Republic of the Philippines
Department of Environment and Natural Resources
Visayas Avenue, Diliman, Quezon City 1100
Trunkline: (+632) 929-6626 / 929-6635 / 929-4028 / 929-4028
E-mail: web@denr.gov.ph / Website: http://www.denr.gov.ph

Im 2022-1224
V-25-22
WFP

RECEIVED
25 MAY 2022
P-2022-76987-CDO
BY: DATE:

MEMORANDUM

FOR : **The Regional Executive Director**
DENR RO4B-MIMAROPA

FROM : **The OIC-Director**
Policy and Planning Service

SUBJECT : **FY 2022 WORK AND FINANCIAL PLAN FOR THE REPLACEMENT OF ZL6 DATA LOGGER OF GROUNDWATER MONITORING STATION INSTALLED AT MinSU, VICTORIA, ORIENTAL MINDORO**

DATE : 23 MAY 2022

This refers to the attached FY 2022 Work and Financial of DENR Region MIMAROPA requesting for a COBF to cover the replacement of ZL6 Data Logger of Groundwater Monitoring Station (GWMS) installed at MinSU, Victoria, Oriental Mindoro amounting to One Hundred Ten Thousand Pesos (PhP110,000). The request was endorsed by Forest Management Bureau (FMB).

This Office has no objection on the request. However, upon evaluation we noticed that the attached WFP does not have the names of signatories/approvers - the Undersecretary for Policy, Planning and International Affairs and Undersecretary for Finance, Information Systems and Climate Change. Hence, kindly put the said names in the WFP and resubmit to this Office for final evaluation and endorsement.

For consideration.

GLENN MARCELO C. NOBLE

Republic of the Philippines
Department of Environment and Natural Resources
Visayas Avenue, Diliman, Quezon City
Tel Nos. 929-6626 to 29; 929-6633 to 35
926-7041 to 43; 929-6252; 929-1669
Website: http://www.denr.gov.ph / E-mail: web@denrgov.ph

MEMORANDUM

FOR : **THE OIC - DIRECTOR**
Policy and Planning Service

FROM : **THE DIRECTOR**
Financial and Management Service

SUBJECT : **REQUEST OF MIMAROPA REGION FOR FUNDS UNDER CAPITAL OUTLAY INTENDED FOR THE REPLACEMENT OF ZL6 DATA LOGGER OF GROUNDWATER MONITORING STATION INSTALLED AT MinSU, VICTORIA, ORIENTAL MINDORO**

DATE : 6 May 2022

This refers to the memorandum of the Director, Forest Management Bureau, dated April 28, 2022, endorsing the request of DENR MIMAROPA Region for funds intended for the placement/procurement of the ZL6 data logger of the Groundwater Monitoring Station (GWMS) installed at Mindoro State University (MinSU), Victoria, Oriental Mindoro amounting to **One Hundred Ten Thousand Pesos (₱110,000.00)**.

Please be informed that the funding source for this request can be charged to Central Office-Based Funds under Capital Outlay, FY 2022 General Appropriations Act, P/A/P: Soil Conservation and Watershed Management, including River Basin and Management and Development.

For your evaluation and recommendation.

ANGELITO V. FONTANILLA

Cc: The Regional Executive Director
DENR – MIMAROPA
Roxax Blvd., Manila

10838

907

Republic of the Philippines
Department of Environment and Natural Resources
FOREST MANAGEMENT BUREAU
Visayas, Avenue, Diliman, 1100 Quezon City
Tel. No.: (632) 8925-2141 / (632) 8927-4788
E-mail Address: fmb@denr.gov.ph Website: https://www.forestry.denr.gov.ph

MEMORANDUM

FOR : The Director
Financial and Management Services

FROM : The Director

SUBJECT : **URGENT REQUEST FOR CAPITAL OUTLAY FOR THE REPLACEMENT OF ZL6 DATA LOGGER OF GROUNDWATER MONITORING STATION (GWMS) INSTALLED AT MINSU, VICTORIA, ORIENTAL MINDORO**

DATE : APR 28 2022

This is to respectfully refer to your Office the attached Memorandum dated 15 February 2022 of DENR MIMAROPA Region requesting for Capital Outlay (CO) amounting to PhP110,000.00 for the replacement/procurement of the ZL6 data logger of the Groundwater Monitoring Station (GWMS) installed at Mindoro State University (MinSU), Victoria, Oriental Mindoro. As indicated in the attached report, the original ZL6 data logger initially installed in the area was found to be dysfunctional due to ant infestation and water leakage in the batteries.

In this regard, please be informed that this Office interposes no objection to the abovementioned request of MIMAROPA Region in as much as a functional GWMS in the Region is necessary in order to ensure the continuous monitoring of the hydrological condition of the Mag-Asawang Tubig River Watershed in the area.

FOR YOUR INFORMATION AND CONSIDERATION, PLEASE.

for: **TIRSO P. PARIAN, JR.,** *CESO IV*

Cc: The OIC-Regional Executive Director, MIMAROPA Region

Gmail

OD Records Unit <records@fmb.denr.gov.ph>

2147556222- Urgent Request for Capital Outlay for the Replacement of ZL6 Data Logger of Groundwater Monitoring Station (GWMS) installed at MINSU, Victoria, Oriental Mindoro

1 message

OD Records Unit <records@fmb.denr.gov.ph> Fri, Apr 29, 2022 at 7:23 AM
To: fms.mgt@denr.gov.ph
Cc: mimaroparegion@denr.gov.ph, FRCD Forest Resources Conservation Division <frcd@fmb.denr.gov.ph>, FRCD-WEMS Watershed Ecosystem Management Section <frcd.wems@fmb.denr.gov.ph>, alice_2000_ph@yahoo.com, nationalgreeningprogram@gmail.com, "Ma. Teresa Aquino" <materesaaquino@gmail.com>

Sir/Ma'am
Good day
Attached file is a Memorandum for the Director, FMS dated April 28, 2022 regarding Urgent Request for Capital Outlay for the Replacement of ZL6 Data Logger of Groundwater Monitoring Station (GWMS) installed at MINSU, Victoria, Oriental Mindoro
Thank you

Records Unit
Forest Management Bureau
Phone : (63-2) 8925-9796
Email Address : fmb@denr.gov.ph

4-28-22- 2147556222- Urgent Request for Capital Outlay for the Replacement of ZL6 Data Logger of Groundwater Monitoring Station (GWMS).pdf
5618K

Republic of the Philippines
Department of Environment and Natural Resources
MIMAROPA Region

FOREST MANAGEMENT BUREAU
RECEIVED
NAME:
DATE: 4-7-22
TIME: 11:06 AM
RECORDS UNIT

MEMORANDUM

FOR : ASSISTANT SECRETARY MARCIAL C. AMARO, JR., CESO II
Policy, Planning, and Foreign-Assisted and Special Projects, and FMB Director, in concurrent capacity

FROM : THE OIC-REGIONAL EXECUTIVE DIRECTOR

SUBJECT : **URGENT REQUEST FOR CAPITAL OUTLAY FOR THE REPLACEMENT OF ZL6 DATA LOGGER OF GROUNDWATER MONITORING STATION (GWMS) INSTALLED AT MINSU, VICTORIA, ORIENTAL MINDORO**

DATE : FEB 15 2022

This pertains to the regular monitoring and manual updating of firmware of the data loggers of the installed watershed instruments conducted by PENRO Oriental Mindoro on January 26-28 2022 (*see attached*).

The report indicated that all five (5) watershed monitoring instruments are functioning, except for the Groundwater Monitoring Station (GWMS) installed at Mindoro State University (MinSU), Victoria, Oriental Mindoro. It was found out that the ZL6 data logger (z6-04985) was dysfunctional due to ant infestation and water leakage in the batteries.

Relative thereto, we are respectfully requesting your Office for capital outlay amounting to **Php 110,000.00** for the replacement/procurement of the ZL6 data logger of the GWMS. The data logger is a vital component of the instrument as it records the real-time data (15-minute interval) collected by the GWMS which includes groundwater conductivity, temperature and depth (CTD).

Attached are the detailed report and the Physical and Financial Plan relative to the said request.

LORMELYN E. CLAUDIO, *CESO IV*

Department of Environment and Natural Resources
MIMAROPA Region
Doc ID: 78987

CDD/PFMS/REA_MKCC_LES/2-14-2022

1515 L & S Building, Roxas Boulevard, Ermita, Manila 1000
DENR VOIP (632) 2483367/2483468/2493367 local 2700/1 (Regional Executive Director)
Website: mimaropa.denr.gov.ph
Email: mimaroparegion@denr.gov.ph

2147556222

Department of Environment and Natural Resources
FY 2022 Physical and Financial Plan
(In Thousand Pesos)

FORM "C"

Agency/Bureau: DENR MIMAROPA REGION

PROGRAM /ACTIVITY /PROJECT	Unit Cost	PERFORMANCE INDICATORS	REGIONAL OFFICE/ PROVINCE	FY 2022 Physical Performance/Targets					EXPENSE CLASS	FY 2022 Financial Performance/ Targets				
				Q1 Estimate	Q2 Estimate	Q3 Estimate	Q4 Estimate	Grand Total		Q1 Estimate	Q2 Estimate	Q3 Estimate	Q4 Estimate	Grand Total
Soil Conservation and Watershed			**Regional Total**				1	1	CO				110	110
Management Including River Basin														
Management and Development														
Watershed Instrumentation														
Maintenance of Watershed														
Instrumentation														
1. Procurement of ZL6	110,000 / unit	Datalogger procured (no.)	Oriental Mindoro				1	1	CO				110	110
Data Logger of Groundwater			*Mag-Asawang Tubig Watershed*											
Monitoring Station (GWMS)														

Prepared by:

MARILYN R. LIMPIADA
Chief, Planning and Management Division

RUBY C. BAUTISTA
Chief, Finance Division

Recommending Approval:

DONNA MAYOR-GORDOVE, CESO IV
Assistant Regional Director for Management Services

Approved:

LORMELYN E. CLAUDIO, CESO IV
OIC-Regional Executive Director

Republic of the Philippines
Department of Environment and Natural Resources
MIMAROPA Region
Provincial Environment and Natural Resources Office

February 4, 2022

MEMORANDUM

FOR : The OIC, Regional Executive Director
DENR MIMAROPA Region

THRU : The Assistant Regional Director for Technical Services

FROM : The PENR Officer
Oriental Mindoro

SUBJECT : **REPORT ON THE REGULAR MONITORING AND MANUAL UPDATING OF FIRMWARE OF THE DATA LOGGER OF THE INSTALLED WATERSHED INSTRUMENTS WITHIN THE PROVINCE OF ORIENTAL MINDORO**

Submitted is the report on the monitoring and manual updating of firmware of the data logger of the installed Watershed Monitoring Instruments within the Mag-Asawang Tubig and Bongabong River Watersheds on January 26-28, 2022.

Based on the report, there are five (5) installed watershed instruments in this province, four (4) within the Mag-Asawang Tubig watershed located in the municipality of Victoria and City of Calapan, and one (1) in Bongabong River Watershed in Bongabong, Oriental Mindoro. Below is the summary of the undertakings conducted.

Installed Device	Observation(s)	Recommendation(s)	Remarks
Automated Weather Station (within Bongabong River Watershed – Brgy. Hagan, Bongabong, Oriental Mindoro)	• The applied grease faded as a result of prolong exposure to changing weather	• The re-application of grease will be part of the regular monitoring of the PENRO-CDS personnel	• Manual updating of the firmware and cellular upload test was successfully conducted including the replacement of the batteries. • The AWS is functioning properly during the time of monitoring

Ilang-ilang St., Sitio II, Barangay Suqui, Calapan City, Oriental Mindoro
DENR Contact No. (043) 288-3017, Tel. Fax 288-3006

Automated Weather Station (within Mag-asawang Tubig Watershed – Macatoc Elementary School, Brgy. Macatoc, Victoria, Oriental Mindoro)	• The area of the site was well maintained by the school's utility personnel	• The re-application of grease will be part of the regular monitoring of the PENRO-CDS personnel	• Manual updating of the firmware and cellular upload test was successfully conducted including the replacement of the batteries. • The AWS is functioning properly during the time of monitoring
Groundwater Monitoring Station - CTD (within Mag-asawang Tubig Watershed – MinSCAT Main Campus, Brgy. Alcate, Victoria, Oriental Mindoro)	• The circuit board was damaged due to the moisture that leaked inside the data logger that resulted to the inability of the logger to send the data collected by the CTD sensors to the cloud server	• For replacement of the data logger since its circuit board was damaged by the moisture as a result of the previously infesting of ants	• Manual updating was not done as the data logger is not responding even after being connected to the laptop • Data logger must be replaced and fund will be requested to the Regional Office
Automated Weather Station (within Mag-asawang Tubig Watershed – DA-RIARC, Brgy. Alcate, Victoria, Oriental Mindoro)	• The area of the site was maintained by the center's personnel	• The re-application of grease will be part of the regular monitoring of the PENRO-CDS personnel	• Manual updating of the firmware and cellular upload test was successfully conducted including the replacement of the batteries. • The AWS is functioning properly during the time of monitoring

Automated Water Level Station (within Mag-asawang Tubig Watershed – Abaton Bridge, Brgy. Parang, Calapan City, Oriental Mindoro)	• The hinges of the fence were rusted that resulted to difficulty of opening the gate • The welding of the middle hinge got broken after opening the gate	• The re-application of grease to the cables and re-spraying of WD40 lubricant will be part of the regular monitoring of the PENRO-CDS personnel	• The data logger's firmware is still up-to-date. • Request fund to the Regional Office for the repair of the gate of the AWLS and replacement of its battery

In this regard, we are requesting for the replacement/procurement of the following for the maintenance of the installed watershed monitoring instruments.

Particulars	Amount
One (1) unit ZL6 Data Logger with 1 year subscription and installation	110,000.00
One (1) unit Sealed Lead Acid 12V 5AH Battery	1,500.00
10 packs Desiccant Silica Gel 100g	3,000.00
5 packs Moth Balls (175 grams)	1,500.00
Repair of the gate of AWLS	30,000.00
TOTAL	**146,000.00**

For information and consideration

For the PENR Officer:

ALMA E. GIBE
DMO V/Chief, Technical Services Division
In-Charge, Office of the PENRO

DENRPENRO2202000007

Copy Furnished: PENRO Planning Section

FN: TSD/CDS-sea

Republic of the Philippines
Department of Environment and Natural Resources
MIMAROPA Region
Provincial Environment and Natural Resources Office

February 3, 2022

MEMORANDUM

FOR : The PENR Officer
PENRO Oriental Mindoro

THRU : The Chief, Technical Services Division

FROM : Sandro E. Angelo
Administrative Aide VI

SUBJECT : **REPORT ON THE REGULAR MONITORING AND MANUAL UPDATING OF FIRMWARE OF THE DATA LOGGER OF THE INSTALLED WATERSHED INSTRUMENTS WITHIN THE PROVINCE OF ORIENTAL MINDORO**

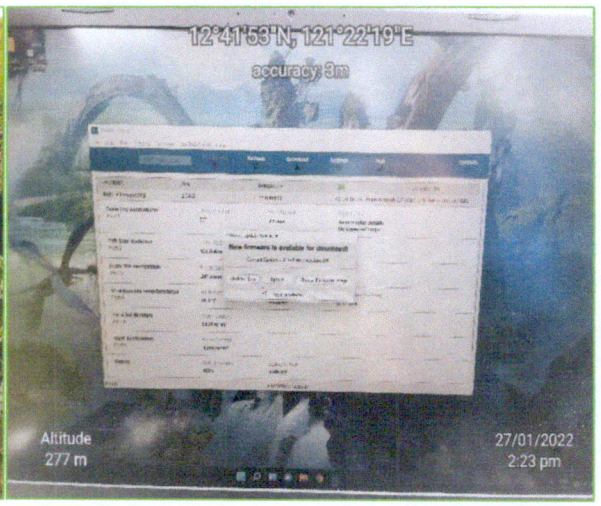
This is in compliance to the memorandum dated 20 January 2022 of the Regional Executive Director on the manual updating of firmware of the data loggers and regular monitoring of the installed Watershed Instruments within the province of Oriental Mindoro.

The undersigned conducted the said instruction by virtue of travel order dated January 26-28, 2022 and proceeded to CENRO Roxas in Barangay San Mariano, Roxas, Oriental Mindoro for a courtesy call to the CENR Officer Caesar Quebec. The activities that will be undertaken were discussed which include manual updating of the firmware of the data logger, replacement of the rechargeable batteries and regular monitoring of the installed Automated Weather Station (AWS) in Brgy. Hagan, Bongabong. Also, assistance in monitoring the AWS was requested as the site location was a steep hill and the Forest Protection Officer assigned in the area was more familiar with the trail to the AWS.

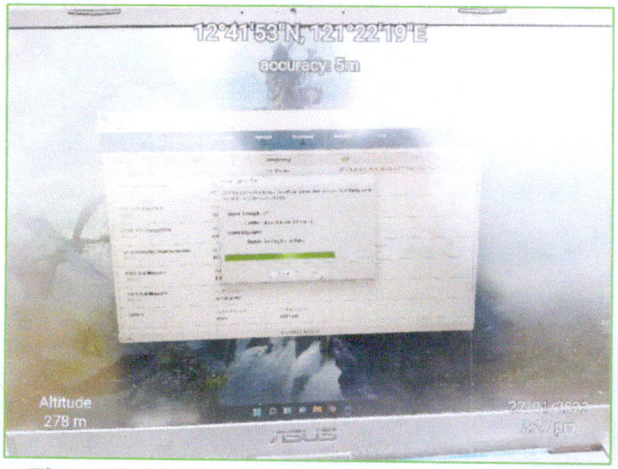
The data logger of the AWS was manually updated thru the use of a laptop with updated Zentra Utility application connecting to the data logger (*see Figures 2*) and the Cellular Upload Test was conducted to ensure that the data logger transmits data smoothly after the update (*see Figures 3)*. Also, the rechargeable batteries were replaced with new ones to properly charge the previously used batteries.

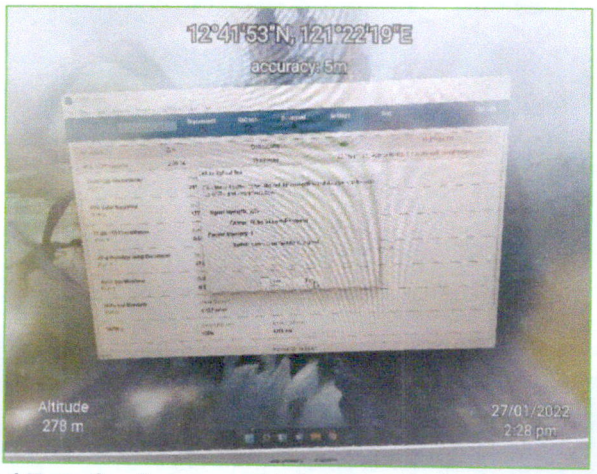
Further, the location site of the AWS was cleared of the grasses that infested the area. Multi-purpose grease was applied to the cables connected to the data logger to prevent any insects from crawling inside the data logger.

Figures 1: Photos showing the location site of the installed AWS in Brgy. Hagan, Bongabong, Oriental Mindoro



Figures 2: Photos showing the manual updating of the firmware of data logger thru the use of a laptop with updated Zentra Utility app.





Figures 3: Photos showing the testing of Cellular Upload Test after the successful update of the firmware of the data logger

Figure 4: Photo showing the maintained site of the installed AWS after the monitoring activity

The next day, the undersigned proceeded to CENRO Socorro for a courtesy call to CENR Officer Rodel Boyles before proceeding to the area of the installed watershed instruments within the municipality of Victoria and City of Calapan.

In DA-Regional Integrated Agricultural Research Center, the installed AWS is within the compound of the center and being maintained by DA staff assigned within the area. During the monitoring, the firmware of the data logger was manually updated thru the use of a laptop with installed Zentra Utility app and the Cellular Upload Test was conducted to ensure that the data logger transmits data smoothly. Also, the rechargeable batteries were replaced with new ones to properly charge the previously used batteries. The device was functioning properly after the successful updating of the firmware and other activities conducted.

Figures 5: Pictures showing the installed AWS within the vicinity of DA MIMAROPA Regional Integrated Agricultural Research Center

Figures 6: Pictures showing the rechargeable batteries for replacement to the old ones and the manual updating of the firmware of the data logger of the AWS

Meanwhile, in Mindoro State University, the installed groundwater monitoring instrument - CTD within the campus's vicinity was being maintained by Engr. Jackson, the focal person of the university. Upon opening of the data logger, it was observed that moisture penetrated the device as evident by the presence of rusts starting to infect the battery compartment and the moist in the batteries *(see Figures no. 8)*.

Unfortunately, the manual updating of the firmware of the data logger was unsuccessful because the logger does not respond when connected to the laptop and it's possible that the circuit board of the logger was damaged by the moisture that penetrated inside. Also, the rechargeable batteries were not replaced due to the presence of rusts within the battery compartment as it will damage the new batteries. Replacement of data logger will be requested to the Regional Office.

Figures 7: Pictures showing the location site of the installed CTD (groundwater monitoring) within the vicinity of Mindoro State University (formerly Mindoro State College of Agriculture and Technology)

Figures 8: Pictures showing the inside of the data logger of the CTD with the battery compartment showing signs of rust due to the moisture that penetrated the device.

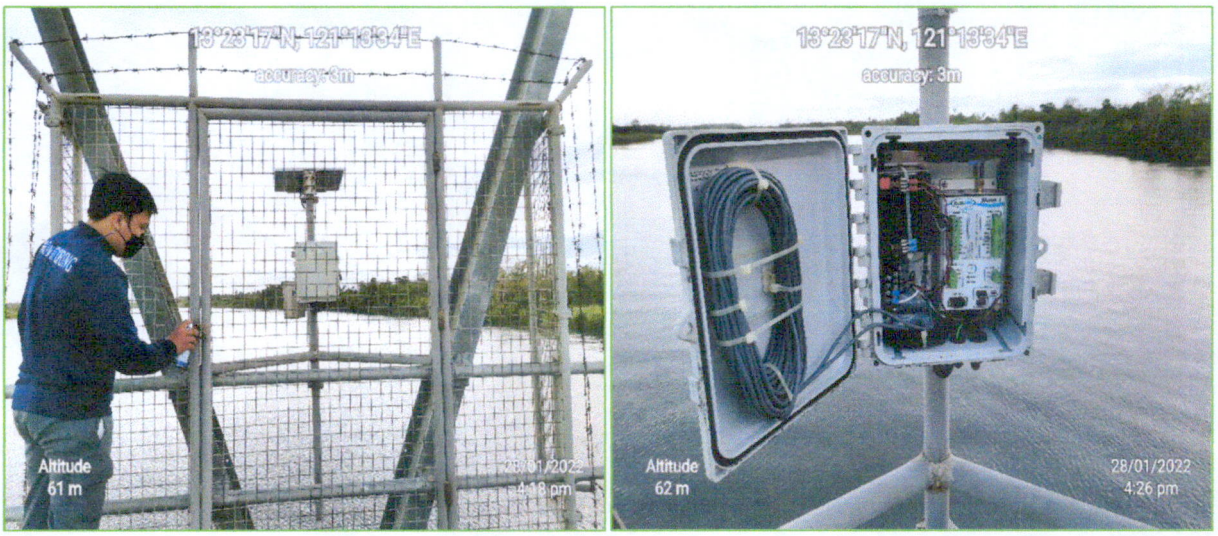
In Macatoc Elementary School, the area where the installed Automated Weather Station (AWS) located was maintained by the school's utility personnel. Manual updating of the firmware of the data logger and cellular upload test was done. Also, the rechargeable batteries were replaced with new ones to properly charge the previously used batteries. The device had no issue with regards to its functionality and its parts as of the time of the monitoring. The undersigned applied a multi-purpose grease to the cables as part of its maintenance.

Figure 9: The maintained area of the installed AWS in Macatoc Elementary School, Brgy. Macatoc, Victoria, Oriental Mindoro

Figures 10: Pictures showing the rechargeable batteries for replacement to the old ones and the manual updating of the firmware of the data logger of the AWS

For the installed Automated Water Level Station located in Abaton bridge, Brgy. Parang, Calapan City, the device was functioning properly during the time of monitoring. Unfortunately, upon opening the gate of the AWLS, the welding of the middle hinge of the gate got broken due to the rusts that infecting it *(see Figures no. 13)*. WD40 was sprayed to the other hinges of the gate to loosen the rusts. Manual updating of firmware was not done with the AWLS since it is from a different manufacturer as compare to the AWS.

Figures 11: Pictures showing the installed Automate Water Level Station in Abaton bridge, Brgy. Parang, Calapan City, Oriental Mindoro.



Figures 12: Pictures showing the spraying of WD40 to the lock of the gate (left) and the inside of the data logger of the Automated Water Level Station with no damage during the time of monitoring

Figures 13: Pictures showing the broken welding of the middle hinge of the gate of the AWLS

Summary:

Installed Device	Observation(s)	Recommendation(s)	Remarks
Automated Weather Station (within Bongabong River Watershed – Brgy. Hagan, Bongabong, Oriental Mindoro)	• The applied grease faded as a result of prolong exposure to changing weather	• The re-application of grease will be part of the regular monitoring of the PENRO-CDS personnel	• Manual updating of the firmware and cellular upload test was successfully conducted including the replacement of the batteries. • The AWS is functioning properly during the time of monitoring
Automated Weather Station (within Mag-asawang Tubig Watershed – Macatoc Elementary School, Brgy. Macatoc, Victoria, Oriental Mindoro)	• The area of the site was well maintained by the school's utility personnel	• The re-application of grease will be part of the regular monitoring of the PENRO-CDS personnel	• Manual updating of the firmware and cellular upload test was successfully conducted including the replacement of the batteries. • The AWS is functioning properly during the time of monitoring
Groundwater Monitoring Station - CTD (within Mag-asawang Tubig Watershed – MinSCAT Main Campus, Brgy. Alcate, Victoria, Oriental Mindoro)	• The circuit board was damaged due to the moisture that leaked inside the data logger that resulted to the inability of the logger to send the data collected by the CTD sensors to the cloud server	• For replacement of the data logger since its circuit board was damaged by the moisture as a result of the previously infesting of ants	• Manual updating was not done as the data logger is not responding even after being connected to the laptop • Data logger must be replaced and fund will be requested to the Regional Office

Automated Weather Station (within Mag-asawang Tubig Watershed – DA-RIARC, Brgy. Alcate, Victoria, Oriental Mindoro)	• The area of the site was maintained by the center's personnel	• The re-application of grease will be part of the regular monitoring of the PENRO-CDS personnel	• Manual updating of the firmware and cellular upload test was successfully conducted including the replacement of the batteries. • The AWS is functioning properly during the time of monitoring
Automated Water Level Station (within Mag-asawang Tubig Watershed – Abaton Bridge, Brgy. Parang, Calapan City, Oriental Mindoro)	• The hinges of the fence were rusted that resulted to difficulty of opening the gate • The welding of the middle hinge got broken after opening the gate	• The re-application of grease to the cables and re-spraying of WD40 lubricant will be part of the regular monitoring of the PENRO-CDS personnel	• The data logger's firmware is still up-to-date. • Request fund to the Regional Office for the repair of the gate of the AWLS and replacement of its battery

Prepared by:

SANDRO E. ANGELO
Admin. Aide VI

Noted by:

AMOR D. ASI
Forester III/Chief, CDS

Quotation

3F Rimando Building, 1706 E. Rodriguez Avenue, Cubao, Quezon City 1111 PHILIPPINES TIN: 007-808-164-000 VAT
Mobile +63908-8757261 / +63917-6239916/ +63917-8137250 Tel/Fax +632-7287322 / +632-8813615
Website: www.philinstrumentscorp.com.ph E-mail: sales@philinstrumentscorp.com.ph

QUOTATION

TO: **DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES-MIMAROPA**

DATE February 3, 2022
QUOTE NO
Reference #
Closing date

ATTN:

Sir/Madam:

We are pleased to offer you our quote as follows:

Item/Part No.	Item Description	Qty/Unit	Unit Price	Total Price
1	ZL6 Data Logger with One (1) Year Seasons Pass and Installation	1 set	110,000.00	110,000.00

Total Price VAT Inclusive **P 110,000.00**

Availability	30 days
Validity	30 days
Payment	30 days
Warranty	1 year
Delivery point	DENR MIMAROPA

I am looking forward that you will find this offer reasonable and would merit an order. Please do not hesitate to contact me for further questions and clarifications, thank you.

Submitted by:

Jayralyn Villareal
Sales Executive
jayralyn_villareal@yahoo.com
0939-359-3629

Republic of the Philippines
Department of Environment and Natural Resources
MIMAROPA Region

PHOTODOCUMENTATION OF THE DAMAGED ZL6 DATALOGGER OF GROUNDWATER MONITORING STATION (GWMS) INSTALLED AT MINDORO STATE UNIVERSITY (MinSU) DURING THE FIELD VISIT OF THE REGIONAL OFFICE ON DECEMBER 7-8, 2021

Figure 1. Datalogger of GWMS installed at MinSU, Oriental Mindoro.

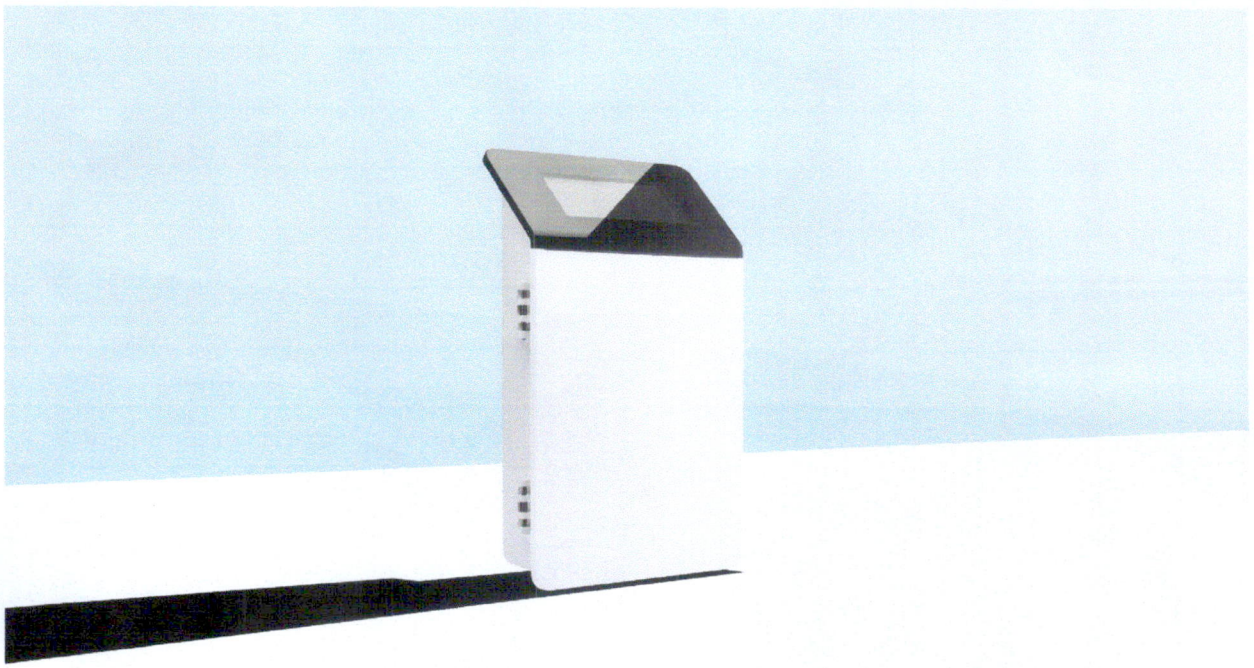
Fig. 2. Rainwater-soaked dessicant (right) and batteries (left) inside the datalogger of GWMS.

Fig. 3. Ant infestation in the datalogger of GWMS.

1515 L & S Building, Roxas Boulevard, Ermita, Manila 1000
DENR VOIP (632) 2483367/2483468/2493367 local 2700/1 (Regional Executive Director)
Website: mimaropa.denr.gov.ph
Email: mimaroparegion@denr.gov.ph

ADVANCED CLOUD DATA LOGGER

metergroup.com/environment/products/zl6-data-logger



One data logger. No limits.

ZL6 Data Logger

Maximize your data productivity

In the research world, success or failure hinges upon using data analysis to arrive at the right conclusion. Unfortunately, most data loggers force you to spend more time collecting data than actually analyzing it. With the advent of big data, you can't afford to be constantly fussing with complex programming, installation headaches, data downloads, data gaps, or maintenance. You need a data logger that puts near-real-time data at your fingertips—whenever, wherever, and however you want it—so you can maximize your paper output. Welcome to the new ZL6 universe.

This data logger breaks new barriers, so you can too

With the ZL6 data logger, there are no limits. That's because we've reinvented the entire METER data logging system so the ZL6 can be your ultimate research partner. Easier, more advanced, and more robust, the ZL6 data logger introduces cloud-based data delivery,

Bluetooth® configuration, GPS, firmware-over-the-air updates, and integrated metadata, all which simplify and speed up the process of data collection, management, and sharing. It does all the legwork for you, so you can spend more time being a data visionary.

Less work. More discovery.

The ZL6 data logger uses ZENTRA Cloud to deliver near-real-time data wherever and whenever you need it. This means your grad students can spend less time downloading data in the field, and more time generating research papers. Accessing data on ZENTRA Cloud speeds up your analysis by enabling you to correlate event factors, see important trends, or discover problems almost instantly, from the comfort of your own desk. And if there's no cell service at your site, you can still download your data via USB.

Plus, data are now incredibly easy to distribute and share. Simply enter an email, and send an invitation. Your collaborators can instantly see what you see. The ZL6 data logger and ZENTRA Cloud allow you and others to review data the way you want, whether it's in map format, short graphs, a list, or downloading to data-analysis packages.

Good at everything, so you don't have to be

With the ZL6 data logger, you no longer have to be a specialist in every discipline. Using the ZL6 is like having a meteorologist, a soil physicist, and more at your disposal, allowing you more time to focus on your specialty. How? The ZL6 data logger connects up to six different types of METER sensors, so you can monitor different parameters, such as weather, soil moisture, and soil water potential, all at the same time, giving you deeper insight. We've also integrated barometric pressure to eliminate the need to install extra sensors. And because everything is plug and play, you don't have to be an expert at wiring or programming.

Uncomplicated. Almost unbreakable. And unbelievable.

We engineered the ZL6 to be extremely robust and low maintenance, so you can almost forget about your data logger completely. The ZL6's integrated solar charging panel means there's hardly any power maintenance required. An IP56-rated enclosure designed for shedding rain makes sure water doesn't get in. More secure cable handling ensures sensor cables don't get yanked out. A hidden antenna limits breakage. And we've added fully round clasps and hinges that won't break.

Plus, the ZL6 data logger requires little setup. It self-recognizes what's plugged into each port (as long as they're digital sensors), and the new ZENTRA app uses Bluetooth to configure your logger on any device, so you can bring a smartphone or tablet to the field instead of a heavy laptop. You can even configure the logger from your office using ZENTRA Cloud. We also added GPS, so it automatically keeps track of where data are collected. And new firmware-over-the-air capability means ZENTRA Cloud updates ZL6 data logger firmware automatically, with no effort from you.

You've got research. We've got you.

Want each of your grad students to write one more peer-reviewed paper? Now they can. With the ZL6 data logger, you and your team can focus on data. Not distractions. Together, the ZL6 data logger and ZENTRA Cloud make it easy to connect all the critical tools you need to understand the soil-plant-atmosphere continuum, so you can analyze your data faster, and at a much deeper level. Get near-instant data anytime, anywhere, in any form that you need it, so you'll never miss another important data insight.

Features

- Ultra-rugged and durable construction
- Configure via Bluetooth with the ZENTRA Utility app
- Plug and play with METER sensors
- Six sensor ports
- The data logger works with ZENTRA Cloud to enable near real-time data viewing anywhere with an internet connection (data can also be downloaded via USB)
- Integrated GPS and barometric pressure measurement
- Simple setup
- Firmware-over-the-air updates
- Built-in solar panel for extended deployments
- Rechargeable nickel-metal hydride (NiMH) batteries
- Stores 40,000 to 80,000+ records, depending on sensor configuration
- The ZL6 data logger is best for viewing data on the go
- See signal strength and connection quality in real time: test connectivity at your site BEFORE installation
- Transmitted data is backed up in the data logger memory to give you extra data protection
- See a comparison of all 3 ZL6 loggers—>

Specifications

MEASUREMENT SPECIFICATIONS	
Sensor logging interval	**ZL6 Basic:** 60 min (average or accumulation of 60, 1-min sensor readings) **ZL6 and ZL6 Pro:** 5 min to 12 h (average or accumulation of 1-min sensor reading)
Logger reporting interval	**ZL6 Basic:** None **ZL6:** Hourly with additional charges for more frequent reporting **ZL6 Pro:** Hourly with the ability to enable more frequent reporting

Timekeeping	**ZL6 Basic:** Synchronize with ZENTRA Utility or ZENTRA Utility Mobile **ZL6 and ZL6 Pro:** Synchronize automatically and on-demand; GPS, cellular, or ZENTRA Utility software
COMMUNICATION SPECIFICATIONS	
Computer communication	Standard USB cable, USB A to micro-USB B
Internet downloads	SSL/TLS encrypted
Cellular communication (ZL6 and ZL6 Pro)	**3G** Specifications: UMTS 3G 5-band cellular module with 2G fallback Coverage: AT&T® and T-Mobile® in USA, 550+ global partner carriers. Cellular and data hosting service provided by METER **4G** Specifications: 4G LTE-M and NB-IoT cellular Coverage: AT&T® and Sprint® or Verizon® in USA. Cellular and data hosting service provided by METER See note on 4G LTE availability
Mobile communication	Bluetooth 5.2 supporting Bluetooth Low Energy protocol
GPS communication (ZL6 and ZL6 Pro)	Type: Integrated 56-channel GPS/QZSS receiver Update: Daily (automatic) and on-demand (manual) Accuracy: ±3 m, with good sky view
PHYSICAL SPECIFICATIONS	
Dimensions	Length: 14.9 cm (5.9 in) Width: 6.3 cm (2.5 in) Height: 25.0 cm (9.9 in)
Enclosure material	Weather-, impact-, and UV-resistant polymer
Enclosure rating	IP56, NEMA 3R
Enclosure access	Hinged door with latches and eyelets for lock or zip tie

Sensor input ports	6 (supports METER analog, digital, or pulse sensors)
Sensor port type	3.5-mm stereo plug connector
Memory type	Nonvolatile flash, full data retention with loss of power
Data storage	**ZL6 Basic:** 2 MB (20,000 to 30,000 records depending on configuration) **ZL6 and ZL6 Pro:** 8 MB (40,000 to 80,000+ records depending on configuration)
Battery capacity	**ZL6 Basic:** 6 AA alkaline batteries **ZL6 and ZL6 Pro:** 6 AA NiMH or alkaline batteries
Battery life	Alkaline: 3–12 months depending on configuration NiMH: 3+ years with unobstructed view of sun. Charging through solar energy harvesting or USB
Operating temperature range	Minimum: –40 °C Maximum: +60 °C
COMPLIANCE	Manufactured under ISO 9001:2015 EM ISO/IEC 17050:2010 (CE Mark)

BF 200: FY 2022 FINANCIAL PLAN
BY FUNCTION/ACTIVITY/PROJECT
(In Thousand Pesos)

BED 1

Department : DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
Agency : OFFICE OF THE SECRETARY (OSEC)
Operating Unit : MIMAROPA Region
Organization Code (UACS) : 10 001 05 00017

PARTICULARS	UACS CODE	Actual Jan. 1-Sept. 30	Estimate Oct. 1 - Dec. 31	TOTAL	Budget Year Obligation Program											
					TOTAL	COMPREHENSIVE RELEASE					FOR LATER RELEASE (Negative List)					
						Q1	Q2	Q3	Q4	Sub-Total	Q1	Q2	Q3	Q4	Sub-Total	
FOREST AND WATERSHED MANAGEMENT SUB-PROGRAM																
Soil Conservation and Watershed Management Including River Basin Management and Development																
Expenses																
C.5.6 CAPITAL OUTLAYS	50600-00															
Machinery and Equipment Outlay	50604050-00	-	-	-	110	-	-	-	110	110	-	-	-	-	-	110
Machinery	50604050-01			-	-					-					-	-
Office Equipment	50604050-02			-	-					-					-	-
Information & Communication Technology Equipment	50604050-03			-	-					-					-	-
Agricultural and Forestry Equipment	50604050-04			-	-					-					-	-
Marine and Fishery Equipment	50604050-05			-	-					-					-	-
Communication Equipment	50604050-07			-	-					-					-	-
Disaster Response and Rescue Equipment	50604050-09			-	-					-					-	-
Medical Equipment	50604050-11			-	-					-					-	-
Printing Equipment	50604050-12			-	-					-					-	-
Sports Equipment	50604050-13			-	-					-					-	-
Technical & Scientific Equipment	50604050-14			-	110				110	110					-	110
ICT Software	50604050-15			-	-					-					-	-
Other Machinery and Equipment	50604050-99			-	-					-					-	-
SUB-TOTAL, CAPITAL OUTLAYS		-	-	-	110	-	-	-	110	110	-	-	-	-	-	110
GRAND TOTAL		-	-	-	110	-	-	-	110	110	-	-	-	-	-	110

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