



October 24, 2022

MEMORANDUM

FOR : Regional Executive Director
MIMAROPA Region

THRU : The ARD for Technical Services
DENR MIMAROPA

FROM : In-Charge, Office of the PENRO
Oriental Mindoro

SUBJECT : **SUBMISSION OF MONTHLY REPORT ON DATA
GENERATED FROM THE SCIENCE-BASED REAL-TIME
WATERSHED MONITORING INSTRUMENTS FOR THE
MONTH OF OCTOBER 2022**



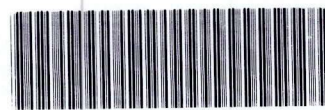
Submitted is the report of data generated from the installed watershed instruments within this province for the month of October, 2022.

Based on the data gathered, both watersheds, the Mag-asawang Tubig and Bongabong watershed showed that rainfall is minimal at its peak season, less rainfall were measured within the given period of reading. Further, the groundwater level is in high level thus rainfall is prevalent within the period of observation rainfall is minimal.

Attached is the narrative report for your reference.

For information and record.


ALMA E. GIBE



DENRPENRO2210000083



October 24, 2022

MEMORANDUM

FOR : Regional Executive Director
MIMAROPA Region

TRHU : The In-Charge, Office of the PENRO
Oriental Mindoro


FROM : The Database Manager IT Specialist
CDS Personnel, PENRO Oriental Mindoro

SUBJECT : **SUBMISSION OF MONTHLY REPORT ON DATA
GENERATED FROM THE SCIENCE-BASED REAL-TIME
WATERSHED MONITORING INSTRUMENTS FOR THE
MONTH OF OCTOBER 2022**

This is to submit the monitored and analyzed data generated from the installed instruments of watershed in Province of Oriental Mindoro.

At present, the AWLS in Calapan City, the GWMS in (*MinSU Compound*) Victoria and the two (2) AWS instruments from Department of Agriculture compound and Macatoc Elementary School, Victoria, Oriental Mindoro including the one (1) AWS in Hagan, Bongabong are now functional and data are now available but still in validation period to fix any minimal error transmitted through the subscribed platforms.

For information and record.


ALISTER EARL M. MEMAN

**MONTHLY REPORT ON DATA GENERATED FROM THE SCIENCE-BASED REAL-
TIME WATERSHED MONITORING INSTRUMENTS
OCTOBER 2022**

I. INTRODUCTION

Mag-Asawang Tubig Watershed (Victoria, Oriental Mindoro)

The Mag-asawang Tubig Watershed (MTRW) is one of Oriental Mindoro's key watersheds, with 12,533 hectares proposed for rehabilitation in the 2013-2019 PDPFP. It is an important watershed because it provides irrigation to 40,000 hectares of rice fields in the flood basins of the Mag-asawang Tubig and Bucayao rivers. These two large rivers are linked by the Panggalaan River, which originates in Mag-asawang Tubig and flows through Calapan City before discharging to Calapan Bay.

The watershed is also expected to support the proposed hydroelectric power plant which is another vital support mechanism for the development and progress of the province and the whole island.

The Municipality of Victoria is 34 kilometers-about half an hour travel from Calapan City, the provincial capital of Oriental Mindoro, Victoria is bounded on the north by the Municipality of Naujan, on the southeast by the Municipality of Socorro, and on the southwest by the Municipality of Sablayan, one of the Municipalities of Occidental Mindoro. The town's geographical location is approximately 130° 11' latitude and 121° 17' longitude.

Status of Watershed Instruments Installed

At present the installed watershed instruments from the downstream (Automated Weather Station – Department of Agriculture Compound, Victoria, Oriental Mindoro), from the midstream (Automated Weather Station-Macatoc Elementary School, Victoria, Oriental Mindoro), and Upstream (Automated Weather Station-Bongabong, Oriental Mindoro) are all functioning and data are available for analysis and future use.

The Ground Water Level Monitoring Station in MinSU Compound is also now functioning same with the Automated Water level Station in Calapan City.

Out of the five instruments, all of this instrument are now functional and data are at present available but still in validation period to fix any minimal error transmitted through the subscribed platforms.

II. DATA ANALYSIS

Mag-Asawang Tubig River Watershed (MATRW)

As stated earlier, Mag-Asawang Tubig River Watershed has two (2) AWS, one (1) GWMS, and one (1) AWLS.

Below is the Summary of the data from the watershed monitoring station in Mag-Asawang Tubig River Watershed for September 22 – October 21, 2022.

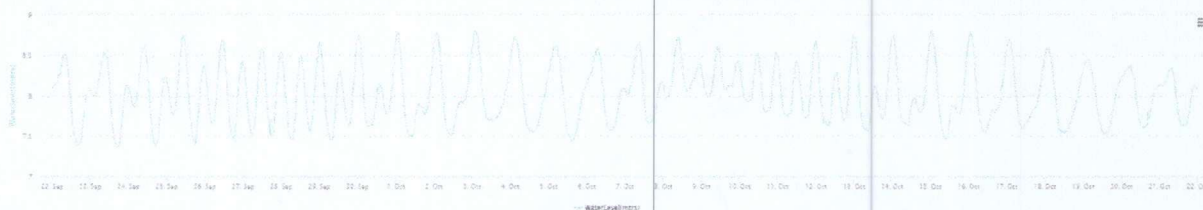


Figure 1. Monthly Streamflow level (m) in Abaton Bridge, Mag-Asawang Tubig River Watershed for September 22- October 21, 2022

The stream flow level averages to 8.027 m for period of September 22-October 21, 2022. The water level rose to a maximum of 8.8 m while the lowest was detected 7.36 m. It was noted that the maximum level of water was observed on October 2, 2022 at 5:15 pm while the lowest level was observed on September 23, 2022 at 8:45 am. These observations were regarded typical because no place in the neighborhood of the Mag-Asawang Tubig River Watershed was inundated during that time period.

Table 1. Summary of data from Automated Water Level Station (AWLS), Abaton Madlang Bridge, Parang Calapan City, Mag-Asawang Tubig River Watershed for October 2022.

Watershed Monitoring Instrument Parameter	Number of Instruments Installed	Period Covered	Average	Maximum	Minimum
Streamflow Level (m)	1	September 22 – October 21, 2022	Water Level (mtrs): 8.027 System Battery(volts): 12.62	Water Level (mtrs): 8.8 System Battery(volts): 13.56	Water Level(mtrs): 7.36 System Battery(volts): 12.19

A continuous monitoring is done using the Hydrosphere platform for the Automatic Water Level Station located at Sitio Abaton, Barangay Parang, Calapan City, Oriental Mindoro, Mag-Asawang Tubig River Watershed.

Table 2. Summary of data from Ground Level Water Station (GLWS), (MinSU Compound) Victoria, Mag-Asawang Tubig River Watershed for August 2022.

Watershed Monitoring Instruments Parameter GWMS MINSU	Number of Instruments	Period Covered	Average	Maximum	Minimum	Remarks
Groundwater level (mm)	1 (MinSU)	September 22- October 21, 2022	3609.52	6642	801	
Groundwater Temperature (°C)	1 (MinSU)	September 22- October 21, 2022	26.7	26.8	26.7	
Conductivity (mS/cm)	1 (MinSU)	September 22- October 21, 2022	0.289	0.36	0.259	

The groundwater level (mm) averages to 3609.52 mm for period of September 22-October 21, 2022, the level of has maximum level of 6642 mm and minimum groundwater level of 801 mm.

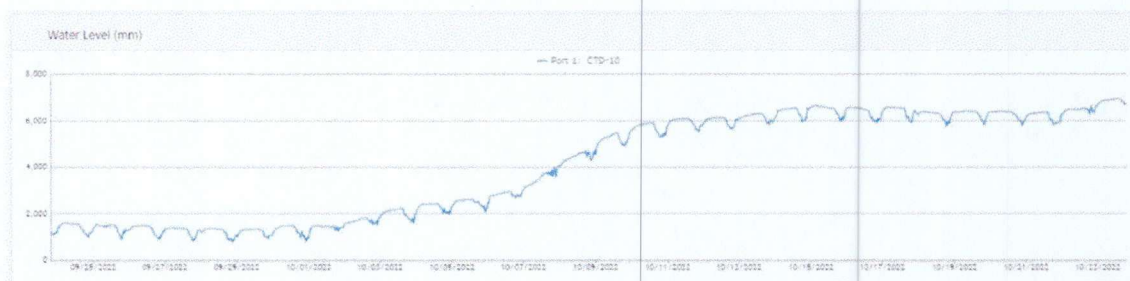


Figure 2. Monthly Water level (mm) in MinSU Compound, Mag-Asawang Tubig River Watershed for September 22- October 21, 2022

Table 3. Summary of data from Automated Weather Station (AWS), DA Compound, Brgy. Alcate, Victoria, Mag-Asawang Tubig River Watershed for October 2022.

Watershed Monitoring Instruments Parameter AWS-DA compound	Number of Instruments	Period Covered	Average	Maximum	Minimum	Remarks
Rainfall (mm)	1	September 22-October 21, 2022	0.235	25.4	0	
Air temperature (°C)	1	September 22-October 21, 2022	26.31	35.1	21.9	
Relative Humidity (%)	1	September 22-October 21, 2022	91.35	101.2	58.1	
Wind Velocity (m/s)	1	September 22-October 21, 2022	0	0	0	
Wind Direction (AWS DA Victoria)	1	September 22-October 21, 2022	0	0	0	
Solar Radiation (W/m ²)	1	September 22-October 21, 2022	0	0	0	
Soil Moisture (%)@10m	1	September 22-October 21, 2022	0	0	0	
Soil Moisture (%)@30m			-36.84	-30.5	-43.1	negative value indicates that there is an error on reading of the sensor

Table 4. Summary of data from Automated Weather Station (AWS), Macatoc Elementary School, Victoria, Mag-Asawang Tubig River Watershed for October 2022.

Watershed Monitoring Instruments Parameter AWS-Macatoc Elementary	Number of Instruments	Period Covered	Average	Maximum	Minimum	Remarks
Rainfall (mm)	1	September 22-October 21, 2022	0.166	19.4	0	
Air temperature (°C)	1	September 22-October 21, 2022	27.26	34.8	22.8	
Relative Humidity (%)	1	September 22-October 21, 2022	93.64	108	57.4	
Wind Velocity (m/s)	1	September 22-October 21, 2022	0.138	2.6	0	
Wind Direction (AWS Macatoc)	1	September 22-October 21, 2022	56.85	359	0	
Solar Radiation (W/m ²)	1	September 22-October 21, 2022	141.43	936.4	0	
Soil Moisture (%)@10m	1	September 22-October 21, 2022	0	0	0	
Soil Moisture (%)@30m			-8.317	13.5	-35.3	negative value indicates that there is an error on reading of the sensor

Bongabong River Watershed (BRW)

Table 5. Summary of data from Automated Weather Station (AWS), DENR CENRO Roxas Brgy Hagan, Bongabong, Oriental Mindoro 9ranger Station), Bongabong River Watershed for October 2022.

Watershed Monitoring Instruments Parameter AWS-Bongabong	Number of Instruments	Period Covered	Average	Maximum	Minimum	Remarks
Rainfall (mm)	1	September 22-October 21, 2022	0.1349	18.4	0	
Air temperature (° C)	1	September 22-October 21, 2022	26.038	38.1	21.7	
Relative Humidity (%)	1	September 22-October 21, 2022	86.047	93.8	58.1	
Wind Velocity (m/s)	1	September 22-October 21, 2022	1.134	4.5	0	
Wind Direction (AWS Bongabong)	1	September 22-October 21, 2022	193.165	359	0	
Solar Radiation (W/m²)	1	September 22-October 21, 2022	127.475	990.8	0	
Soil Moisture (%) @10m	1	September 22-October 21, 2022	-6.578	74.1	-41.9	negative value indicates that there is an error on reading of the sensor
Soil Moisture (%) @30m		September 22-October 21, 2022	-12.568	74.7	-42.2	negative value indicates that there is an error on reading of the sensor

Based on one-unit Automated Water Station in Bongabong River Watershed, a total rainfall of 30.2 mm from September 22- October 21, 2022 was recorded only.

With an average rainfall of 0.1349 mm and maximum rainfall of 18.4 mm, this indicates that rainfall event is high from September 22- October 21, 2022, the amount of water along Bongabong River Watershed has increase in level.

The air temperature at Bongabong River Watershed averages with 26.038 °C, the warmest air temperature is with 3818 °C while the coolest temperature was recorded with 21.7°

The correlational analysis of the Bongabong River Watershed cannot be applied since only one AWS was installed. However, the rainfall and air temperature can be correlated since the AWS collects both data.

Observation

A total of four (4) watershed monitoring instruments (1 AWSLS, 1 GWMS, and 2 AWS) in Mag-Asawang Tubig River Watershed, and only one (1) Automated Weather Station in Bongabong River Watershed were installed in the Watershed are of Oriental Mindoro.

Base on the gathered data there is an increase in water level due to rainfall, the temperature often increases and the area is cooler compared to previous month. The effect of the climatic phenomena has an impact to the installed watershed instruments.

Further, since all instruments are now completely calibrated and reinstalled to its stations, a complete raw data to be generated from the instruments.

Both watersheds showed that rainfall is minimal at its peak season, less rainfall were measured within the given period of reading. Further, the groundwater level is in a high level thus rainfall is prevalent within the period of observation rainfall is minimal.

Recommendations

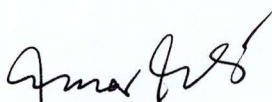
The watersheds with management mechanism are envisioned to form part of the planned watershed network of research centers. These experiment hubs will supply information to build a database for future assessments of land use impacts and climate change on watershed functions. All data of the watershed monitoring instruments can be used in future updating of research related to watershed programs. The data gathered will be useful with implementation of any Greening Programs and all parameters from the instruments will allow the users or community to be aware on the climatic condition of the surroundings.

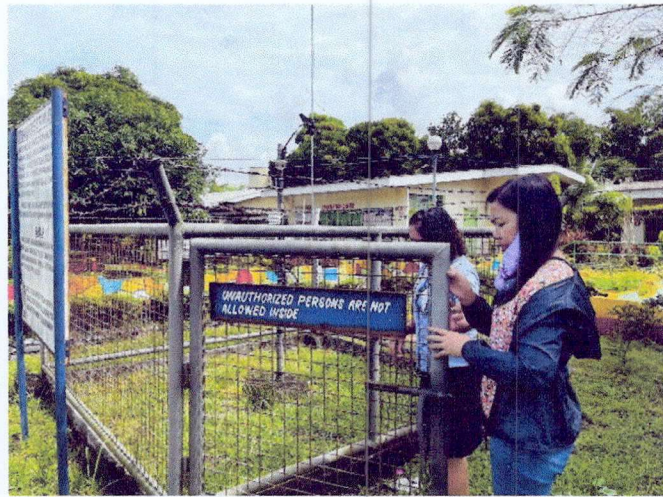
Since all instruments were already installed and are functional the analyse data will be use as basis of the community along the watershed area. This will help them to be more aware on the climatic scenarios that are now prevailing as of these days. Sharing of these data to partner agencies are useful in the identification of whatever possible actions in the future that will contribute to the betterment of our environment and natural resources.

Prepared by:

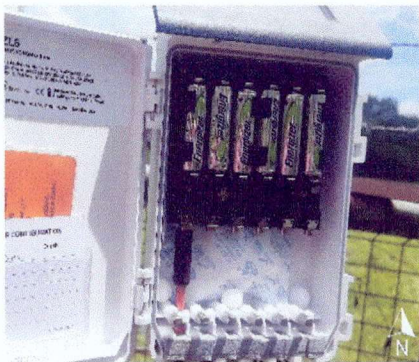

Alister Earl M. Meman
Database Manager IT Specialist

Noted by:


AMOR D. ASI
Chief, Conservation and Development Section



Automated Weather Station (AWS) at Macatoc Elementary School, Victoria, Oriental Mindoro.



Ground Water Level Monitoring Station at MinSU Compound, Victoria, Oriental Mindoro



Automated Weather Station (AWS) at Department of Agriculture Compound, Barangay Alcate, Victoria, Oriental Mindoro



Ground Water Level Station (GWLS) at So. Abaton, Barangay Parang, Calapan City, Oriental Mindoro