WORKSHOP SUMMARY REPORT

PEMSEA

Data and Information Management Workshop

3–5 December 2019 • Regional Capacity Center for Clean Seas (RC3S), Bali, Indonesia

I. Organizers

The Asian Regional Workshop on Data and Information Management was jointly organized by Partnerships in Environmental Management for the Seas of East Asia (PEMSEA) and the GEF Large Marine Ecosystem:LEARN project (funded by GEF, implemented by the United Nations Development Programme and managed by the Intergovernmental Oceanographic Commission of UNESCO).

PEMSEA is an intergovernmental organization operating in East Asia to foster and sustain healthy and resilient oceans, coasts, communities and economies across the region.

LME:LEARN is a GEF-UNDP-UNESCO-IOC project designed to improve global ecosystem-based governance of Large Marine Ecosystems and their coasts by generating knowledge, building capacity, harnessing public and private partners and supporting south-to-south learning and north-to-south learning. In order to guide and support the data sharing and integration work that will result in improved availability and accessibility of consistent data and indicators on large marine ecosystems (as well as integrated coastal management and marine protected areas) in a meaningful way for use by LME:LEARN stakeholders and wider public, the LME:LEARN project supports the Data and Information Management Working Group (DIM WG).

The agenda, working documents and presentations are available in the iwlearn.net DIM Bali Workshop page and in the PEMSEA GoogleDrive.

II. Background

The Asian Regional Workshop on Data and Information Management serves as a regional echo - workshop to share the learning highlights from the LME:LEARN Data and Information Management: Working Group Meeting and Training that was held in Paris, France from 2 to 4 July 2019.

Data and information function as crucial components of the development, assessment and enforcement of management policies, strategies and interventions. Knowledge sharing and learning exchanges serve as useful platforms for data and information management sharing for the use of various stakeholders, the wider public and practitioners.

In order to guide and support the data and information sharing on Large Marine Ecosystems – LMEs, as well as associated integrated coastal management (ICM), marine protected areas (MPA) and Marine Spatial Planning projects (MSP), for use by LME:LEARN stakeholders and the wider public, the LME:LEARN project supports the Data and Information Management Working Group (DIM WG). The DIM WG was established as an informal body to guide the process with a clear mandate to create

learning exchanges on data and information management tools to be used by the LME community of practitioners. Several meetings of the DIM WG have taken place since the start of the LME:LEARN project.

The LME:LEARN project has developed a training curriculum and guidance document for Data and Information Management (DIM) to be applied amongst GEF LME, ICM, MPA and MSP projects. The following documents have been prepared in support of this work:

1. **Data and Information from The GEF Large Marine Ecosystem Portfolio - Metadata catalogue of available GEF marine project data and information**. This is a review and compilation of GEF LME project web-sites, tools and reports in relation to data and information management, as well as other key LME partners data and information websites.

2. **Data and Information Management Guidelines for GEF LME Projects - To ensure sustainability of spatial and other project data and information in GEF LME projects**. These guidelines present overall recommendations for GEF LME projects to consider to ensure a more integrated and comparable approach to data and information management across the IW LME portfolio. It also will include tools and best practices from GEF LME projects and other international and regional organizations that can be applied and adapted within LME projects, and supports the implementation of the recommendations presented in the Data and Information Management Guidelines for GEF LME projects**.**

3. **Identifying Common LME Indicators - Towards common reporting and comparability between LMEs**. Given the common issues that the majority of the LME projects address and also the increasing need to align reporting between regions and the Sustainable Development Goals (SDGs), this presents an overview of current indicator systems and proposes a series of common indicators that can be considered by LME's for future reporting of key targets and Strategic Action Programs (SAPs). This workshop is expected to contribute to facilitating a more harmonious data and information management towards an improved capacity to report progress and results across implementation of action programmes and achievement of SDGs.

The complete program of the workshop is shown in Annex 1.

III. Workshop Objectives

The main objective of the workshop was to foster interagency collaboration in sharing data and information for use by new GEF 7 projects and other associated projects in the region. As these projects require landscape assessments or baseline data, they will be greatly supported by effective mechanisms for knowledge sharing and information exchange on data and tools. The aforementioned LME:LEARN guidance documents for DIM provides a roadmap to a more systematic data and information sharing on Large Marine Ecosystems (LME) as well as associated ICM projects.

During the workshop, the participants were familiarized with the LME:LEARN DIM guidance documents, and were given opportunities to comment and provide feedback on its usefulness and applicability within their context and spheres of work. This feedback will serve to improve future iterations of the documents in future IW:LEARN activities.

At the end of the 3-day regional workshop, the participants were able to:

- Discuss common indicators for comparison of progress in implementation of SAPs between LMEs
- Exchange best practices on DIM especially in data collection, knowledge repositories, results and analysis methodologies, assessments and processes to influence policies
- Present state of the art tools, KM platforms and database by various entities (IW:LEARN, UNEP, PEMSEA, CTI, etc.)

The workshop began with an overview of the findings in the "*Metadata catalogue of available GEF marine project data and information*" and recommended set of actions in the "*DIM Guidelines for GEF LME Projects"*. A sharing on LMEs experiences, successes and challenges regarding data and information management from GEF IW funded LME projects completed Day 1. The second day focused on the common indicators ("*Identifying Common LME Indicators - Towards common reporting and comparability between LMEs"*) for comparison of progress in implementation of SAPs between LMEs, and best practices and tools for LME data and information management as utilized in the LME projects and by IW:/LME:LEARN. The last day was capped off with a group discussion and reflections, focusing on the outputs of each session. Each session featured group working sessions to allow for interactive participation among the attendees in delivering the workshop outputs.

IV. Workshop Outputs

In addition to the feedback on the LME:LEARN guidance, the 3-day workshop aimed to come up with the following outputs:

- Draft list of common indicators
- Draft list of indicators each LME will pilot
- Draft list of available/complementary tools and requirement of projects
- Report of the meeting and recommendations

V. Participants and Resource Speakers

The workshop was attended by twenty-one (21) participants, consisting of representatives from LMEs including Indonesian Sea, South China Sea, Yellow Sea, Arafura and Timor Seas, and the Small Pacific Islands, as well as representatives from PEMSEA Resource

Facility, Regional Capacity Center for Clean Seas, the Ministry of Environment and Forestry in Indonesia and Coral Triangle Initiative. The list of participants is in Annex 2.

Resource persons and facilitators were Ms. Khristine Custodio Gudczinski, Content Manager from IW:LEARN and Ms. Louise Lieberknecht, Marine Spatial Planning Expert from GRID-Arendal. Johanna Diwa-Acallar, Capacity Development Manager of PEMSEA, served as overall Workshop Chair.

VI. SUMMARY OF DAY 1, DECEMBER 3

Dida Migfar Ridha, Director of the Marine and Coastal Pollution and Degradation Control, Ministry of Environment and Forestry opened the programme and welcomed all the participants to Indonesia, with a brief introduction of RC3S. He also highlighted Indonesia LME as focus of many transboundary issues and challenges including the threats that LMEs are facing. Mr. Ridha also emphasized on the need for a systematic recording and updating, and easy access of data and information, particularly in the context of the implementation of LME approaches.

A message from PEMSEA Executive Director, Aimee Gonzales was delivered by Johanna Diwa-Acallar. In her remarks, she noted that the echo workshop on data and information management aims to foster closer collaboration and partnership on sharing data and knowledge. She emphasized on the need to synergize and harmonize data, information and knowledge for a more cost-efficient tool in all GEF/UNDP funded projects, particularly in the LMEs in the region. She also mentioned examples of reporting mechanisms and platforms including PEMSEA's State of the Ocean and Coasts reporting, and the SEA Knowledge Bank. Gonzales extended her gratitude to IW:LEARN for the opportunity to co-host the workshop and convene the LMEs in the region, and to the staff and management of the Regional Capacity Center for Clean Seas for serving as the workshop venue in Bali.

The participants introduced themselves in the panel and shared their expectations for the workshop. Johanna Diwa-Acallar gave a ran down of all the workshop objectives and activities for the 3-day workshop, which mainly comprises of presentations from speakers and participants, as well as group working sessions.

SESSION 1: LME:LEARN Data and Information Management (DIM)

Khristine Custodio Gudczinski, Content Manager from IW:LEARN, presented the brief summary, outputs and major recommendations from the "Data and Information Meeting and Training Workshop", which was held in July 2019 in Paris, France.

To set the context of the agenda for the regional workshop, Ms. Gudczinski explained that the LME: LEARN DIM Working group was established to help allow for learning

exchanges on data and information management tools to be used by the LME community of practitioners, particularly the new GEF-7 projects and other associated projects in the region. Ms. Gudczinski discussed the main findings from the reviewed data and information guidelines, agreed common LME indicators, and LME experiences shared during the Paris Workshop. These findings include: 1) availability of project data and information online; 2) online repository of metadata used for project assessments; 3) long-term maintenance of databases; and 3) long-term reporting of targets and indicators.

The regional workshop is intended to continue setting the motions in implementing the DIM guidelines, integrating common indicators, and making best practices, training and tools on data and information management available in the region.

LME Experiences, Successes and Challenges regarding Data and Information Management

Representatives from GEF IW-Funded LME projects shared their related experiences, successes and challenges in data and information management, and indicators within their LMEs.

Chavakat Manghat Muralidharan, the Regional Project Coordinator of the Indonesian Seas LME (ISLME), introduced the ISLME Project, which primarily aims to develop and agree on a strategic action plan based on a transboundary diagnostic assessment (TDA). He explained how the data and information management system is relevant to the project, particularly through website management, databases for TDA, and the use of LME general indicators and key indicators in data collection for the TDA.

Somboon Siriraksophon, the Project Director of the South China Sea LME SAP Implementation: Fisheries Refugia, presented the South China SEA LME project and expounded how the project deals with data and information through the use of national fisheries statistics, marine habitat linkages, baseline surveys, legal framework reviews, capacity/ awareness building, stakeholder consultations, fishery policy, and management strategy. He also explained how their project indicators and reporting mechanisms link to the Sustainable Development Goal 14: Life Below Water. Mr. Somboom also shared how their current website makes the project information and deliverables available to their partners and stakeholders.

Dwi Ariyoga Gautama, the Project Coordinator of Arafura Timor Seas Ecosystem Action Phase 2 (ATSEA-2), provided an overview of the ATSEA-2 project, which long term's SAP objective is to promote sustainable development of ATS region to improve the quality of life of its inhabitants through restoration, conservation and sustainable management of marine and coastal. Mr. Gautama also enumerated the issues and challenges that the project faces, including the challenges related to updating the SAP objective and progress.

Yinfeng Guo, the Project Manager of the Yellow Sea LME (YSLME), shared their experiences and reflections related to data and information management in their project. He expressed that DIM is at the infantry stage in YSLME, and workshops are found to be more practical and strategic in bringing scientists together and building a stronger knowledge base. He, however, stressed the importance of a coherent YSLME-specific DIM framework to monitor the success of SAP to overcome the limitations of results framework established at the beginning of the project.

Andrew Hunt, Data Management Specialist from Pacific Island Forum Fisheries Agency, introduced a data management tool called Tufman 2 and SustainPacFish website, which are used in the LME project of the Regional Oceanic Fisheries Management. Mr. Hunt explained how Tufman 2 works as a database for information, data entry and data checking tool, and modern web application to automatically implement data sharing and data quality rules, report, and link different data sources. He also presented the interface and features of SustainPacFish.

LME: LEARN Data and Information Management Plan

Khristine Custodio Gudzcinski discussed the document "*Data and Information Management Guidelines for GEF LME Projects - To ensure sustainability of spatial and other project data and information in GEF LME projects, including good practices and tools and future implementation*". She highlighted that there is a need for projects to develop and implement a data and information strategy on the use and management of data and information within the project to 1) ensure a systematic approach to making information available online, and 2) strengthen project data management for TDA/SAPs, assessments and overall monitoring of the LME.

In the working session, the participants were asked to accomplish Worksheet #1, indicating whether the outputs outlined in the *DIM Guidelines* are being implemented within their projects and marked as (✓) fully implemented, (**–**) partially implemented, or (**x)** not yet implemented. Participants were split into 3 groups and asked to discussed and identify which are the top three priority DIM outputs for them indicated by (●).

The results of the working session generated the summary below:

DIM Guidelines for GEF LME Projects	Output No.							
	1	2	3	4	5	6	8	9
Priorities for projects	●● ●	●●		●●	●●	●● ●	●● ●	
Indonesian Sea	**–**	**x**	**x**	**–**	**–**	**x**	**x**	**x**
Arafura – Timor Seas	**–**	✓	**–**	✓	**–**	✓	✓	**–**

Yellow Sea	✓	✓	✓	✓	✓	✓	✓	x
Pacific SIDS	–	x	–	–	x	x	x	x
South China Sea / Gulf of Thailand	x	x	–	x	x	x	x	–
Priorities for partners								
CTI / RC3 / Udayana University	●●	●●		●	●		●	

Please see Annex 3 for the actual worksheet.

In the discussion that followed, some of the highlighted issues include the following:

- It was agreed that standards and quality protocol for the data should be provided to enable comparable data collection with other countries. It should be clarified which minimum requirements of data can provide common information among projects.
- In response to the question on the nature of data/article that needs to be submitted and/or shared to IW:LEARN, it was clarified that including bibliographic entries in the submission should help streamline the process for both the LME projects and IW:LEARN.
- A clarification was asked regarding the nature of the LME platform and its relationship with projects such as whether the data submitted by the projects are synthesized when put in the platform.
- It was raised that there is a need to update the Website Guidelines which is still 2013 version. The document should be updated integrating new system and technology that will help make the process more efficient.
- The limited capacity of projects should be considered in future platform designs. It was suggested to first identity repetition and duplication in the system, synergize whatever existing information and make the system more integrated.
- It was clarified that online tutorial for self-learning is available for new project managers who would like to learn DIM from the IW:LEARN website.
- It was also emphasized that there are means to automate data and information sharing, e.g., machine-to-machine thru RSS feeds and other protocols and that data and info sharing should not necessarily mean additional work for the projects.
- It was suggested that most LME projects generate information that is useful for project implementation and sharing of outputs, best practices and lessons learned. Even if the project publications are not peer-reviewed like journal articles and academic papers, they are still useful, and should be made readily available.

VII. SUMMARY OF DAY 2, 4 DECEMBER

SESSION 2: LME: LEARN, IW:LEARN and Partners Training on DIM

Louise Lieberknecht, Marine Spatial Planning Expert from GRID-Arendal, presented the LME:LEARN DIM document "*Identifying Common LME Indicators – Towards common*

reporting and comparability between LMEs". Before starting the presentation, she presented a brief introduction of GRID-Arendal and highlighted communication of environmental knowledge and capacity building as one of its core activities. She explained that LMEs have developed indicators to 1) assess the achievement of management targets, and 2) assess and monitor the state of the marine and coastal environment and assess trends and changes over time.

She noted that LME indicators should be aligned with the SDGs and other key global indicator frameworks including GEF 6 & 7 core indicators, Transboundary Waters Assessment Programme (TWAP), Regional Seas Core indicators, Biodiversity Indicators Partnership (BIP), Organisation for Economic Cooperation and Development (OECD), etc. She also discussed the approaches and categorization of indicators, selection of the proposed LME core indicators, and the availability of data as a guide to reviewing the core LME indicators for the working session.

In the working session that followed, the participants were asked to address the following questions;

- Task 1:
  Which indicators are you already reporting on (fully or in part)? What information sources do you use?
- Task 2:
  Which of the 28 core indicators do you think are especially important? Should any more be added?
- Task 3:
  How can LME projects support each other in using common indicators? What other organisations can they form partnerships with?

RESULTS

Which indicators are you already reporting on (fully or in part)? What information sources do you use?

		ISLME	ATSEA	YSLME	Pacific SIDS	SCS/GoT
1) PRODUCTIVITY AND OCEANOGRAPHY						
3	Annual mean sea surface temperature and trends	✓	x	✓	x	✓
4	Chlorophyll a concentration and trends	✓	-	✓	x	✓
5	Primary production	✓	x	✓	x	✓

2) FISH AND FISHERIES						
8	Proportion of fish stocks within biologically sustainable levels	✓	✓	✓	✓	-
12	FAO stock status: % stocks overfished compared to MSY	✓	✓	-	✓	-
14	Marine trophic index	x	x	✓	x	-
3) POLLUTION AND ECOSYSTEM HEALTH						
20	Index of coastal eutrophication and floating plastic debris density	✓	-	✓	x	-
21	Concentrations of key nutrients (DIN, TP, etc)	✓	-	✓	x	x
22	Locations and frequency of algal blooms reported	✓	x	✓	x	-
23	Quantification and classification of beach litter items	-	✓	✓	x	x
27	Trends for selected priority chemicals including POPs and heavy metals	✓	-	x	x	-
31	Occurrence, origin and extent of acute pollution events/oil spills from ships	✓	-	x	x	x
33	Coverage of protected areas in relation to marine areas	✓	✓	x	-	✓
35	Change in extent of mangrove habitat	✓	✓	✓	-	-
4) SOCIOECONOMICS						
48	% GDP on Fisheries	-	-	-	✓	-
49	% GDP on International tourism	-	-		x	-
50	Urban and Rural Population living within 10m coastal elevation			-		
53	*OR* % of population living in Coastal Areas	✓	x	-	✓	-
51	Human Development Index	✓	✓	x	✓	x
52	Deaths per 100,000 caused by climate related natural disasters	-	x	x	-	x
5) GOVERNANCE						

78	No. of % of countries with National Monitoring programmes to assess the state of the marine environment and its coastal areas and compliance with domestic standards on releases and/or quality of the marine environment; No. of assessment publications made publicly available	-	✓	✓	-	-
79	Degree of integrated water resources management implementation (0-100)	x	-	-	-	x
85	Number of fisheries that meet national or international third-party certification that incorporates biodiversity considerations	-	✓	-	-	✓
87	% Land-based sources- National Action Plans ratified / operational	-	-	-	-	x
102	National ICZM guidelines and enabling legislation adopted	-	-	-	x	-

Which of the 28 core indicators do you think are especially important? Should any more be added?

The top indicators identified by the LMEs include #33 – Coverage of protected areas in relation to marine areas, #8 – Proportion of fish stocks within biologically sustainable levels, #85 Number of fisheries that meet national or international third-party certification that incorporates biodiversity considerations, and #102 – National ICZM guidelines and enabling legislation adopted. *Please see Annex 3 for the worksheets*.

How can LME projects support each other in using common indicators? What other organisations can they form partnerships with?

The third question gave way for open discussion that highlighted the following points;

- It was agreed that there is a need to standardize the indicators, and provide the minimum requirement on data management to enable making comparison across

the LMEs. This will also make linking up with other networks and regional organizations easier.

- Some indicators are not clear, such as #20 - index of nutrients and plastic debris. Since they are measured differently, there must be separated indicator for nutrients and another indicator for plastic debris, instead of having an index. It was not clarified how to come up with an index for these two indicators.
- On indicator #102 - National ICZM guidelines and enabling legislation adopted, the effectiveness of coastal management does not get measured only through ICZM guidelines as it involves human activities, coordination mechanisms, etc. which are not being measured exactly by this indicator.
- It was suggested that going beyond the indicators by looking at the project's targets/objectives can tell something about the value of project management. Mere environmental indicators may not always serve as indicator of success of an LME project. Results-based management can be used to frame the indicators and put them in wider context such as outcome indicators that are relevant to determine their effectiveness.
- It was noted that the core indicators are useful in choosing a toolbox of relevant indicators to each LME project, and through coordination and sharing of data and information between and across LMEs.

Best Practices and Tools for LME Data and Information Management

Regional Tools

Maricor Ebarvia, Project Manager from PEMSEA, discussed the State of the Coasts (SOC) Report, which is an indicator-based reporting mechanism that assesses the progress and impacts of the implementation of integrated coastal management in the East Asian Seas Region. She enumerated some of the indicators and pointers for analysis used in the SOC, and discussed the ocean economy of the EAS region to provide context on the relevant activities and industries that are considered in the indicators.

Ms. Ebarvia- Bautista also presented the Integrated Information Management System (IIMS), which is a decision-support system (DSS) providing vital information to managers/ decision-makers through a database program, which helps facilitate coastal and river basin management. Data categories used, unique features, and requirements of IIMS were explained and a sample river basin IIMS webpage was shown.

Somboon Siriraksophon presented the Fishery Statistical Bulletin of Southeast Asia, which aims to 1) provide reliable and comparable fisheries statistics; 2) facilitate the exchange; 3) support in the development of regional/ sub-regional fisheries policies and in the formulation of regional management programs and actions; and 4) respond to the global and regional policies and initiatives requirements. He explained the components and coverage areas of the fishery statistics, including the annual series of fishery production, fishery production by sub-sector, marine capture, inland capture, aquaculture, price of fresh fish, and the number of fishers by working status. Mr. Siriraksophon also

showed sample databases like the Regional Fishing Vessels Record and the SEAFDEC Elasmobranch Database, as well as the website used to increase the visibility of SEAFDEC publications, known as the SEAFDEC Institutional Repository.

Parinatra Candrarka Nugraha from the Center for Sustainable Development, Udayana University introduced the websites that the university use to make data and information available to its partners and stakeholders. These include websites of Sea Knowledge Bank, International Ocean Institute Alumni, and Udayana University. He also highlighted some of the activities that the center conducts such as monitoring environmental quality, mangrove monitoring and plantation and coral reef plantation.

Janet Rosalie Anne Polita, Communication and Information Manager from Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security (CTI-CFF), presented the Regional Plan of Action goals, targets and indicators, which primarily aims to focus and align regional collaboration in support of development outcomes that will be considered beneficiary by the country leadership. She also introduced the website Coral Triangle Atlas 2.0, which is the platform used to share data, and create a growing, updated database for better marine resource management decisions and science.

Andrew Hunt demonstrated the features of Pacificdata.org, an interactive website which consolidates and visualizes data and information, and features tools and portals in the Pacific Region on topics including fisheries, environment, climate change, economic development and geoscience. He also showed Globalfishingwatch.org, an online map that allows public to track commercial fishing vessels at sea in near real time.

Global Tools

Isabelle Vanderbeck, Task Team Leader of GEF IW from the United Nations Environment Programme, presented a guidance document, an online tool, and case studies compendium and input to the GEF IW:LEARN tool box related to the indicators for improved water resources management. She introduced the Water Indicator Builder, which is an online tool that allows users to 1) view existing default indicator framework and other indicator metadata sheets; 2) customize default framework; 3) create completely new indicator framework; and 4) expand indicator library and add new indicators to the system.

Khristine Custodio Gudzcinski gave an overview on the concepts of Open Data/Source/Framework, Interoperability and ‘upload once, use many times’ as key considerations in DIM planning, and demonstrated GEF IW:LEARN tools, which include iwlearn.net, Website Toolkit, Geonode, LME Hub and LME Scorecard, as well as GRID-Geneva’s StoryMaps/MapX.

VIII. SUMMARY OF DAY 3, 5 DECEMBER

Conclusions and next steps

Louise Lieberknecht, GRID-Arendal presented a summary of the sessions and important points raised in the discussions. Ms. Lieberknecht concluded that the DIM guidelines were well received, and participants were able to identify priorities from the set of guidelines and indicators presented. The guidelines should also take into consideration the differences in policies of implementing and executing agencies.

Discussions about the tools revealed the need to improve/ streamline access points to LME information on IW: LEARN website. “Start here” button for example, is suggested to include the overview of resources on IW: LEARN Website.

Planning for open data agreements, long term maintenance of websites/ data portals, and the use of IW:LEARN bibliography and repository at the start of the project were suggested to ensure the sustainability of the project data, information and outputs, websites even after the projects end. Incentives could be considered to make sure that people/ organizations take account of the sustainability of data portals.

Discussions also concluded that duplications need to be avoided. Indicators proved useful to the guidelines, as they add richness and context to the guidelines. The delivery of DIM documents, usually presented through text-heavy and long formats, could also be improved through the use of other media platforms such as leaflets, checklists, story maps, videos, and activities like training events.

Identifying institutional/ organization map or database of key institutions and stakeholders (e.g. data providers, government bodies, NGOs and industry, and legislation or policymakers in the national, regional and global scale) could also improve data and information management of projects.

To reflect on the discussions and presentations of the workshop, a groupwork session was conducted, wherein participants talked about following questions:

- Of all the tools and ideas shared, what three things are you putting in your suitcase for your journey back and why?
- What next steps will you take?
- What questions are still not addressed?
- Any other comments for IW:Learn?

Please see Annex 3 for the actual worksheets.

The group session revealed that the participants gained a better understanding of the need to setup a DIM plan and coordinated data and information sharing within the project and within the regional organizations they work with, as well as to plan sustainability for

project data and information. They also became more aware on the DIM tools, best practices available within IW:LEARN and regional and global organizations.

In summary, the way forward includes next steps such as follows:

- The LMEs are doing something related to what each other is doing, pointing to a need for a regional portal which LMEs in the region can utilize as a common platform. It was agreed that this should be with a regional organization in the region, such as PEMSEA. There was also suggested to setup thematic COPs, e.g., MSP, MPA, etc. as well as an LME-learning mechanism, e.g., SCS-Learn, YS-Learn. This proposed initiative will be further discussed with IW:LEARN.
- Ensuring sustainability especially after projects end requires intentional planning, considering sustainability plans from the start. Issues such as open data agreements, long-term maintenance of websites and data portals, and bibliography and repository functions of IW:LEARN website should be utilized.
- The DIM guidance documents should be updated to improve delivery. Formats of reports/documents are long and heavy and can be improved by using brief leaflets, checklists, story maps, videos, etc.
- Access points to LME information and services from the IW:LEARN website, such as LME webpages, should be streamlined for easier access and navigation of available online resources, e.g., make a clear distinction between *LME Hub* and the *Marine Hub*, top-level domain name iwlearn.**net** vs. email pcu@iwlearn.**org** for example.
- Projects were requested to check their respective LME profile and project-related information in iwlearn.net. Updating can be done directly by LME project staff or by sending new information to IW:LEARN.
- IW:LEARN will provide guidelines for updating and basic systematic sharing of project info (e.g., thru RSS feeds) and contact projects individually as necessary.
- IW:LEARN should be easily contacted when assistance is needed on accessing and using the tools.
- IW:LEARN should streamline the LME webpages, RSS feed, and tools, and make them easier to navigate.

The workshop was rounded off with a tour de table feedback from everyone present, reflecting on the usefulness of the meeting towards strengthened data and information management of their LME projects and improved implementation.

Closing remarks

Isabelle Vanderbeck, UNEP, gave closing remarks by thanking all the participants, resource people and RC3S for the successful conduct of the workshop.

Heru Waluyo, Indonesia, closed the workshop by thanking everyone and wished them a safe journey back home.

Annex 1

Final Agenda

Tuesday 3 December 2019	
WELCOME AND INTRODUCTIONS	
Workshop Chair: *Johanna Diwa-Acallar, Capacity Development Manager, PEMSEA*	
08:30 – 09:00	**Opening Remarks** *Dida Migfar Ridha, Director, Marine and Coastal Pollution and Degradation Control, Ministry of Environment and Forestry* *Aimee Gonzales, Executive Director, PEMSEA* **Overview of Workshop Objectives, Introduction and Expectations of Participants** *Johanna Diwa-Acallar, Capacity Development Manager, PEMSEA*
09:30 – 1:30	**Setting the Scene:** **LME:LEARN Data and Information Management Overview** Brief summary, outputs and major recommendations from the "Data and Information Meeting and Training Workshop" held in Paris, France in July 2019, to set the context of the agenda for the Regional Workshop *Khristine Custodio Gudczinski, GEF IW:LEARN*
10:30 – 11:00	**Group Photo and Coffee Break**

SESSION 1. LME Data and Information Management	
11:00 – 12:00	**LMEs experiences, successes and challenges regarding data and information management** **Presentations by GEF IW funded LME projects** summarizing related experiences, successes and challenges in data and information management and reporting on indicators within their LME. Each presentation is 10 minutes long. ● Indonesian Sea ● South China Sea LME SAP Implementation and Fisheries Refugia ● Arafura and Timor Seas SAP Implementation
12:00 – 13:00	**Lunch**
13:00 – 14:00	LMEs experiences, successes and challenges regarding data and information management (cont'd) ● Yellow SEA LME SAP Implementation ● Implementation of Global and Regional Oceanic Fisheries Conventions and Related Instruments in the Pacific Small Island Developing States (SIDS) Question and Answer Session for all presentations
14:00 – 14:30	**LME:LEARN Data and Information Management Plan** Summary presentation of the report "Data and Information Management Guidelines for GEF LME Projects" including good practices and tools and future implementation. *Khristine Custodio Gudczinski, GEF IW:LEARN*
14:30 – 15:00	**Coffee Break**

15:00 – 17:00	**WORKING SESSION** For the review and discussion on current status of implementation of the guideline's recommendation, gaps, needs and future actions to ensure greater coordination **Output:** Agreement by the LME project on what they can or will do to implement the recommendations
18:30	**Welcome Dinner** Baruna Beach Restaurant, Grand Inna Bali Hotel (Beach Front)
Wednesday 4 December 2019	
SESSION 2. LME:LEARN, IW:LEARN and Partners Training on DIM	
09:00 – 10:30	**Identifying Common Indicators for comparison of progress in implementation of SAPs between LMEs** Summary presentation on the report "Identifying Common LME Indicators- Towards common reporting and comparability between LMEs". *Louise Leiberknecht, GRID-Arendal* **WORKING SESSION:** To review the proposed indicators, identify those currently incorporated with the LME reporting, identify key gaps and actions to ensure a more coordinated set of indicators reported across the region in line with the SDGs and other global reporting commitments. **Output:** Agreement by the LME project on core indicators to be incorporated into LME reporting, along with steps to ensure greater coordination and sharing of data and information on indicators between LMEs.

10:30	**Working Break**
10: 30 - 12:00	**Identifying Common Indicators for comparison of progress in implementation of SAPs between LMEs (cont'd)**
12:00 – 13:00	**Lunch**
13:00 – 15:00	**Best Practices and Tools for LME Data and Information Management** **Global Tools** ● StoryMaps, GRID-Geneva ● GEF IW:LEARN Tools (iwlearn.net, Website Toolkit, Geonode, LME Hub and LME Scorecard) – *Khristine Custodio Gudczinski, GEF IW:LEARN* **Regional Tools** ● State of the Coasts (SOC) Reporting System – *Maricor Ebarvia* ● Integrated Information Management System (IIMS) - *Maricor Ebarvia* ● Fishery Statistic in Southeast Asia, and the SEAFDEC Repository – *Somboon Siriraksophon* ● Udayana University, PEMSEA Learning Center DIM Practices ● Coral Triangle Initiative DIM Tools – *Janet Polita*
15:00 – 15:30	**Coffee Break**
15:30 – 17:00	**Best Practices and Tools for LME Data and Information Management (cont'd)** **Discussion** To include discussion on the tools that each LME project is currently utilizing; identification of future needs in terms of data and information management tools and future support and cooperation

Thursday 5 December 2019	
SESSION 3. LME Data and Information Management	
09:00 – 10:30	**Ways forward towards strengthening data and information sharing** **Discussion** Summary of the workshop, specifically focusing on the outputs of each session. This will be followed by group reflections using the flip charts provided.
10:30 – 10:50	**Coffee Break**
10:50 – 12:00	**Reflections** **Participant Reflections** Each participant will be asked to provide a short reflection on what they have learned and how they have benefited from the workshop **Closing Remarks**
12:00	**Lunch**

Annex 2
List of Participants

No.	Name	Email Address	Position Country/Organization
1	Muralidharan Chavakat Manghat	muralidharan.chavakatmanghat@fao.org	Project Manager FAO Indonesia
2	Somboon Siriraksophon	_somboon@seafdec.org; ssiriraksophon63@gmail.com	Director Southeast Asia Fisheries Development Centre (SEAFDEC) Thailand
3	Yinfeng Guo	yinfengg@unops.org	Project Manager UNOPS RO Korea
4	Andrew Hunt	andrewh@spc.int	Data Management Specialist Pacific Island Forum Fisheries Agency Fiji
7	Dwi Ariyoga Gautama	dwi.gautama@undp.org	Project Coordinator UNDP Indonesia
8	Isabelle Vanderbeck	isabelle.vanderbeck@un.org	Task Team Leader GEF IW

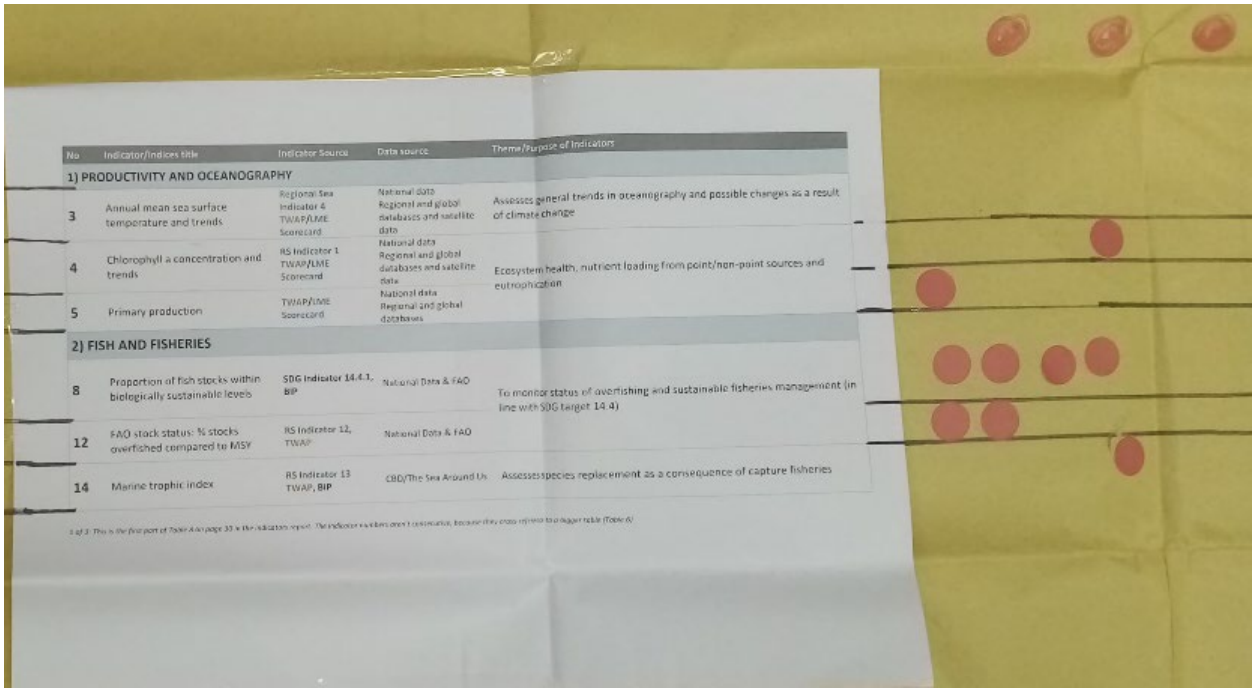
			UN Environment USA
9	Khristine Custodio Gudczinski	khristine@iwlearn.org	Content Manager UNDP Germany
10	Louise Lieberknecht	louise.lieberknecht@grida.no	Marine Spatial Planning Expert GRID-Arendal Norway
11	Jobnico Subagyo	jobnicos@gmail.com	Udayana University Indonesia
12	Parinatra Candrarka Nugraha	prikanugraha@gmail.com	Udayana University Indonesia
13	Heru Waluyo	heruw.koes@gmail.com	Expert for Directorate of Coastal and Marine Pollution and Degradation Control and Regional Capacity Center for Clean Seas, Ministry of Environment and Forestry, Indonesia
14	Maricor Ebarvia-Bautista	mebarvia.bautista@gmail.com	Consultant PEMSEA Philippines
15	Janet Polita	jpolita@cticff.org	Communication and Information Manager

			CTI CFF Indonesia
16	Johanna Diwa	jdiwa@pemsea.org	Capacity Development Manager PEMSEA Philippines
17	Almary Joyce Paigao	jpaigao@pemsea.org	Communications Assistant PEMSEA Philippines
18	Listy Sulistyowati	listy_78@yahoo.com	Regional Capacity Center for Clean Seas
19	Puan Andam Suri	puanandam23@gmail.com	Regional Capacity Center for Clean Seas
20	Tedi Bagus	tediprslyo@gmail.com	PPUPL, Indonesia
21	Rey Molina	molinarf@gmail.com	UNEP/ COBSEA

Annex 3
Group Worksheets

Day 1. DIM Guidelines

Day 2. Identifying Common LME Indicators



No	Indicator/Indices title	Indicator Source	Data source	Theme/Purpose of Indicators
1) PRODUCTIVITY AND OCEANOGRAPHY				
3	Annual mean sea surface temperature and trends	Regional Sea Indicator 4 TWAP/LME Scorecard	National data Regional and global databases and satellite data	Assesses general trends in oceanography and possible changes as a result of climate change
4	Chlorophyll a concentration and trends	RS Indicator 1 TWAP/LME Scorecard	National data Regional and global databases and satellite data	Ecosystem health, nutrient loading from point/non-point sources and eutrophication
5	Primary production	TWAP/LME Scorecard	National data Regional and global databases	
2) FISH AND FISHERIES				
8	Proportion of fish stocks within biologically sustainable levels	SDG Indicator 14.4.1, BIP	National Data & FAO	To monitor status of overfishing and sustainable fisheries management (in line with SDG target 14.4)
12	FAO stock status: % stocks overfished compared to MSY	RS Indicator 12, TWAP	National Data & FAO	
14	Marine trophic index	RS Indicator 13 TWAP, BIP	CBD/The Sea Around Us	Assessesspecies replacement as a consequence of capture fisheries

No	Indicator/Indices title	Indicator Source	Data source	Theme/Purpose of Indicators
3) POLLUTION AND ECOSYSTEM HEALTH				
20	Index of coastal eutrophication and floating plastic debris density	SDG Indicator 14.1.1	National Data/ UNEP[1]	Assesses status and trends in marine pollution from land-based sources (in line with SDG target 14.1)
21	Concentrations of key nutrients (DIN, TP, etc)	UMEs, TWAP	National Data (if available) Regional and global databases	Assesses status and trends of nutrient pollution (in line with SDG target 14.1)
22	areas Locations and frequency of algal blooms reported	RS Indicator 9	National reporting	Assesses status and trends in algal blooms caused by nutrient pollution (in line with SDG target 14.1)
23	Quantification and classification of beach litter items	RS Indicator 3	National and Regional Databases	Assesses status and trends in marine debris (in line with SDG target 14.1)
27	Trends for selected priority chemicals including POPs and heavy metals	RS Indicator 2 TWAP	National Data (if available) Regional and global databases	Assesses status and trends of pollution from land-based sources (in line with SDG target 14.1)
31	Occurrence, origin and extent of acute pollution events/oil spills from ships	UMEs	National Data	Assesses status and trends in accidents, pollution from ships and oil spills
33	Coverage of protected areas in relation to marine areas	SDG indicator 14.5.1 RS Indicator 21 GEF 7 Core indicator	National Data UNEP WCMC	Assesses achievement towards SDG target 14.5, and overall ecosystem health[2]
35	Change in extent of mangrove habitat	TWAP	UNEP WCMC	Assesses status and trends in key habitats (in line with SDG target 14.2)

2 of 3. This is the second part of Table 8 on page 20 in the indicators report. The indicator numbers aren't consecutive, because they cross-reference one another (Table 6)

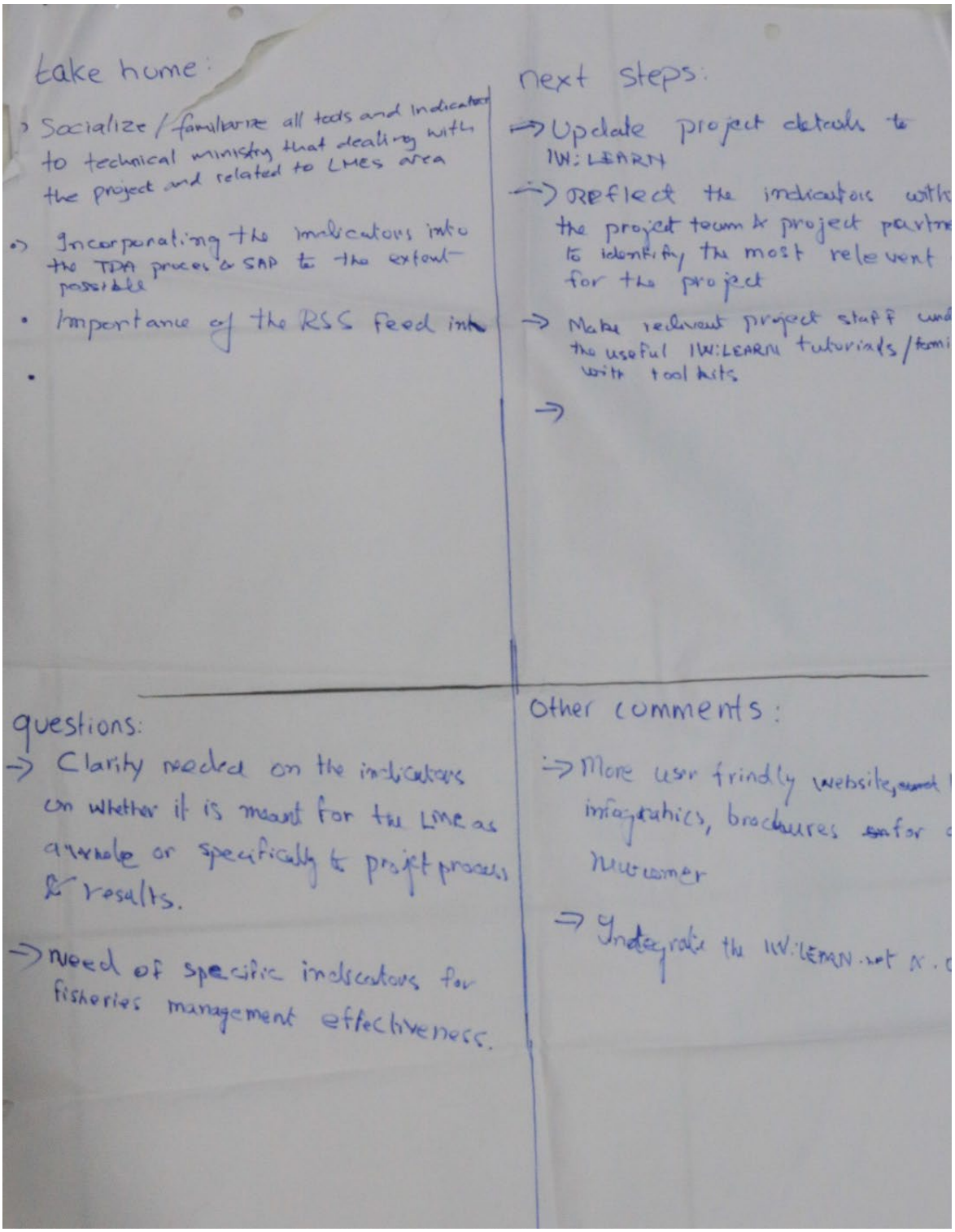
[1] Methodology for SDG indicator 14.1.1 still under finalization and data to be reported and available from 2020
[2] Further information on the effectiveness and management of MPAs is also recommended

4) SOCIOECONOMICS				
48	% GDP to Fisheries	TWAP/LME Scorecard	FAO and national databases	Assesses extent to which national economy is dependent on fisheries (in line with SDG target 14.4)
49	% GDP on International tourism[3]	TWAP/LME Scorecard	World Bank WDI	Assesses extent to which national economy is dependent on tourism (in line with SDG target 8.9)
50	Urban and Rural Population living within 10m coastal elevation OR	TWAP/LME Scorecard	SEDAC (Columbia University)/World Bank	Assesses the population pressure in coastal areas that may result in increased pressure on national resources and habitats and increased pollution (in line with SDG target 14.2)
53	% of population living in Coastal Areas	LME	National data	
51	Human Development Index	TWAP/LME Scorecard	UNDP Human Development Index	Assesses status and trends in human development (health, education and income)
52	Deaths per 100,000 caused by climate related natural disasters	TWAP/LME Scorecard SDG indicator 13.1.1	Our World in Data UNSD, UNEP	Assesses impacts of climate related natural disasters (in line with SDG target 13.1
5) GOVERNANCE				
78	Number of % of countries with National Monitoring programmes to assess the state of the marine environment and its coastal areas and compliance with domestic standards on releases and/or quality of the marine environment; Number of assessment publications made publicly available	LME	National and LME reporting	Assesses the status of national monitoring programs and available data to effectively report on the marine and costal environment (in line with SDG target 17.18)
79	Degree of integrated water resources management implementation (0-100)	SDG indicator 6.5.1	National Data UNEP	Assesses the implementation of integrated water resource management to ensure availability and sustainable management of water resources and sanitation (in line with SDG target 6.5)
85	Number of fisheries that meet national or international third-party certification that incorporates biodiversity considerations	GEF 7 Core Indicator	LME reporting	Captures the number of fisheries that are managed to benefit biodiversity, and which are certified through a third-party
87	% Land-based sources- National Action Plans ratified / operational	RS Indicator 16	LME reporting	Assesses the extent to which countries have committed and adopted national action plans for the reduction of pollution from land-based sources (in line with SDG target 14.1)
102	National ICZM guidelines and enabling legislation adopted	RS Indicator 22	National and LME reporting	Assesses the extent to which countries have committed and adopted national plans for the effective management of coastal zone (in line with SDG target 14.2)

4 of 3. This is the third part of Table 8 on page 20 in the indicators report. The indicator numbers aren't consecutive, because they cross-reference to a paper table (Table 6)

[3] To be used with SDG 8.9.1 Tourism direct GDP as a proportion of total GDP and growth rate, where data available

Day 3. Conclusions and next steps



take home:

- Indicators for LME use
- Exchange of information, tools for Database management
- Website user-interface
- ~~Coordi~~ | example of some websites ~~have~~ good is user friendly

next steps:

- Encourage Central & local government to put attention LME
- WORKSHOP ON INDICATORS
- Identification of → regional hub central repository for LME at regional level
- valuation of Ecosystem services in the LMEs and more socio-economic indicators

questions:

1. Any best practices of LME management
2. Any blue economy initiatives in LMEs
3. Any proposed incentives for community-based initiatives
4. Any innovative financing mechanisms for LMEs for sustainability of projects and database/info system

other comments:

- IW:LEARN / LME Websites — more user-friendly
- updated data on LME indicators + other related information useful for project implementation
- more simple + useful indicators

take home:

CONTINUOUS NEED FOR
- Coordination of projects

- importance of sustainability through integration of the DIM plan into closer/ Project exit strategy w/ IW:LEARN support.

- Integration of IW-Learn tools such as DIM into Existing Reg. Organization eg. SEAFDEC, PEMSEA etc.

next steps:

- update all project outputs on Project website/RSS...

- Create the communication (incl. IMS) platform for the Region including Regional learn. (SCS + LEARN) (*1)
  - + YS
  - + COBSEA
  - + NOWPAP
  - + PEMSEA
  - + GOT
  - + BOBLME
  - + ISLME
  - + ATSA 2
  - + ASEAN ?? ....
  - + East Asia Sea.
  - + IOC WESTPAC

COORDINATION mex for the region

questions:

- $$$ from where for (*1)

- IC cards/credit card/RS/APP Satellite/

Other comments:

- IW:Learn needs to do surveys to understand projects-regional bodies needs & understand where they are to be able to provide additional incremental services tailored to the specific needs

  e.g. Theme based COPs
  - MSP
  - MPAs - Fish Refugia
  - IUU
  - ICZM

  Remote Sensing tech. (Drones)