



Republic of the Philippines
Mariveles Water District
Mariveles, Bataan

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MARIWAD DISASTER RISK REDUCTION AND MANAGEMENT PLAN MANUAL



Mariveles Water District Disaster Risk Reduction and Management Plan

R.A. 10121

***The Philippine Disaster Risk Reduction and Management Act of 2010
May 27, 2010***

***An Act Strengthening the Philippines Disaster Risk Reduction and
Management System, Providing for the National Disaster Risk Reduction
and Management Framework and Institutionalizing the National Disaster***



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Risk Reduction and Management Plan, Appropriating Funds Therefore and for Other Purposes

CHAPTER I

1.1 Introduction

Climate change is real and is hereto 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 arise in sea level, more severe droughts and floods, heat waves, water shortage 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 insitutionalizes 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.

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. Thus, water districts are caught flatfooted during a disaster, facilities that took years to build are destroyed an hour or even minutes. The public trust earned by the water district is destroyed when disaster is not properly addressed and managed.

Generally, there are two (2) types of disasters that we have to contend with and prepare, to wit:

- a. Natural Disasters – such as typhoons, floods, droughts, heavy monsoon rains, el nino phenomenon, tsunamis, earthquakes, volcanic eruptions, hurricanes and biological agents
- b. 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.

1.2 Mariveles Water District Historical Background

Mariveles is a 1st class municipality in the Province of Bataan and is predominantly hilly and mountainous. The plains comprise only about three (3%) of the total land area and are situated in the coastal areas. The average elevation of the townproper is about 10m above sea level.



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The Mariveles Water District (MARIWAD) is classified as Category “B” water district which provides safe and potable water to the municipality of Mariveles. As of April 30, 2021, 14 out of 18 barangays were served, it has 19,619 active service connections.

Like most water districts, MARIWAD has no existing comprehensive emergency management plan but it has a few guidelines that may be considered as actions to manage emergencies/crisis as they come.

MARIWAD recognized the need and importance of implementing the Disaster Risk Reduction and Management (DRRM) in order to achieve of reducing risk and managing disaster to its operation. Disasters in the operations of the Mariveles Water District may also occur due to neglect and/or failure of the organization to properly institute and adhere to maintenance procedures. Whether MARIWAD can respond to disasters to avert its negative effects on water services due to contamination of water supplies, prolonged discontinuity of service, loss of fire-fighting capability and release of chlorine in the air among others.

Republic Act No. 10121 or the Philippine Disaster Risk Reduction and Management Act of 2010 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.

1.3 Emergency Management Plan

Mariveles Water District has created the following:

- Fire Brigade Team – accredited by LGU Fire Department and can respond when there is fire. The team undergo training on BLS (basic life support) and Fire Drill;
- Leak Detection Team – on call for repairing leaks that happened beyond office hours or during weekends and holidays. It is composed of maintenance crew from Construction Maintenance Division
- Covid-19 Response Team – created for the purposes of an arise or an outbreak of a pandemic disease

1.4 Purpose of Emergency Management Plan

The purpose of the Emergency Management Plan is to provide the Mariveles Water District a standardized response to emergencies and calamities (typhoon, floodings, droughts, earthquakes and others). This plan is develop to ensure the least possible impact on water supply of MARIWAD’s public image during and after emergency and disaster situations. To establish guidelines in addressing public relations and communications issues that may potentially arise from an emergency, dealing with the media and communicating with the concessionaires.



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The objective of the Emergency Management Plan are the following:

1. To rapidly restore water service after an emergency
2. To minimize the 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

1.5 Disaster Risk Reduction

Disaster Risk Reduction is a term used for reducing and preventing disaster risks. It is founded on the principle that while hazards are inevitable, its adverse effects like lost lives and/or destruction of property are not. There are steps that we can do to ensure reduction of risks. DRR actions can be political, technical, social and economic.

1.6 Disaster Risk Management

It involves activities related to:

1. *Preparedness* - activities prior to disaster such as early warning, emergency exercises/training (planning), evacuation;
2. *Response* - activities during disaster such as search and rescue, public warning systems, emergency operations;
3. *Recovery* - activities following disaster such rehabilitation, claims processing and grants, long-term medical care and counselling, temporary housing;
4. *Prevention and Mitigation* - activities that reduce the effects of disaster like public education, vulnerability analyses, determination of risk, hazard analysis and monitoring





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1.7 Phases of Disaster Risk Management

Disaster Risk Reduction and Management covers four (4) thematic areas, namely:

Thematic Area 1: Disaster Prevention and Mitigation – measures taken in advance of a hazard impact aimed at reducing its impact on society and environment. The activities includes are:

- Hazard/risk identification and assessment – develop, update and disseminate hazard maps and related information to decision makers, general public and communities at risk;
- Enforcement of zoning, land-use and building and fire codes;
- Integrating/mainstreaming disaster risk management;
- Developing early warning systems that are people-centered timely and understandable to those at risk.

Thematic Area 2: Disaster Preparedness – measures undertaken to prepare people to react appropriately during and following such emergencies. It involves the following activities:

- Planning – disaster management plans, contingency plans and others;
- Advocacy – information dissemination through mass media, enhancing people's awareness through the conduct of disaster management for a/briefing, observance of disaster consciousness month, etc.;
- Education and training of officers, employees, deputized coordinators, MARIWAD DRRMT, volunteers. The conduct of drills and exercises, community based disaster risk management trainings;
- Resources – the 5Ms which are manpower, materials, methods, machines and money.

Thematic Area 3: Disaster Response – undertaken immediately following the emergency. Such measures are directed towards saving life, property and dealing with the immediate damage caused by the disaster. Below are the activities associated with response:

- Early warning – timely and rapid dissemination of warnings to threatened communities/population;
- Notification – mobilization and activation of response teams or the MARIWAD DRRMT;
- The “Golden Hour” Principle – the time within which most lives could be saved and injures minimized;
- Incident Command System – on scene management of disaster operation activities

Thematic Area 4: Disaster Rehabilitation and Recovery – includes measures undertake to restore affected communities/areas to their proper or normal level of functioning and



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development with reduces vulnerability and increased sustainability. This can be categorized into:

- Short term – restoring necessary lifeline systems (i.e. power, communications, water and sewerage, transportation, etc.) providing for basic human needs (food, clothing and shelter) and monitoring law and order;
- Long term – restoring economic activity and development, rebuilding community facilities and housing, healing, repair and reconstruction in a way that is less vulnerable to future hazard impacts;
- The Cluster Approach – which is in line in pursuing a reform program that seeks to improve the effectiveness of humanitarian response by ensuring greater predictability, accountability and partnership.

1.8 Definition of Terms

Risk – The term disaster risk therefore refers to the potential (not actual) disaster losses, in lives, health status, livelihoods, assets and services, which could occur in a particular community or society over some specified future time period.

Hazards - Defined as a “dangerous phenomenon, substance, human activity or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage”.

Vulnerability - Defined as the characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard. Vulnerability is a set of prevailing or consequential conditions arising from various physical, social, economic and environmental factors which increase the susceptibility of a community to the impact of hazards Vulnerability also comprise various physical, social, economic, political and environmental factors that affect the ability of communities to respond to events.

Capacity - Defined as the combination of all the strengths, attributes and resources available within a community, society or organization that can be used to achieve agreed goals. Capacity may include infrastructure and physical means, institutions, societal coping abilities, as well as human knowledge, skills and collective attributes such as social relationships, leadership and management.

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

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



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1.9 Acronyms

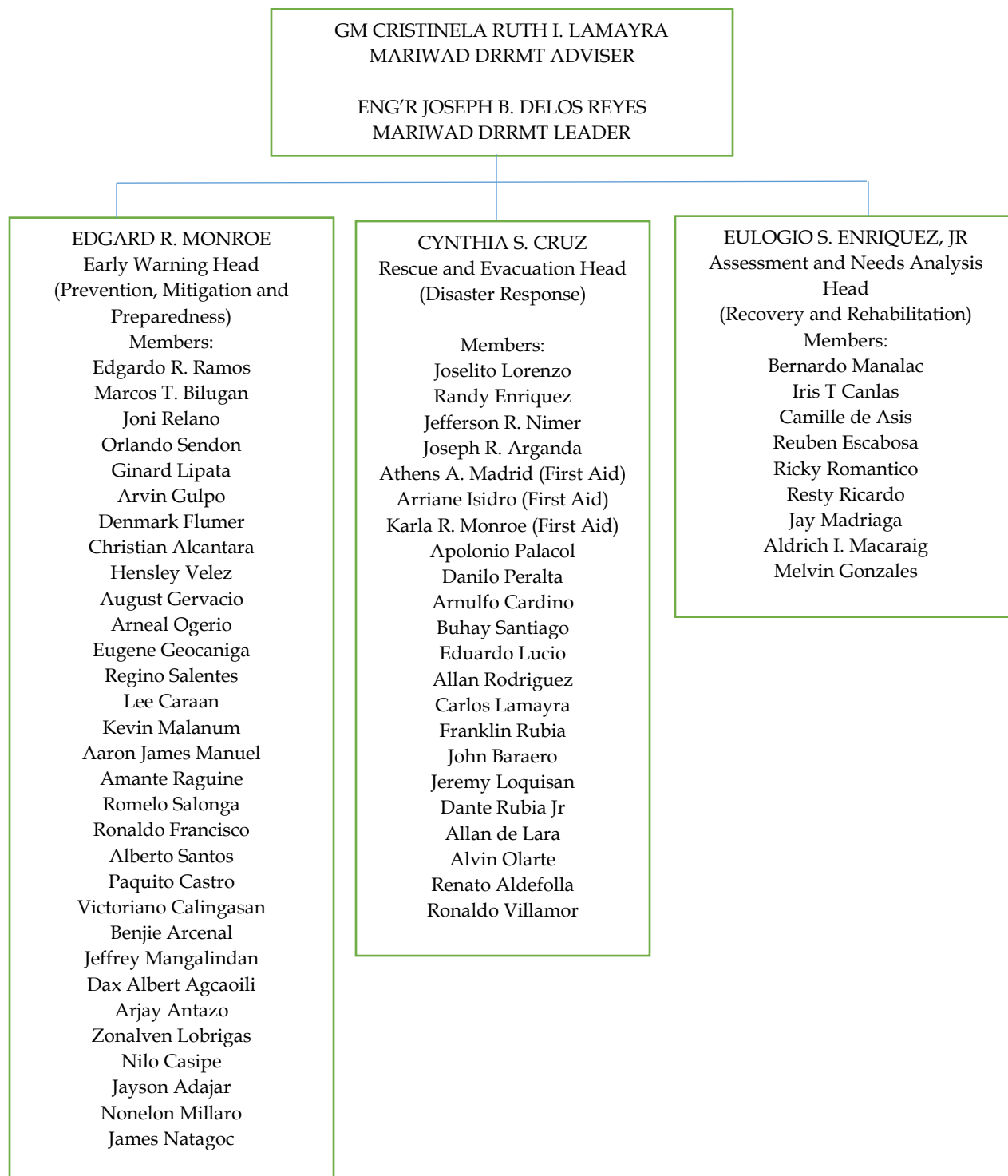
MARIWAD	Mariveles Water District
MARIWAD DRRMT	Mariveles Water District Disaster Risk Reduction Management Team
MARIWAD DRRMP	Mariveles Water District Disaster Risk Reduction Management Plan
EMT	Emergency Management Team
DILG	Department of the Interior and Local Government
DOH	Department of Health
HFA	Hyogo Framework for Action
LGU	Local Government Unit
NGA	National Government Agency
PNP	Philippine National Police
MDRRMO	Municipal Disaster Risk Reduction Management Office
LWUA	Local Water Utilities Administration
DRRM	Disaster Risk Reduction Management



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CHAPTER II

2.1 Mariveles Water District – Disaster Risk Reduction Management Team Structure





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Table 1: The Mariwad DRRMT function is composed of the following:

Team Composition	Members	Responsibility
Team Adviser >Information and Communication	GM Cristinela Ruth I. Lamayra	>Establishes policy guidelines and set priorities in the allocation of resources and facilities; >Direct and coordinate all aspects of the organization's response during a crisis situation; >Directs and monitors the emergency activities; >Assigns personnel as needed; >Advises the team leader/s to closely monitor information/advisory given by warning agencies; and >Announces the suspension of offices on the basis of advisories given by warning agencies
Team Leader >Water Supply Command Center	Eng'r. Joseph B. delos Reyes	>Oversees repair of damaged facilities and equipment and takes actions to prevent further deterioration; >Reports to the GM all the activities of the MARIWAD DRRMT; >Coordinates with MDRRMC and other warning agencies of the plans and actions of the MARIWAD DRRMT whenever crisis occurs; >Notifies and updates the GM on the status of water quality, production and distribution immediately before and after the disasters; >Determines the resumption of normal operation can begin; >Assess the conditions of structural, electrical and mechanical components of all facilities of MARIWAD including but not limited to the pump stations, transmission and distribution lines and reservoirs; >Does related work as may be assigned by the GM; and > Overseas the activities of all teams
Early Warning Team (Prevention, Mitigation and Preparedness) >Transmission Pipelines Leak Restoration >Water Quality Control >Water Pressure Monitoring and Assessment	Edgard R. Monroe	>Provide warning in close coordination with warning agencies and through all available means to the service areas, concessionaires and employees and providing a clear understanding of what to expect and advises on appropriate precautionary measures to be undertaken; >Coordinates with the rescue and evacuation team of the operations being undertaken and those to be implemented; >Alert the MARIWAD DRRMT and closely monitor the conduct of disaster response operations, mobilizing additional resources available as may be needed in the field; >Determine the courses of actions to be taken based on the recommendations of the Team Leader; >Maintain an updated data base of relevant baseline information (Pump Stations); >Document all past disaster situations to include review of the pre-post disaster activities undertake by all key actors, and maintain a database of these documents; and >Provide warning in close coordination with warning agencies and through all available means to the service areas, concessionaires and employees and providing a clear understanding of what to expect and advises on appropriate precautionary measures to be undertaken >Coordinates with the rescue and evacuation team of the operations being undertaken and those to be implemented;
Rescue and Evacuation Team (Disaster Response) >Water Rationing	Cyntnia S. Cruz	>ensure availability of personnel and materials and maintain a current list of personnel location; >.Facilitate flow of information to officers and employees >Coordinate 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 ensure security of people and property; >checks all normally unoccupied rooms and areas where alarmed and PA system may not be heard; >maintains a guarding system for personnel, materials and other installations; >Assist the police in determining the disasters and the situations;



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		<ul style="list-style-type: none"> >In case of fire, assign the Mariwad fire brigade team to the fire scene and coordinate with the BFP to prevent looting and looters; >Systematically store properties brought to the evacuation area and safeguard their release to their respective owners; >Maintains a guarding system for personnel, materials and other installations; >Make an inventory of the returned documents, equipment and supplies and submit a report of losses/damages to the team leader and who shall submit the same to the GM; >Monitor the storage of medicines, goods , foods, drinking water, equipment, machineries and other supplies; >Maintain an adequate sanitation and hygienic standards and deal with matters related to emergency services; >Do related work as the need arises; >Organize and supervise the evacuation, search and rescue, fire suppression and rehabilitation; >Systematically evacuate personnel, properties and records during emergency situations; >Upon receipt of information from the early warning team,the team shall immediately establish an evacuation area and take charge of evacuation in the following order of priority: occupants of the building eespecially the injured; cash; valuable documents and records; personal belongings of personnel; office equipment and other movable facilities; >Locate/remove injured or trapped persons in the area; >Obtain appropriate equipment for search and rescue operations; >In the event of evacuation, account all personnel and immediately inform the MARIWAD DRRMT of any missing peronnel; and >Coordinate with MDRRMO and other response agencies on matters relative to search and rescue operations
Assessment and Needs Analysis Team (Disaster Recovery and Rehabilitation) >Finance and Logistics >Transportation >Evaluation and Documentation	Eulogio S. Enriquez, Jr	<ul style="list-style-type: none"> >Evaluate crisis situations and determine courses of actions to be followed, formulate guideline in assessing the situation; >Assess information and advise the team leader of MARIWAD DRRMT on possible measures to be undertakenin order to lessen the impact of the crisis; >Ensure the available funds are mobilized quickly and effectively for the procurement of supplies and payment of services; >Submit recommendation for allocation of needed resource >Ensure availability of in-house and rental vehicles and machinery for quick mobilization; >Coordinate the plans and actions of the MARIWAD DRRMT with the proper authorities; >Monitor the possible consequences of potential, on going and past disasters or emergency situations around the country in close coordination with other water districts; >Coordinate pre-defined and post disaster operational activities being undertaken by relevant agencies and ensure that all key personnel are taken on board; >Initiate and lead the conduct of damage and needs assessment mission as the post disaster situation warrants; >Facilitate the conduct of debriefing of past disaster situation to look into areas of strength and areas for improvement; >Allocate working stations of all teams; >Conduct monitoring and damage assessment of Mariwad properties and report the same to the team leader and or the GM; >Recommend appropriate intervention for damage structure; >Validate report and determine cost of damages for budget allocation; >Repair and rehabilitate damage structures;



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2.2 Composition of the MARIWAD DRRMT

The MARIWAD DRRMT is the working team of the Mariveles Water District in-charge of planning, organizing and guiding the use of human, materials and financial resources, and implementation of the four distinct yet mutually reinforcing priority areas, namely: **(a) disaster, prevention and mitigation, (b) disaster preparedness, (c) disaster response, (d) disaster recovery and rehabilitation or reconstruction.** Each priority area has its own long term goal, which when put together will lead to attainment of MARIWAD's over all vision/goal in DRRMP.

These priority areas are not autonomous from the other nor do they have clear start and end points. The four (4) priority areas are not seen as mere cycle which starts in prevention and mitigation and ends in rehabilitation and recovery. They are:

- Mutually reinforce to each other and are inter-operable;
- Do not, should not and cannot stand alone;
- Has no clear starting or ending points between each of the aspects and overlaps are to be expected;
- Are problem needs and asset strengths centered; and
- All point to one direction which is to ensure people's vulnerabilities and increasing their capabilities.

2.3 Functions of the MARIWAD DRRMT

The role of Mariveles Water District Disaster Risk Reduction Management Team is to conceptualize the promotion of hazard/disaster awareness, to manage impacts, and to help all employees and its concessionaires to reduce the risk of threats from natural and human made/induced disasters.

The Disaster Risk Reduction Management Plan of the Mariveles Water District provides procedures pursuant to Republic Act 10121 otherwise known as the Philippine Disaster Risk Reduction and Management Act of 2010. This Manual serves as the guide of the MARIWAD DRRMT not just from the disaster preparedness and response but on how to manage and reduce risk. The adopted 4-phase strategy: **prevention and mitigation, preparedness, response and recovery and rehabilitation** illustrate the basic procedures that the MARIWAD DRRMT will employ before, during and after the occurrence of a disaster.

The ultimate goal of this Manual is to protect the lives of the officers and employees of the District, the properties of the District, to ensure the uninterrupted or continuous water supply and services, and the immediate restoration of water supply after a disaster.

The officers and members of the MARIWAD DRRMT must:



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- 1) Analyse the condition of the District and its water system or conduct situational analysis;
- 2) Identify possible hazards/threats faced by the District;
- 3) Follow and strictly act according to the MARIWAD DRRMP especially in times of emergencies, calamity/disaster;
- 4) Provide feedback to the General Manager and the Board of Directors for policy formulation;
- 5) Request the officers of the MARIWAD, MDRRMO, LWUA and water districts for any assistance;
- 6) Know the crisis plan and follow them when initiated;
- 7) Know the location of the nearest fire extinguisher in all areas they may enter;
- 8) Assist concessionaires and guest (supplier/contractor) who are within the premises during emergencies;
- 9) If an evacuation alarm sounds, evacuate immediately to designated assembly area.

To effectively achieve the expected response in times of emergency and calamity, MARIWAD Officers and employees and MARIWAD DRRMT must take time to understand the contents of this Manual, practice and internalize the risk reduction measures to eventually make a habit of being prepared before, during and after calamity, be it natural or human-made/induced hazard.

2.4 Designated Emergency Areas

In order to respond in a coordinated fashion to an emergency or disaster, the Multi-Purpose Hall is designated as Command Post. It shall be the meeting place of the MARIWAD DRRMT and all other personnel as may be called upon by the Team Adviser or the GM and MARIWAD DRRMT Team Leader during an emergency situation. The MARIWAD DRRMT command post shall be at the control and disposal of the MARIWAD DRRMT Adviser and Team Leader.

In disasters where there is a need to evacuate employees and concessionaires outside the premises of MARIWAD Building, the assembly area shall be at the open parking area. The triage area for the injured shall be the same as the assembly areas and the media briefing will be held at the Command Post (Multi-purpose hall area).



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CHAPTER III

3.1 Emergency Management and Response Policies

1. Mariveles Water District recognizes that emergency management starts before the onset of a crisis and requires comprehensive preparation during routine operations.
2. Mariveles Water District recognizes the need to maintain quantity of safe water and quality of service during emergency situations. Thus, it will implement measures designed to immediately restore water service and appropriate the necessary funds for this purpose.
3. Mariveles Water District recognizes that each operating unit has an important role to play during a crisis and that their roles and responsibilities have to be properly defined and delineated to ensure that the primary duty of MARIWAD of delivering safe and potable water is not disrupted
4. Mariveles Water District recognizes the need to inform all stakeholders of any situation that will affect public health and safety, damage the environment, or disrupt domestic activities. Thus, it will ensure that correct information will cascade to them at the soonest possible time during emergency situations.
5. Mariveles Water District recognizes the importance of media relations and its role in building public trust and bolstering public confidence in the quality of the product and integrity of service of MARIWAD. In times of crises, MARIWAD will coordinate with the media, provide them with correct and timely information, and continuously update them about the status of service restoration, and entertain their questions.
6. Mariveles Water District recognizes that employees share in the responsibility of disseminating correct information – to take in information that is communicated, to share information as appropriate, and to contribute to dialogue restrictions and confidentiality.
7. Mariveles Water District recognizes the need to continuously improve the Emergency Management Plan and shall exert time and resources towards this end.

3.2 Emergency Management and Response Guidelines

1. All emergencies, potential or actual, should be reported to the supervisors and the General Manager immediately.
2. Unless otherwise designated by the EMT, only the Emergency Management Team Leader and the Rescue and Evacuation Team Head are authorized to release information to the media and to the public. All other officers and staff should be helpful to the media by connecting them with the authorized spokesperson.
3. The Emergency Management Team Leader is the lead person in directing and coordinating all aspects of the organization's response. All instructions shall come from him and all reports shall be directed to him.
4. All statements shall be guided by professionalism and transparency, and serve to mitigate the crisis. As much as possible, responses shall be proactive, responsive, objective, and action- oriented.



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5. Personnel matters as well as personal information of management staff are to remain confidential.
6. Not every emergency is covered by this preset plans. In these cases, use one's best judgment, and coordinate with the authorities and subordinates

CHAPTER IV

4.1 Types of Emergencies

Depending on their origin emergencies may be classified into two:

a) Those caused by natural phenomena/disaster

- Natural hazards may cause danger to people, to the District's concessionaires, its system and properties and may lead to disaster if they are not mitigated against and prepared for. Phenomena that are atmospheric, hydrometeorological or oceanographic and geographical in nature may cause the loss of life or injury, property damage, social and economic disruption and/or environmental degradation. Hydrometeorological and geographical hazards can be single, sequential or a combination in origin and effects. The common hazards associated with these are heavy rains, strong winds, storm surge, floods and landslides/mudslide and mud flow.

b) Those caused by human induced activity/disaster

- Human made or induced hazards are threats having elements of human intent, negligence, error and involving a failure of a system. Human induced disasters are a result of inadequately managed human induced hazards such as Technological Hazards, Environmental Hazards and Socio, Economic, Political, Security Hazards.

Table 2: Natural phenomena/disaster

Natural Hazards	Description	Effects on MARIWAD	Prevention, Mitigation & Preparedness	Response	Recovery and Rehabilitation
Earthquake	It is the shaking of the ground caused by the sudden slippage of rock masses below or at the surface of the earth. An earthquake may	1) Total or partial destruction of water sources, transmission and distribution lines, chlorinator houses, reservoirs, storage and	1) Evaluate the structural soundness of the office building, pump houses, water sources, transmission and distribution lines, reservoirs and storage.	1) Advise employees to stay in a sound building or place. 2) Perform the Drop, Cover and Hold protocol. (Drop from the floor, cover your	1) Get out calmly and in orderly manner from the building. 2) Check themselves for cuts and injuries. 3) Check the surrounding s of



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	<p>be classified as tectonic or volcanic. A very severe earthquake is usually associated with shocks. Foreshocks are a series of tremors that occur before the main earthquake while aftershocks are weaker earthquakes and can cause further damage to weaken buildings.</p>	<p>office building. 2) Interruption of electric power, communication lines and access routes. 3) Deterioration of the water quality at the source due to landslides and other phenomena. 4) Loss or reduction in production from ground water sources.</p>	<p>2) Familiarize officers & employees with the easiest exit or evacuation route to take. 3) Develop evacuation plan and hang/post it in the office building and pump houses. 4) Teach employees how to use the fire extinguishers, first aid kits, alarm and exits. 5) Prepare and maintain survival kits in the office and in pump stations. 6) Request assistance from the BFP for the conduct of orientation and earthquake drill among employees.</p>	<p>head & hold on to solid object) 3) When inside a vehicle, pull at the side of the road and stop. 4) Stay away from power lines, walls or posts & other structures that may fall or collapse. 5) Stay away from buildings with large glass panes. 6) Move away from steep escarpments which may be affected by landslides. 7) Stay clear of hazardous chemicals 8) if outside lie down nor crouch low to the ground to prevent falling</p>	<p>the office building & pump houses. 3) Inspect all the power lines. 4) Inspect all the transmission & distribution lines, water sources and reservoirs. 5) Clean the building, pump stations and reservoirs, check if there is any spill of chemical. 6) Report to the Team Leader and to the GM the status of the office building & the whole system. 7) Help to reduce the number of casualties.</p>
Volcanic Eruptions	<p>It is a process wherein volcanic materials such as molten or hot fragmented rocks or gaseous materials are ejected from a volcano. 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.</p>	<p>1) Total destruction of the infrastructure in the areas directly affected by pyroclastic flows and surges. 2) Obstruction caused by ash infiltrating surface water intakes, intake screens, transmission pipes, filters etc. 3) Deterioration of water quality due to contamination of rivers, streams and springs in lahar deposition areas.</p>	<p>1) Close windows and doors of the office building & pump houses to reduce entry of ash if heavy ash fall is expected to hit the community. 2) Bring tools, machineries, equipment, vehicles & other supplies & materials into closed shelters. 3) Develop evacuation plans and conduct evacuation drills. 4) Avoid low place or areas vulnerable to mud flows, lava etc. 5) The Early Warning Team should spread the information coming</p>	<p>1) Stay alert and awake. 2) Follow instructions that go with the warnings. 3) Give priority for evacuation outside the area of ash shower to employees with breathing problems. 4) Cover the nose with wet cloth. 5) Wear goggles and eye glasses. 6) Avoid driving in heavy ash falls unless absolutely required.</p>	<p>1) Clear the office building, pump stations, reservoirs, canals & pathways of ash & other debris. 2) Hose down the accumulated ash in the plant leaves and roofs of the office building & pump stations. 3) Stay away from slide area. 4) Check for injured or trapped persons near the slide areas without entering the slide areas. 5) Direct the rescuers to their locations. 6) Listen to radio or television for latest information.</p>



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			from the warning agencies. 6) Always have a copy of hotline numbers and post it inside the office building & pump houses.		7) Watch out for flooding which may occur after a landslide or debris flow. 8. Report broken transmission & distribution lines or even power lines and suspected damaged of the office building, pump houses or reservoirs to the Team Leader and to the GM. 9) Stay indoors until local health officials advise that it is safe to stay outside. 10) Assess the damage of properties and analyze the needs of the MARIWAD employees, concessionaires and the whole system.
Landslides	It is a massive outward & downward movement of slope-forming materials. These masses may range in size up to entire mountainside. Their movements may vary in velocity. A landslide is initiated when a section of a hill slope or sloping section of a sea bed is rendered too weak to support its own weight. This is generally	1) Changes in the physical or chemical characteristics of intake water which will affect treatment. 2) Total or partial destruction of the facilities, particularly intake and transmission components in the path of active landslides. 3) Contamination of the water at surface intakes located in the mountain areas.	1) Maintain the list contact numbers for emergency situations. 2) Prepare evacuation of tools, machineries, equipment and vehicles upon the direction of warning agencies. 3) Continue planting seedlings to cover slopes. 4) Build riprap to prevent soil erosion at the pump houses and water sources. 5) Reinforce the foundation surrounding the water sources and pump houses.	1) Evacuate the tools, equipment, machineries and vehicles if warned of an impending landslide. 2) Advise the technical staff to stay away from the path of the landslide debris or seek refuge behind a sturdy tree or boulder. 3) Get out from the pump stations as soon as possible when rumbling sounds are heard from upstream or the trembling of the ground is felt indicating a possible mudflow.	1) Recommend to proper authorities to examine thoroughly the damaged structures and facilities before re-occupying and reutilizing. 2) Stay away from landslide area. There may be danger of additional landslide. 3) Check with caution the injured or trapped persons within the landslide area. 4) Direct rescuers to the locations. 5) Listen to radio and television for



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	<p>triggered by other natural hazards such as prolonged, heavy rainfall or by other sources of water which increase the water content of the slope materials. Landslide as a geological hazard is caused by earthquake or volcanic eruption. Susceptibility of hill slope to landslide is developed as a result of denudation of mountainsides which remove the trees or ground cover that holds the soil, or alteration of the surface of the ground like grading for roads or building constructions.</p>		<p>6) Conduct regular drills on evacuation procedures. 7) Recommend to proper authorities to enforce land use regulation geared at mitigating landslides. 8) Promote public awareness & involvement on landslide mitigation. 9) Recommend to proper authorities the construction of channels, irrigation canals, pathways, dams & similar structures to protect the River and the MARIWAD systems and structures.</p>	<p>4) Run across the slopes not downward.</p>	<p>information and warnings. 6) Seek the advice of a geotechnical expert for evaluating landslide hazards or designing corrective techniques to reduce landslide risk.</p>
Floods	<p>It is 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 in appropriate land use. On the</p>	<p>1) Damage to pump stations close to flooding waterways. 2) Rupture of exposed pipes across and along rivers and streams. 3) Contamination in water catchment areas. 4) Power cuts, road blockages, and disruption of communications</p>	<p>1) Find out the occurrence of flood in all the pump stations, reservoirs, water sources and office building. 2) Know the flood warning system of the Mariveles. 3) Research from previous occurrences how fast the flood occurrences occur and how high it rises.</p>	<p>1) Always update employees especially at the field of the situation. 2) Keep updated through radio or to the MDRRMO. 3) Remind pump operators to utilize gen set if it is possible. 4) Warn the pump operators of snakes and falling debris around the pump stations.</p>	<p>1) Report busted transmission & distribution lines to the Team Leader and to the GM. 2) Ensure that electrical lines of the pumping equipment, are checked properly before switching. 3) Avoid affected areas. 4) Continue listening to radios & other updates.</p>



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	<p>other hand, some floods are the result of the changes in geomorphology and climatology of water catchment areas. Rainfall intensity and duration are also factors that contributory to flood. Floods can be slow or fast rising, but generally develop over a period of hours or days</p>	<p>5) Intrusion of salt water into continental aquifers, contaminating or reducing the availability of groundwater</p>	<p>4) Announce to the public to fill their drums with water 5) Watch out for rapidly rising water & notify Pump operators and employees for evacuation. 6) Have a handy survival kit 7) Offer services & perform the assigned tasks in the event that the office building & pump stations are designated as evacuation areas. 8) Always be updated and inform Technical Staff detailed at the field. 9) Protect the MARIWAD properties. 10) Check-up the gen set, fuels and extra fuels. 11) If possible all gen sets must be operational with at least 1 operators per pump station. 12) Keep documents and other valuables in a safe deposit box in a safe place.</p>	<p>5) All technical staff must be on duty. 6) Evacuate the office building & pump stations if the situation gets worse.</p>	<p>5) Stay away from the pump stations that are flooded. 6) Construct barriers or ripraps to stop flood from entering water sources & pump stations. 7) Check any damage of the system and repair if any immediately to avoid water interruptions. 8) Continue checking the potability of the water. 9) Check the service areas if all concessionaires have water supply immediately after the flooding.</p>
<p>Extreme Climatic Variabilities (i.e. El Nino, La Nina, Heat waves, Droughts, etc.</p>	<p>Climate Change is the direct impact of global warming. Rising temperatures will cause changes to weather pattern. As global warming occurs, most places will be warmer. This will cause changes in the amount and</p>	<p>During drought or El Nino: 1) Loss or reduction of surface & groundwater sources and deterioration of water quality. 2) A decline in water levels at intake points & in storage facilities. 3) Compulsory rationing of water supply.</p>	<p>1) Continue disseminating extreme climatic variabilities or climate change issues. 2) Give warnings on the effect of climate change. 3) Update the employees on the Emergency Response Plan of the MARIWAD. 4) Advocate for the recycle/reuse of everyday materials</p>	<p>1) Plan changes in the daily activities of MARIWAD especially in the field. 2) Announce to the public or to the concessionaires of water rationing. 3) Warn the public to save water and fill their drums during off peak hours for future consumption. 4) Operators must be on duty 24</p>	<p>During drought: 1) Assess the affected areas, document for future references. 2) Provide assistance to those who were severely affected. 3) Bring employees or victims of heat at the clinic or hospital. During La Nina: 1) Assess damage. 2) Repair all</p>



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	<p>pattern of rain & snow, in the length of growing seasons, in the frequency and severity of storms and in sea level rises. Droughts are prolonged dry periods during climatic cycles caused by a complex set of hydrometeorological elements that affect the soil and the atmosphere. La Nina is characterized by unusually cold temperatures in the equatorial Pacific as compared to El Nino which is characterized by unusually warm ocean temperatures in the Equatorial Pacific. The system oscillates between warm (El Nino) to neutral, or cold (La Nina) conditions with an average of 3-4 years.</p>	<p>During La Nina:</p> <ol style="list-style-type: none"> 1) Rupture of exposed pipes across and along rivers and streams. 2) Contamination in water catchment areas. 3) Power cuts, road blockages, and disruption of communications. 	<p>to help conserve resources, lead to less energy & less elements used in manufacturing them while recycling paper lead to less trees being cut down.</p> <ol style="list-style-type: none"> 5) Save energy by saving electricity through the use of energy efficient lightning and appliances, biking/walking. 6) Advocate the use of renewable energy such as those from hydroelectric dams, wind, power, solar & other radiation & bio fuels. 7) Continue the annual tree planting activity of the MARIWAD. 8) Conserve water & other natural resources. 9) Be environment friendly. 	<p>hours in a shifting mode.</p> <ol style="list-style-type: none"> 5) Utilize all the water sources including stand by. 6) Continue monitoring water level of all sources. 7) Continue monitoring the potability of the water. 8) Warn employees stationed at the field to always bring with them water to drink. 9) Provide employees rain coats & other supplies for protection during La Nina. 	<p>busted pipes immediately</p> <ol style="list-style-type: none"> 3) Monitor supply of water. 4) Monitor the potability of water. 5) Continue disseminating information on climate change and the role of everyone in mitigating and preventing the occurrence of climate change. 6) Update every now and then the Emergency Response Plan and this Manual.
Hurricanes/ Severe Storms/ Typhoons.	<p>Depending on wind speeds, these natural hazards are called tropical depressions (winds up to 63 km/hr accompanied by changes in atmospheric</p>	<p>1) Partial or total damage to facilities, pump stations, command posts & building, including broken windows, damaged roofs & doors, and flooding.</p>	<ol style="list-style-type: none"> 1) Establish & maintain coordination with all the members of the MARIWAD DRRMT & the GM. 2) Ensure that the office building, pump stations & electrical posts can 	<ol style="list-style-type: none"> 1) Monitor through radio or other information sources the latest update on the typhoon. 2) Coordinate with the MARIWAD DRRMT & the GM on possible immediate 	<ol style="list-style-type: none"> 1) Check the office building, pump stations, reservoirs, transmission lines & power lines for any damage. 2) Assess the damage and immediately



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	pressure); tropical storms (winds between 64 & 119 km/hr accompanied by intense rainfall) or hurricanes (wind speeds of 120km/hr or higher accompanied by heavy rainfall & significant changes in atmospheric pressure)	<p>2) Rupture of mains & pipes in exposed areas such as rivers and streams.</p> <p>3) Rupture of disjointing of pipes due to landslides and water torrents.</p> <p>4) Rupture and damage to tanks & reservoirs.</p> <p>5) Damage to electrical transmission lines & distribution systems.</p>	<p>stand heavy rains & strong winds.</p> <p>3) Learn about typhoons & other weather disturbance, their signs & warnings, effects & dangers & how to protect the employees, records, facilities & the whole system.</p> <p>4) Educate all employees especially those at the field on natural hazards.</p> <p>5) Participate actively in disaster response - drill or simulation.</p> <p>6) Update this Manual for the employees & the whole community.</p> <p>7) Inspect all the properties, facilities & systems of the MARIWAD to ensure the best protection.</p> <p>8) Secure megaphone as alternative alarm system.</p> <p>9) Listen to radio & TV for information & updates.</p> <p>10) Store flashlights & back up batteries to receive warnings.</p> <p>11) Recommend trimming and removal of dead or rotting trees that could fall and may cause damage or injury.</p> <p>12) Secure outdoor objects that could be blown away & cause damage.</p>	<p>evacuation of employees, records, tools, machineries & equipment.</p> <p>3) Advise technical staff to get away from structures, trees, electrical posts, power lines or telephone lines if out in the open.</p> <p>4) Advise the technical staff at the field to watch out fallen debris.</p>	<p>repair or purchase to avoid inconvenience to the concessionaires & employees.</p> <p>3) Restore water supply immediately.</p> <p>4) Coordinate with the Brgy. Officials and LGU Officials if necessary.</p> <p>5) Remind employees stationed at the field to continually observe safety measures in inspecting the whole system and in putting back the supply of water into normal condition.</p> <p>6) Continue listening to local radio for update and further warnings.</p> <p>7) Coordinate with proper authorities for assistance</p>
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Table 3: Human induced activity/disaster

Natural Hazards	Description	Potential Effects on MARIWAD	Prevention, Mitigation & Preparedness	Response	Recovery and Rehabilitation
Technological Hazards a) Structure Collapse	It is often caused by engineering failures such as under design of structural components, by corrosion attack, & by aerodynamic resonance in structures.	1) Injuries 2) Fatalities 3) Psychological Damage 4) Economic Consequences 5) Water Supply interruption 6) Loss of good reputation	1) Conduct inspection of the office building, pump stations & reservoirs. 2) Conduct inspection of the ripraps or protection walls in PS#3 Mt View, PS#9 Pambuco, PS#10 Camaya, PS#17 Lucanin, PS#25 Karagatan 2, PS#26 Alas-asin 3, Pump Stations. 3) Repair or rehabilitate structures to put them in good condition.	1) Vacate the building, pump stations or reservoirs immediately. 2) Apply first aid and in cases of injuries or fatalities bring the victims to the nearest hospital	1) Secure the area. 2) Assess and evaluate the damaged structures through the help of experts. 3) Report the extent of damages to authorities for proper action. 4) MARIWAD DRRMT recommends the abandonment of structures upon recommendations of authorities, if necessary.
b) Fire	Fire is composed of three elements – heat, fuel & oxygen which when combined will result in a chemical reaction called burning. Fire consumes the oxygen in the air, while increasing the concentration of the deadly carbon monoxide & other toxic gases in the atmosphere. Inhaling carbon monoxide can cause loss of consciousness or death within minutes.	1) Negative impact on public image or loss of good reputation. 2) Panic among employees & concessionaires. 3) Possible water interruption. 4) Injuries or fatalities if not properly managed. 5) Economic Consequences	1) Revisit the Emergency Response Plan of the MARIWAD. 2) Develop building evacuation plans for each of the building & pump stations. 3) Install fire extinguisher & alarm in the office building & in pump stations. 4) Maintain proper signage for fire exits. 5) Insure the building, pump stations, reservoirs & other properties of the MARIWAD. 6) Requests the	1) On the alarm. 2) Advise the BFP. 3) Fight the fire with readily available equipment. 4) Seek the nearest exit not blocked by the fire. 5) Close windows & doors as you escape from the fire scene to delay the spread of the fire. 6) Get out as safely & quickly as you can. 7) Stay away from toxic smoke & gases. 8) Do not panic. 9) Do not run. 10) Shut off the main switch.	1) Conduct inventory of personnel. 2) Seek medical assistance for the injured if any. 3) Coordinate with the BFP & LGU Engineering Office for the assessment of the damage. 4) Conduct inventory of equipment, fixtures & facilities. 5) Report damage/s to authorities. 6) Stay out of fire damaged office building & pump stations until BFP declared it is safe to re-enter.



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			BFP for their assistance in the conduct of fire & earthquake drills. 7) Assign personnel who will always check the fire prone areas of the building.	11) Do not jump out from an upper floor.	
c) Vehicular Accident	The MARIWAD has several service vehicles to be used by the Technical Staff attending maintenance & installation requests, Meter reader to read meters, Bill Collectors to collect payments & other employees. This presents certain risks to the employees' safety. Potential dangers happen especially when board & alight from the service vehicles & even during transporting/dri ving.	1) Negative impact on public image. 2) Loss of good reputation. 3) Economic consequences. 4) Delay of response time to maintenance & service requests.	1) Keep the vehicle in good condition. Always check the brakes, tires & fuel. 2) Observe traffic rules, drive defensively & practice road courtesy. 3) Never sleep inside the vehicle. Stay alert & prepare yourself for any emergency.	1) Bring the passengers employees out of the vehicle immediately. 2) Apply first aid & bring to the nearest hospital the injured employees if necessary. 3) Check the medical record & contact persons of the employees in their IDs.	1) Assess the damage of the service vehicle. 2) Immediately repair the damage if any to avoid delay in the implementation of requests.
d) Chemical Spill	Chemical spillage/leak may pose a threat to the environment, human life and death. An individual may be considered exposed to chemicals by inhaling or by the chemical coming in contact with food, water, medicine or clothing thus making it hazardous to people. The best way to avoid	1) Caused death or injury if inhaled by employees & humans. 2) Degrade the environment. 3) Pollute the atmosphere, groundwater, soil wetlands & waterways causing danger to human health & even deaths. 4) Loss of good reputation or public image of the MARIWAD.	1) Take proper precautions when handling chemicals. 2) Educate employees concerned on handling chemicals. 3) Keep safe storage of chemicals. 4) Dispose chemicals properly. 5) Use gloves & masks when handling chemicals. 6) Maintain a stable	1) Vacate the affected area. 2) Avoid throwing water or touching the chemicals with bare hands. 3) Inform proper authorities. 4) Cover the nose with wet cloth & transfer casualty to a safer place. 5) For ingested chemical induce vomiting & give milk or starch. 6) Ensure adequate air circulation	1) Call paramedic assistance. 2) Bring the victim to the nearest hospital.



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	chemical accident is to read & follow direction for use, storage & disposal of the product.		environment in the office building, pump stations & reservoirs. 7) Provide fire & chemical extinguishers in office & in the pump stations.	around the victim.	
e) Electrical Black out or power failure	It is a short or long term loss of the electric power covering a very wide area.	1) Total or partial disruption of water supply. 2) Loss of goodwill with the concessionaires.	1) Make sure that there is enough fuel supply in all the pump stations. 2) Check the gen sets if they are in good condition. 3) Announce to the concessionaires of the situation for them to fill their drums of water for future use. 4) Install emergency lightning in dark places & on stairs. 5) Keep flashlights in accessible places. 6) Prepare ready gas/lamps, candles for emergencies 7) Make sure that there are operators on duty when the gen set is on.	1) Unplug all electrical appliances. 2) Stay put in one place to avoid accidents. 3) Record the operation time of the gen set including fuels consumed. 4) Make sure to shut off the gen set every after 8 hours (2hours rest time).	1) Check electrical outlets & switches. 2) Transfer the pumping equipment from gen set to PENELCO power immediately. 3) Record everything in log book for future reference.
f) System Failure	This happen when the MARIWAD failed to meet the expected outcome of a water source, & thereby could not provide the requirements needed by the concessionaires.	1) Total or partial disruption of water supply. 2) Loss of goodwill with the concessionaires.	1) Conduct feasibility before starting a project. 2) Award the project to a LWUA accredited contractor with vast experience in water system.	1) Announce to the concessionaires the situation and provide measures to mitigate inconveniences. 2) Repair the system immediately.	1) Assess the damage and report to proper authorities. 2) Record the damage and the repair which was done for future reference. 3) Document all the proceedings



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			3) Supervise the construction of the project following all the rules & regulations contained in the BID documents. 4) Check the water system before the contractor will turn over. 5) Commission the project and request for warranty. 6) If after commissioning fails, report to proper authorities.	3) Take all precautionary measures during repair.	for submission to proper authorities. 4) Announce to the public the resumption of the service
Environmental Hazards a) Water pollution	Water is polluted by substances like sewage, marine litter, oil & chemical spills, fertilizers & pesticides entering the groundwater sources of the MARIWAD.	1) Pollute the water supply of the MARIWAD. 2) Cause death or injury when consumed.	1) Educate the proper disposal of wastes, human & chemical. 2) Implement the Environment Management Plan of the MARIWAD.	1) Clean up the River and surrounding areas of all water sources of the MARIWAD. 2) Boil water for consumption 3) Provide warnings on affected areas. 4) Strictly monitoring the potability of water supply.	1) Seek medical assistance for water borne disease casualty. 2) Continue monitor the potability of water supply.
b) Red Tide	Refers to the discoloration of water bodies due to the presence of high level of "bloom" of a group algae called dinoflagellates which are toxic & responsible for paralytic shellfish poisoning.	Employees file leave of absence due to food poisoning which may lead to water supply interruption	1) Disseminate red tide information, symptoms & progressions 2) Keep track of & warn regarding media information on outbreaks of red tide. 3) Avoid ingestion of fish, shellfish mollusks & crabs.	1) Monitor progression of symptoms & seek medical advice. 2) Avoid or refrain from eating sea foods while danger exists.	1) Seek medical advice
Socio economic,	Robbery is the crime of taking or	1) Panic among employees &	1) Tighten security	1) On the alarm. 2) Report to	1) Bring the victim to the hospital for



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political, security hazards a) Robbery	attempting to take something of value by force or threat of force or by putting the victim in fear. Among the types of robbery is armed robbery involving the use of weapon.	concessionaires within the premises of the MARIWAD. 2) Affect cash flow 3) Injury or possibly death, if not properly managed.	measures by installing guard or CCTV at the office. 2) Employ precautionary strategies such as password. 3) Be vigilant about the safety of everyone. 4) Provide alarm connected with the PNP.	proper authorities. 3) Listen to the advice of the Police & other authorities. 4) Be vigilant while the robber are still inside the building.	medical check-up/psychological-social counselling. 2) Support the employee in seeking justice. 3) Assess the amount taken by the robber. 4) Convene with proper authorities on what to do & how to solve the problem.
b) 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.	1) Negative impact on public image (erosion of public trust & confidence on capability to deliver service) 2) Negative impact on employee's morale & performance 3) May affect cash flow. 4) Loss of property of the District.	1) Keep safe storage of personal belongings. 2) Install cctv camera. 3) Record all the properties of the MARIWAD. 4) If employees are taking care of these properties provide Accountability. 5) Provide warnings that unauthorized persons are not allowed to enter the premises.	1) Report to proper authorities. 2) Listen to the advice of the Police & other authorities. 3) Keep the evidence. 4) Document everything.	1) Conduct physical count of the properties of the MARIWAD every end of the month. 2) Lock the storage room & the pump stations. 3) Provide sanctions.
c) Bomb Threat/ Explosions	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	1) Panic among employees & concessionaires within the premises of the MARIWAD. 2) Affect cash flow 3) Injury, or possibly death, if not properly managed. 4) Damage to facilities Water service interruption	1) Prepare a MARIWAD bomb threat emergency plan. 2) Encourage employees to be constantly aware of bomb threats and emergency plan. 3) Provide security or CCTV camera for the protection of employees, property, facilities & materials against	1) Treat all bomb threats received as real & report immediately to authorities. 2) Remain calm & courteous. 3) Try to obtain as much information as possible as to: the identity of the caller, the characteristic of the caller. 4) Ask the exact location of the bomb 5) Apply delaying tactics	1) Request proper authorities to search the building or pump stations, reservoirs immediately & thoroughly 2) Strictly implement security measures within the premises. 3) Post incident stress debriefing, if necessary



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			unauthorized entry.	6) Report all details to the authorized persons immediately	
d) Terrorists Attack/ Sabotage	A situation involving actual or threatened violence, which can be sudden and random in nature. In a workplace	1) Panic among employees and concessionaires within the premises of MARIWAD 2) Water service interruption 3) Injury, or possibly death, if not properly managed	1) Tighten security measures. 2) Educate employees about the risk.	1) Report to proper authorities. 2) Listen to the advice of the Police Officers.	1) Concentrate on survival. 2) Assess any damage. 3) Repair or rehabilitate immediately. 4) Always be vigilant.
e) Work Stoppage	Mass refusal of employees to work usually taking place as a result of unresolved employee grievance.	1) Negative impact on public image (erosion of public's trust & confidence on capability to deliver service) 2) Sales drop 3) Slower productivity	1) Conduct consultative meeting with employees on the issues 2) Provide Operations Manual to officers & employees to know their responsibilities & what the MARIWAD expects to do & act. 3) Provide seminars on employees' rights & privileges & Values on Work. 4) Implement work rotation for all employees to be familiarized with all kinds of jobs. 5) Discourage employees to join rally or protest that will disrupt the delivery of service.	1) Implement work rotation & multitasking. 2) Have a dialogue with the employees who stopped from working. 3) Meet halfway with the demands of the employees concerned without sacrificing services to concessionaires and MARIWAD as a whole. 4) If no final decision has been made between the two, implement the existing policy on the MARIWAD regarding the situation. 5) Report to proper authorities.	1) Assess who joined the work stoppage. 2) Report to proper authorities. 3) Document all the proceedings for future reference



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f) Misinformation	The act of disseminating false/malicious information among concessionaires, employees or other stakeholders of the MARIWAD either by somebody within the agency or a third person with the intent of destroying the public image of the MARIWAD	1) Negative impact on public image (erosion of public's trust & confidence on capability to deliver service. 2) Loss of good reputation 3) Conflict among employees which may affect productivity	1) Make the employees & concessionaires aware of the Operations Manual, Freedom of Information Manual & Citizens Charter 2) If there is dispute among employees, investigate and if possible settle within the office. 3) If there is issue between MARIWAD & its concessionaire, investigate & settle within the office. 4) Correct as early as possible any misinformation 5) Stop as soon as possible the spread of misinformation. 6) Report to proper authorities.	1) Report to proper authorities. 2) Investigate the matter. 3) Correct the wrong information. 4) Settle and document every proceeding	1) After the settlement, public apology should be done by the person who spread the wrong information through any form of media. 2) If the image of the MARIWAD was put to bad light, provide sanction to the doer or the person who spread misinformation.
g) Scandal	Refers to the behavior or widely publicized allegation or set of allegations that damages (or tries to damage) the reputation of the MARIWAD, individual or creed. These may be based on true or false allegations or a mixture of both.	1) Negative impact on public image (erosion of public's trust & confidence on capability to deliver service) 2) Negative impact on employee's morale & productivity.	1) Make the employees aware of office mechanisms such as Sexual Harassment, Values on Work & Operations Manual. 2) Make the employees aware of the do's & don'ts as a public official.	1) Report to proper authorities. 2) Listen to the advice of the authorities. 3) Investigate the scandal. 4) Document every proceeding.	1) Require public apology to the doer in any form of media. 2) Provide sanction pursuant to existing laws to the doer. 3) Provide assistance to the victim.



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CHAPTER V

For purpose of the declaration of crisis level, crises shall be categorized whether it is water supply service crisis or non-water supply service crisis.

5.1 Alert Levels – Water Supply Service Crisis

A water service crisis that would necessitate the activation and execution of this MARIWAD DRRMP will be based on the severity of damage to its capability to supply its service area, such damage to be measured based on duration of non-delivery of service and the extent of affected area.

Level 4 Long duration (more than 1 day) Large service area affected	Level 3 Long duration (more than 1 day) Small service area affected
Level 2 Short duration (less than 1 day) Large service area affected	Level 1 Short duration (less than 1 day) Small service area affected

Where:

Level 1 – Classified as short duration of crisis situation (less than one day) and with less than 25% of the service area affected, or that which may result to easily-managed and controlled damage or effect.

Level 2 – Classified as short duration of crisis situation (less than one day) and with a 25% - 69% of the service area affected, or that which may result to significant but manageable damage or effect.

Level 3 – Classified as long duration of crisis situation (more than one day) and with 25% - 69% service area affected, or that which may result to significant and more complicated management of the damage or effect.

Level 4 – Classified as long duration of crisis situation (more than one day) and with 70% - 100% of the service area affected, or that which may result to substantial and catastrophic damage or effect to the facilities



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In case of gradual onset of emergencies as in typhoons and slow-rising floods, alert levels may be declared by the MARIWAD DRRMT in order to take appropriate measures and address potential effects of the phenomenon in question.

In Level 1 Crisis, information dissemination shall be confined within the affected area, including the barangay covering the area.

In Level 2 Crisis, information dissemination shall be confined within the affected area but the Early Warning Team shall immediately monitor news, blogs and other websites for inaccuracies. The Rescue and Recovery Team shall provide updated information to the Early Warning Team.

In Level 3 Crisis, information dissemination shall be confined within the affected area but the Early Warning Team shall immediately monitor news, blogs and other websites for inaccuracies. It shall also be prepared to set up media station anytime. The Rescue and Evacuation Team shall provide information to Early Warning Team on the progress of service restoration and delivery.

In Level 4 Crisis, information dissemination shall be confined within the affected area but the Early Warning Team shall immediately monitor news, blogs and other websites for inaccuracies. It shall at once develop, in coordination with the Rescue and Recovery Team, the official statement that will be relayed to the officers, employees and to the concessionaires. The Rescue and Recovery Team shall likewise provide updated information to the Early Warning Team on the progress of service restoration and delivery.

5.2 Alert Levels – Non - Water Supply Service Crisis

All Non-Water Supply Service crisis shall be given the following codes:

- a) Code Blue – where the crisis situation is confined to a limited area. It indicates the need to stay put and “lock down” behind closed or locked doors.
- b) Code Red – where the crisis situation disrupts all or a large part of the functions of the Mariveles Water District or endangers the health and safety of its employees or its concessionaires. Code Red indicates the need for evacuation



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CHAPTER VI

6.1 MARIWAD DRRMP Framework

The MARIWAD DRRMP is aligned with the National NDRRM Plan pursuant to Republic Act 10121 otherwise known as the Philippine Disaster Risk Reduction and Management Act of 2010.

The MARIWAD DRRMP serves as a road map on how disaster risk reduction and management will contribute to the attainment of sustainable development, build the adaptive capacities of communities, increase the resilience of vulnerable sectors and optimize mitigation opportunities with the end in view of promoting people's welfare and security towards gender-responsive and rights based sustainable development.

The MARIWAD DRRMP just like the NDRRMP is also anchored on Hyogo Framework for Action (HFA). The HFA is comprehensive, action-oriented response to international concern about the growing impacts of disasters on individuals, communities and national development. The Framework offers guiding principles, priorities for action, and practical means for achieving disaster resilience for vulnerable communities.

Table 4: Hyogo Framework for Action – priorities for action

1.	Make Disaster Risk Reduction a Priority	Ensure that disaster risk reduction is a national and a local priority with a strong institutional basis for implementation
2.	Know the Risks and Take Action	Identify, assess, and monitor disaster risks – and enhance early warning
3.	Build Understanding and Awareness	Use knowledge, innovation, and education to build a culture of safety and resilience at all levels
4.	Reduce Risk	Reduce the underlying risk factors
5.	Be Prepared and Ready to Act	Strengthen disaster preparedness for effective response at all levels



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CHAPTER VII

7.1 MARIWAD DRRMP Proposed Plan and Projects

The MARIWAD DRRMP proposed priority plans and projects for the years 2022-2023 were formulated by the MARIWAD DRRMT for each of the 4 pillar to wit:

1. Disaster Prevention and Mitigation

- a) Review and integration of MARIWAD DRRM policies in the MARIWAD policies, plans and budgets.
- b) To draft resolution for earthquake, flood and typhoon trust fund
- c) To conduct seminars, workshops on capacity building
- d) To conduct trainings on green agriculture
- e) To conduct risk analysis and vulnerability assessment
- f) To update hazards maps
- g) To install warning and forecasting system
- h) To update the MARIWAD DRRM Manual
- i) To designate resettlement sites and evacuation centers
- j) To provide flood control measures
- k) To promote the MARIWAD DRRM Manual to all employees, concessionaires and other agencies.
- l) To establish MARIWAD DRRM database systems

2) Disaster Preparedness

- a) To establish the guides/protocols for MARIWAD DRRMT
- b) To conduct regular and periodic drills and simulation exercises
- c) To integrate MARIWAD DRRM during activity of the officers and employees
- d) To conduct capacity building and MARIWAD DRRM Skills training
- e) To establish of Emergency Response Teams at all sections
- f) To install early warning systems, disaster command, and communication centers
- g) To conduct inventory of existing resources
- h) To evaluate the existing systems
- i) To continuously research on MARIWAD DRRM
- j) To purchase CCTV cameras
- k) To purchase emergency rescue equipment
- l) To stockpile commodities
- m) To formulate guidelines for the preparation and distribution of relief goods
- n) To conduct blood-letting activity
- o) To conduct trainings on food storage, water storage, food preservation, seedling and planting materials
- p) Creation of MARIWAD DRRMT office or Command Post
- q) To prepare a contingency plan



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- r) To strictly implement RA 10121 (Philippine Disaster Risk Reduction and Management Act of 2010) and Climate Change Act RA 9729
- s) To draft resolution on pre-emptive evacuation
- t) To formulate green technologies.

3. Disaster Response

- a) To activate Incident Command System
- b) Deployment of Rescue and Evacuation Team
- c) Submission of Disaster Report to the MARIWAD DRRMT Team Leader and to the General Manager
- d) To repack goods
- e) Deployment of Assessment and Needs Analysis Team
- f) Relief good distribution
- g) To conduct of coordination meeting
- h) To conduct clearing operations
- i) Deployment of medical teams
- j) Establishment of first aid tents
- k) Establishment of evacuation centers
- l) Pre-emptive evacuation
- m) Profiling of displaced families
- n) Assessment of factors to determine transition to recovery/rehab phase
- o) Profiling of damaged properties, equipment, machineries and facilities

4. Disaster Rehabilitation and Recovery

- a) Profiling of displaced families
- b) Profiling of damaged properties, equipment, machineries and facilities
- c) Repair and rehabilitation of damages
- d) Improvement/renovation of facilities and procurement of equipment
- e) Skills training for early recovery
- f) Construction and repair of major infrastructures
- g) Construction/repair/rehabilitation of the systems
- h) Rehabilitation of flood protection (riprap), canals or drainages
- i) Trainings/briefings on stress debriefing

References:

1. Batac Water District Disaster Risk Reduction Management Plan
2. Guimba Water District Emergency Management and Response Manual