



Republic of the Philippines
Department of Environment and Natural Resources
MIMAROPA Region
Provincial Environment and Natural Resources Office
Bgy. Sta. Monica, Puerto Princesa City, Palawan
E-mail: penropalawan@denr.gov.ph
Telfax No. (048) 433-5638

DENR MIMAROPA RECORDS SECTION
RECEIVED
27 SEP 2022
INCOMING BY: DATE: 27 SEP 2022
OUTGOING BY: DATE: 27 SEP 2022

August 16, 2022

MEMORANDUM

FOR : The Regional Executive Director
DENR MIMAROPA
1515 L&S Building, Roxas Boulevard,
Ermita, Manila

THRU : The Assistant Regional Director for Technical Services
MIMAROPA Region

FROM : The Provincial Environment and
Natural Resources Officer

SUBJECT : **REPORT ON THE ATTENDED WORKSHOP ON CORAL
REEF MONITORING ON SEPTEMBER 5-7, 2022 AS PER
INVITATION FROM AUSTRALIAN INSTITUTE OF MARINE
SCIENCE (AIMS) AND PCSDS DATED AUGUST 16, 2022**

Respectfully forwarding is the Memorandum from PENRO CDS dated September 12, 2022 regarding the report on the attended workshop on Coral Reef monitoring last September 5-7, 2022 as per invitation of Australian Institute of Marine Science (AIMS) and the Palawan Council for Sustainable Development Staff (PCSDS) dated August 16, 2022.

The workshop was participated by different agencies that includes; DENR- PENRO Palawan, DENR BMB, City Agriculture Office, LGU- Kalayaan, PCSDS, Western Philippines University, UP Mindanao - Institute of Marine Research, De La Salle University, UP Diliman- National Institute of Physics, UP Diliman-Department of Computer Science, UP Los Baños, UP Diliman-Marine Science Institute, WWF, DOST-PCAARRD, Provincial ENRO and the Australian Institute of Marine Science (AIMS).

Included in the report is the topic presented, the highlight of the 3 days workshop and the recommendations of the CDS personnel to wit;

1. Recommendation to adopt the Reef Cloud platform and the *Alwan* citizen science method through a national policy; and
2. Requesting clearance from Regional Office to share the existing and future data/reports to the Palawan Knowledge Platform (PKP) of PCSDS for dissemination.

For information and further instruction.



FELIZARDO B. CAYATOC
DENR-PALAWAN
PENRO-RECORDS
RELEASED
By: *[Signature]*
Date: 21 SEP 2022 2022-2451



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12 September 2022

MEMORANDUM

FOR : The Provincial Environment and
Natural Resources Officer

THRU : The Chief, Technical Services Division
The Chief, Conservation and Development Section

FROM : Lauri Rose S. Coquia, ECOMS I
Genesis Z. Ustares, Marine Biologist II

SUBJECT : **REPORT ON THE ATTENDED WORKSHOP ON CORAL REEF
MONITORING ON SEPTEMBER 5-7, 2022 AS PER
INVITATION OF AUSTRALIAN INSTITUTE OF MARINE
SCIENCE (AIMS) AND PCSDS DATED AUGUST 16, 2022**

9-12-2022 22-8271

Respectfully submitted is the report of the undersigned on the attended Coral Reef Monitoring Workshop on September 5-7, 2022 as per invitation of Australian Institute of Marine Science (AIMS) and Palawan Council for Sustainable Development Staff (PCSDS) dated August 16, 2022.

The workshop was participated by the following agency: DENR PENRO Palawan, DENR BMB, City Agriculture Office, LGU - Kalayaan, PCSDS, Western Philippines University, UP Mindanao, Institute of Marine Research, De La Salle University, UP Diliman - National Institute of Physics, UP Diliman - Department of Computer Science, UP Los Baños, UP Diliman - Marine Science Institute, WWF, DOST-PCAARRD, Provincial ENRO, and Australian Institute of Marine Science (AIMS).

The following were presented during the entire workshop:

1. CMEMP: Methods and Reporting – Mr. Genesis Ustares, DENR PENRO Palawan
2. ECAN Coastal/Marine Zoning – Mr. Daryl Licerio, PCSDS
3. Recent initiatives to encourage coral reef monitoring in the Philippines – Dr. Wilfredo Licuanan, De La Salle University
4. Status of coral reefs in selected areas in Palawan – Joel Becira
5. Coral reef monitoring in Kalayaan Island – Jorge Olean Misajon, LGU-Kalayaan
6. Australian's effort to support informed coral reef management – Rafael Manrique, Institute for Marine Research
7. Introduction to ReefScan – Scott Bainbridge, AIMS
8. Introduction to ReefCloud – Manuel Gonzales Rivero, AIMS
9. Challenges and opportunities to standardized and integrate coral reef monitoring in the Philippines – Dr. Mari-Ann Acedera, DOST-PCAARRD
10. CMEMP: PAIS and AGOS database – Ms. Siara Nulada, DENR BMB
11. Fish-i: A semi-automated fish census method for fish biodiversity assessment – Dr. Prospero Naval, UP Diliman-DCS



12. Coral reef mapping initiatives – Dr. Maricor Soriano, UP Diliman-NIP

The following are the highlights of the workshop on Day 1:

1. The Marine Resource Initiative project of AIMS have 2-years' timeline that will end on September 2024. Initial consultation was done last March 2022 and currently working on the project activity design.
2. On the presentation of the undersigned (Mr. Ustares), pointed out that there is a need to standardized the methodologies and to capacitate the field personnel for the assessment and data interpretation.
3. LGUs were tasked to do the law enforcement on the municipal waters and on designated core zones of ECAN Maps.
4. Dr. Licuanan highlighted on his presentation of the following:
 - a. Coral reefs monitoring focus only on:
 - i. Coral cover, not diversity; state and not on the parameters
 - ii. Rehabilitation instead of mitigation
 - iii. Assessment without monitoring
 - b. There are inadequate methodologies, tools and equipment. Insufficient training and practices as well as high turnover and shortage of qualified personnel
 - c. Also presented the Alwan citizen science method that can be used by fisherfolks and LGUs. Likewise, proposing a Coral Reef Assessment and Monitoring (CRAM) academy to address the concern on high turnover and shortage of qualified personnel.
5. ReefScan seamlessly integrates machine learning, advanced imaging sensors and robotics to deliver field-ready, easy-to-use platforms, supported by web-based automated workflows. It uses machine learning for real-time object identification and classification, freeing human effort from routine tasks and providing more time for knowledge building and decision support.
6. ReefCloud is a digital tool that allow the world's coral reef monitoring community to work together in real time to improve reef monitoring and preservation. It is an open-access platform that can quickly and efficiently collate data to inform reef management decisions. It is available thru <https://reefcloud.ai>
 - a. Seagrass beds can also analyze in the platform though there are some challenges but also on process of addressing it.
 - b. On the data privacy and security, the platform has several stages of security/privacy before uploading the data. Ways of protecting the data thru multiple layers has also indicated in the privacy policy
 - c. There's not yet any some sort of agreement between the Philippine Government and Australian Government regarding on the data that can be uploaded in the platform

The following are the highlights of the workshop on Day 2:

1. The Fish-i is a semi-automated fish census method for fish biodiversity assessment that can do fish identification, count, size, biomass, population and density.
 - a. It can also be utilized in Environmental Impact Assessments (EIA)
2. Dr. Soriano, presented the coral reef mapping initiatives such as the use of Automated Rapid Reef Assessment System (ARRAS), Kite Aerial Photography, Coral Reef Assessment Visualization – Advance Tool (CRAVAT), Towfish,



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Towpedo and introduced the Antipara Exploration who do the underwater mapping and analytics company that provides marine geospatial imaging, inspection and assessment services for the marine and maritime sectors.

3. A plenary discussion was done in the afternoon dividing into four groups to gather inputs and discussion on the collected information and concerns to process, synthesize and make a guide for the workshop.

The following are the highlights of the workshop on Day 3:

1. Dr. Licuanan presented the effective coral reef monitoring and assessment.
 - a. META: Map, Evaluate, Track and Assess, Act, Assess, Adjust
 - b. Tracking and mapping tools is essential for the coral reef monitoring coupled with NAMRIA technology
2. Dr. Rivero of AIMS presented the workshop output.
 - a. Suggestion to develop a system/site for communication/communicating public – translating the science into layman's term
 - b. Suggestion to have a dashboard than can be accessed and easily understand by the public
3. Plenary discussion was done to discuss the prioritization of activities and ways of collaboration with the Marine Resource Initiative (MRI) project.

Recommendations:

1. There is a discussion that after trainings and conventions of experts on the coral reef monitoring methods, a PCSD Resolution will be formulated to standardize the method and compel the researches to share the data/report to the Palawan Knowledge Platform (PKP). This policy will enable the LGUs of Palawan to do the monitoring themselves. However, in case of NIPAS MPAs, the adaptation of ReefCloud platform should thru a national policy in a form of either technical bulletin or among others like a Technical Bulletin for BAMS in Coastal and Marine Ecosystems. So that the training of methodologies, data interpretation, database, and reporting format can be standardized nationally and will be rolled-out to the regional and field offices and will be incorporated in work plans.
2. *Alwan* citizen science method is an effective tool for community participation enabling them to do the methods themselves and able to determine publicly the status of their coral reefs. Hence, likewise recommends to adopt it nationally and will be incorporated in work plans.
3. The Palawan Knowledge Platform (PKP) is an interactive information hub for partners from the national government, academe, NGOs and other relevant groups to disseminate the researches, programs and projects being maintained by PCSDS. The DENR-PENRO Palawan is a member of the PKP, hence imploring us to share data or reports for dissemination. In this regards, may we request clearance from the Regional Office to share the existing and future data or reports to the said platform.

For your information and further instructions.

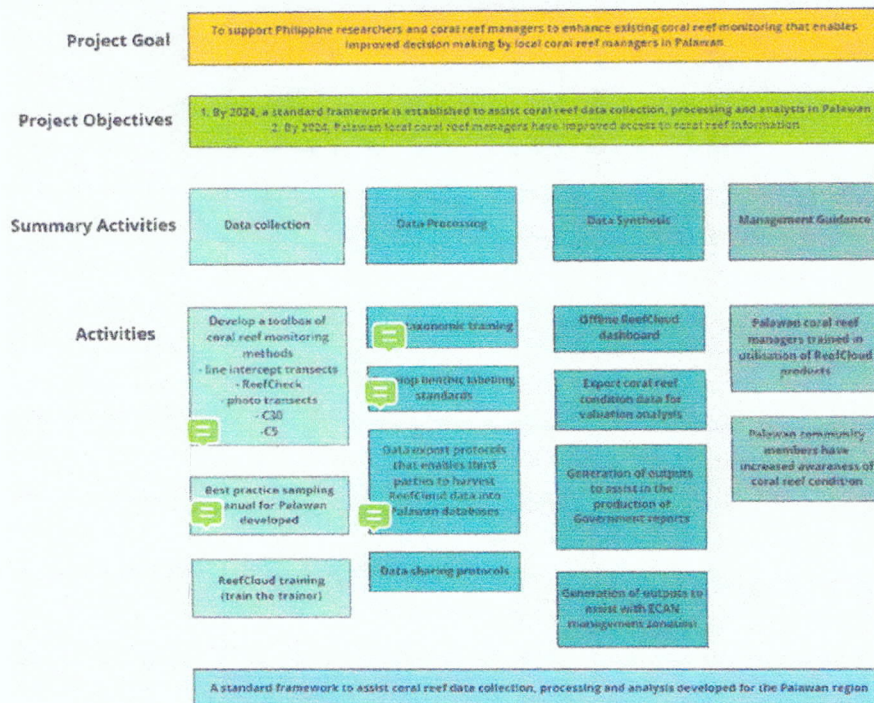

LAURI ROSE S. COQUIA


GENESIS Z. USTARES

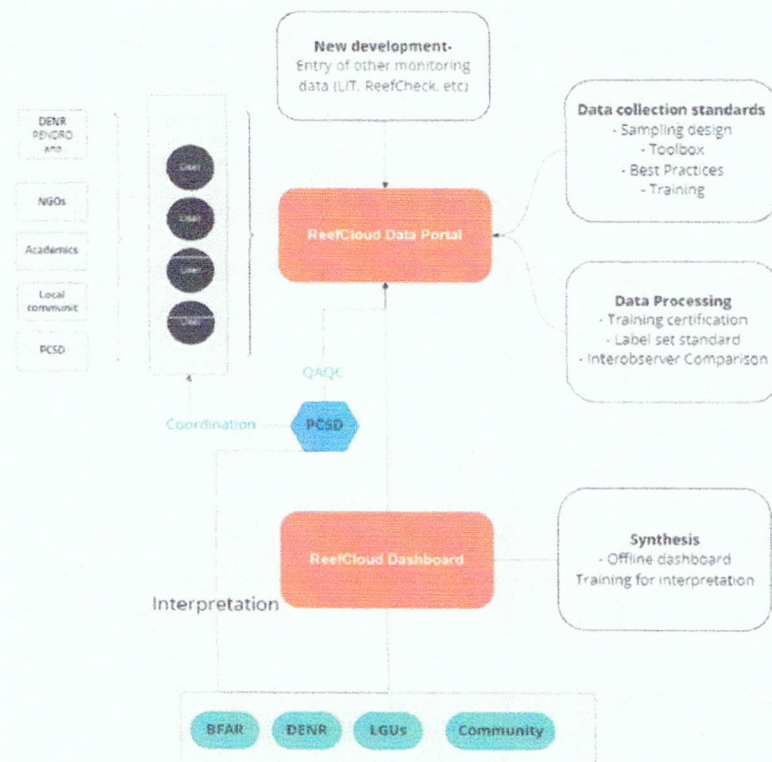


PHOTO DOCUMENTATION

MRI PROJECT LOGIC



The Marine Resource Initiatives Project Logic



Workshop Output Guide



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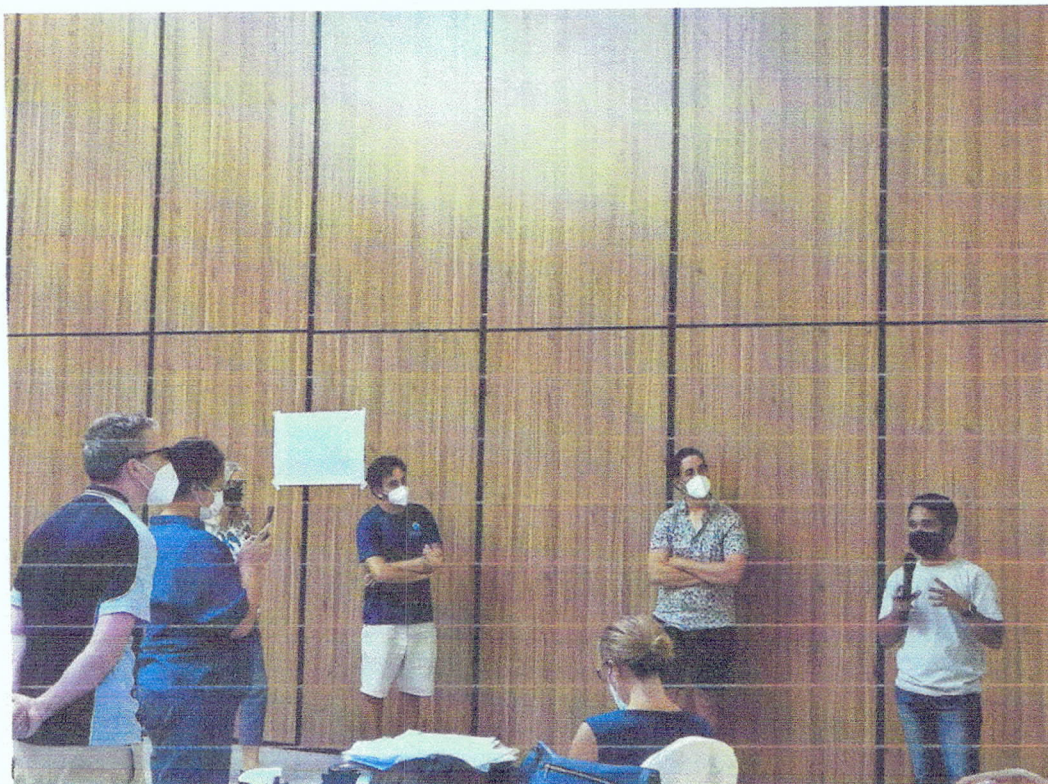
Workshop inputs in "Collect"



Workshop proper



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Workshop plenary divided session



Workshop plenary session



Group photo of all participants