP-004

WEEKLY PWL MONITORING OF DEEPWELLS

Date Report Submitted:_____

Pump Well Name / Location	Pump Setting (m)	Pumping Water Level (m)	Remarks

Submitted by:

_____

Deepwells, ERT

Noted by:

_____

Water Sources Lead, ERT

REPUBLIC OF THE PHILIPPINES

MANAOAG WATER DISTRICT

Aquino St., Poblacion, Manaoag, Pangasinan

EMERGENCY RESPONSE PLAN

Form No.: MWD-ERP-005

PRODUCTION WELLS DISCHARGE VALVE THROTTLING MONITOR

Date Report Submitted:_____

Pump Well Name	Pump Setting (m)	Initial PWL (m)	No. of Throttle Turns	Final PWL	Remarks

Submitted by:

_____

Deepwells, ERT

Nted by:

_____

Water Sources Lead, ERT

REPUBLIC OF THE PHILIPPINES

MANAOAG WATER DISTRICT

Aquino St., Poblacion, Manaoag, Pangasinan

EMERGENCY RESPONSE PLAN

Form No.: MWD-ERP-006

WATER RATIONING IMPLEMENTATION BY WATER TRUCK DELIVERY

Date Report Submitted:_____

AFFECTED AREAS	DELIVERY SCHEDULE	ACTUAL DELIVERY DATE	ESTIMATED VOULUME	ACTUAL VOLUME	REMARKS

Remarks: _____

_____

_____

Submitted by:

_____

Noted by:

_____

Water Distribution Lead, ERT

REPUBLIC OF THE PHILIPPINES

MANAOAG WATER DISTRICT

Aquino St., Poblacion, Manaoag, Pangasinan

EMERGENCY RESPONSE PLAN

Form No.: MWD-ERP-007

WATER RATIONING IMPLEMENTATION BY GATE VALVE THROTTLING

Date Report Submitted:_____

AFFECTED AREA	LOCATION OF VALVE	VALVE STATUS		SIMULATION RESULT		REMARKS
		NO. OF TURNS	CLOSED	PRESSURE	FLOW	

Remarks: _____

_____

_____

_____

Submitted by:

_____

Noted by:

_____

Water Distribution Lead, ERT

REPUBLIC OF THE PHILIPPINES
MANAOAG WATER DISTRICT
Aquino St., Poblacion, Manaoag, Pangasinan

EMERGENCY RESPONSE PLAN

Form No.: MWD-ERP-008

DAMAGE ASSESSMENT FOR TRANSMISSION AND DISTRIBUTION LINES

Date Report Submitted:_____
Location: _____
Date of Assessment: _____

DESCRIPTION	MAKE/TYPE	BRAND	SIZE	DAMAGE ASSESSMENT					RESTORATION STATUS	
				1	2	3	4	5	Cost	Duration
Transmission / Distribution Line										
Pipe										
Coupling/Jointing										
Valves, Pipes & Appurtenences										
Isolation Valves										
Air Release Valves										
Blowoffs										
Hydrants										
Sand Traps										
Pipe Bridge / Supports										
Pier										
Truss										
Anchors										
Pipe Straps										
Other Items										

Note: *Provide pictures as part of the report*

Remarks: _____

_____

_____

Damage Assessment Guide:

1 No damage, can be operated immediately
2 Slight damage, can be repaired in less than 1 week
3 Partial damage, can be repaired within 1-3 weeks
4 Severe damage, can be repaired within 1 month
5 Total damage, for replacement

Submitted by:

_____

Noted by:

_____
Water Distribution Lead, ERT

REPUBLIC OF THE PHILIPPINES
MANAOAG WATER DISTRICT
Aquino St., Poblacion, Manaoag, Pangasinan

EMERGENCY RESPONSE PLAN

Form No.: MWD-ERP-009

DAMAGE ASSESSMENT FOR TANKS AND RESERVOIRS

Date Report Submitted:_____
Location: _____
Date of Assessment: _____

DESCRIPTION	MAKE/TYPE	BRAND	SIZE	DAMAGE ASSESSMENT					RESTORATION STATUS	
				1	2	3	4	5	Cost	Duration
Roofing										
Walls										
Welding Joints										
Bolted Joints										
Cracks / Dents										
Inlet										
Pipes										
Valves										
Outlet										
Pipes										
Valves										
Foundation / Ringwall										
Anchor Legs										
Others										

Note: *Provide pictures as part of the report*

Remarks: _____

_____

_____

Damage Assessment Guide:

1 No damage, can be operated immediately
2 Slight damage, can be repaired in less than 1 week
3 Partial damage, can be repaired within 1-3 weeks
4 Severe damage, can be repaired within 1 month
5 Total damage, for replacement

Submitted by:

_____

Noted by:

_____
Water Sources Lead, ERT

REPUBLIC OF THE PHILIPPINES
MANAOAG WATER DISTRICT
Aquino St., Poblacion, Manaoag, Pangasinan

EMERGENCY RESPONSE PLAN

Form No.: MWD-ERP-010

DAMAGE ASSESSMENT FOR BOOSTER PUMPS

Date Report Submitted:_____
Location: _____
Date of Assessment: _____

DESCRIPTION	MAKE/TYPE	BRAND	SIZE	DAMAGE ASSESSMENT					RESTORATION STATUS	
				1	2	3	4	5	Cost	Duration
Booster Pump and Motors										
Pugaro Reservoir (#1)										
Sapang Reservoir (#2)										
Power Facilities										
Powerlines at #1										
Powerlines at #2										
Genset at #1										
Genset at #2										
Civil Works Facilities										
Power House										
Fencing										
Other Items										

Note: *Provide pictures as part of the report*

Remarks: _____

_____

_____

Damage Assessment Guide:

1 No damage, can be operated immediately
2 Slight damage, can be repaired in less than 1 week
3 Partial damage, can be repaired within 1-3 weeks
4 Severe damage, can be repaired within 1 month
5 Total damage, for replacement

Submitted by:

_____

Noted by:

_____
Water Sources Lead, ERT

REPUBLIC OF THE PHILIPPINES
MANAOAG WATER DISTRICT
Aquino St., Poblacion, Manaoag, Pangasinan

EMERGENCY RESPONSE PLAN

Form No.: MWD-ERP-011

DAMAGE ASSESSMENT FOR PRODUCTION WELLS

Date Report Submitted:_____
Well Name / Location: _____
Date of Assessment: _____

DESCRIPTION	MAKE/TYPE	BRAND	SIZE	DAMAGE ASSESSMENT					RESTORATION STATUS	
				1	2	3	4	5	Cost	Duration
Production Facilities										
Pump										
Motor										
Controller/VFD										
Discharge Line										
Flowmeter										
Valves										
Riser Pipes										
Support Facilities										
Powerlines										
Transformer										
Generator										
Chlorinator										
Civil Works										
Fence and Gate										
Pumphouse										
Chlorinator Shed										
Other Items										

Note: *Provide pictures as part of the report*

Remarks: _____

_____

_____

Damage Assessment Guide:

1 No damage, can be operated immediately
2 Slight damage, can be repaired in less than 1 week
3 Partial damage, can be repaired within 1-3 weeks
4 Severe damage, can be repaired within 1 month
5 Total damage, for replacement

Submitted by:

_____

Noted by:

_____
Water Sources Lead, ERT

REPUBLIC OF THE PHILIPPINES
MANAOAG WATER DISTRICT
Aquino St., Poblacion, Manaoag, Pangasinan

EMERGENCY RESPONSE PLAN

Form No.: MWD-ERP-012

DAMAGE ASSESSMENT FOR SERVICE CONNECTIONS

Date Report Submitted:_____
Zone / Location: _____
Date of Assessment: _____

ACCOUNT	TYPE (Single/Cluster/ Dual)	METER BRAND	SL SIZE	DAMAGE ASSESSMENT					RESTORATION STATUS	
				1	2	3	4	5	Cost	Duration

Note: *Provide pictures as part of the report*

Remarks: _____

_____

_____

Damage Assessment Guide:

1 No damage, can be operated immediately
2 Slight damage, can be repaired in less than 1 week
3 Partial damage, can be repaired within 1-3 weeks
4 Severe damage, can be repaired within 1 month
5 Total damage, for replacement

Submitted by:

_____

Noted by:

_____
Water Distribution Lead, ERT

REPUBLIC OF THE PHILIPPINES
MANAOAG WATER DISTRICT
Aquino St., Poblacion, Manaoag, Pangasinan

EMERGENCY RESPONSE PLAN

Form No.: MWD-ERP-013

DAMAGE ASSESSMENT FOR SERVICE VEHICLES AND EQUIPMENT

Date Report Submitted:_____
Vehicle ID / Equipment ID: _____
Date of Assessment: _____

DESCRIPTION	LOCATION	MAKE / TYPE	BRAND	DAMAGE ASSESSMENT					RESTORATION STATUS	
				1	2	3	4	5	Cost	Duration

Note: *Provide pictures as part of the report*

Remarks: _____

_____

_____

Damage Assessment Guide:

1	No damage, can be operated immediately
2	Slight damage, can be repaired in less than 1 week
3	Partial damage, can be repaired within 1-3 weeks
4	Severe damage, can be repaired within 1 month
5	Total damage, for replacement

Submitted by:

_____

Noted by:

_____
Logistics Lead, ERT

REPUBLIC OF THE PHILIPPINES
MANAOAG WATER DISTRICT
Aquino St., Poblacion, Manaoag, Pangasinan

EMERGENCY RESPONSE PLAN

Form No.: MWD-ERP-014

DAMAGE ASSESSMENT FOR BUILDINGS AND OFFICES

Date Report Submitted:_____
Building/Office: _____
Location: _____
Date of Assessment: _____

BUILDING DESCRIPTION	LOCATION	DAMAGE ASSESSMENT					RESTORATION STATUS	
		1	2	3	4	5	Cost	Duration

Note: *Provide pictures as part of the report*

Remarks: _____

_____

_____

Damage Assessment Guide:

1 No damage, can be operated immediately
2 Slight damage, can be repaired in less than 1 week
3 Partial damage, can be repaired within 1-3 weeks
4 Severe damage, can be repaired within 1 month
5 Total damage, for replacement

Submitted by:

_____

Noted by:

_____
Logistics Lead, ERT

REPUBLIC OF THE PHILIPPINES
MANAOAG WATER DISTRICT
Aquino St., Poblacion, Manaoag, Pangasinan

EMERGENCY RESPONSE PLAN

Form No.: MWD-ERP-015

DAMAGE ASSESSMENT FOR OFFICE EQUIPMENT

Date Report Submitted:_____
Equipment ID: _____
Date of Assessment: _____

DESCRIPTION	LOCATION	MAKE / TYPE	BRAND	DAMAGE ASSESSMENT					RESTORATION STATUS	
				1	2	3	4	5	Cost	Duration

Note: *Provide pictures as part of the report*

Remarks: _____

_____

_____

Damage Assessment Guide:

1 No damage, can be operated immediately
2 Slight damage, can be repaired in less than 1 week
3 Partial damage, can be repaired within 1-3 weeks
4 Severe damage, can be repaired within 1 month
5 Total damage, for replacement

Submitted by:

_____

Noted by:

_____
Logistics Lead, ERT

REPUBLIC OF THE PHILIPPINES
MANAOAG WATER DISTRICT
Aquino St., Poblacion, Manaoag, Pangasinan

EMERGENCY RESPONSE PLAN

Form No.: MWD-ERP-016

CONSOLIDATED DAMAGE RESTORATION REPORT

Date Report Submitted:_____
Dates of Assessment: _____

DESCRIPTION	LOCATION	MAKE / TYPE	BRAND	SIZE	LENGTH	DAMAGE ASSESSMENT					RESTORATION STATUS	
						1	2	3	4	5	Cost	Duration

Note: Provide pictures as part of the report

Remarks: _____

Damage Assessment Guide:

1 No damage, can be operated immediately
2 Slight damage, can be repaired in less than 1 week
3 Partial damage, can be repaired within 1-3 weeks
4 Severe damage, can be repaired within 1 month
5 Total damage, for replacement

Submitted by:

_____
Documentation

Noted by:

MS. FLORDELIZA N. TEJANO
General Manager

REPUBLIC OF THE PHILIPPINES
MANAOAG WATER DISTRICT
Aquino St., Poblacion, Manaoag, Pangasinan

EMERGENCY RESPONSE PLAN

Form No.: MWD-ERP-017

ASSESSMENT OF EMPLOYEES AND EXTENT OF DAMAGE SUSTAINED

Date Report Submitted:_____
Date of Assessment: _____

NAME OF AFFECTED EMPLOYEES	ADDRESS	DESCRIPTION OF DAMAGED PROPERTIES	DAMAGE ASSESSMENT					NEEDS ASSISTANCE (YES/NO)
			1	2	3	4	5	

Note: *Provide pictures as part of the report*

Remarks: _____

_____

_____

Damage Assessment Guide:

1 No property damage
2 Slight property damage, need repairs / treatment with less cost
3 Severe property damage, need repairs / treatment with high cost
4 Total property damage
5 Loss of life

Submitted by:

_____

Noted by:

_____
Logistics Lead