Regional Training and Research Centre for Marine Biodiversity and Ecosystem Health (RTRC MarBEST)

1. Introduction and justification

The Indonesian Institute of Science (LIPI) through the Research Center for Oceanography (RCO) endorsed a proposal to establish the Regional Training and Research Centre (RTRC) for Marine Biodiversity and Ecosystem Health (RTRC MarBEST) to IOC UNESCO in 2015. The proposal was officially ratified through the WESTPAC Advisory Group Meeting held in Yogyakarta (Indonesia) on 13-15 January 2016.

RCO-LIPI (now RCO-BRIN) has had a long history of doing research in marine and coastal ecosystems throughout the Indonesian archipelago for more than one century. In 1998, the center established a long-term program to monitor the health of marine ecosystems, especially coral reefs. The program is well known as Coral Reef Rehabilitation and Management Program (COREMAP which will be fully completed in July 2022). Within the COREMAP, RCO-LIPI developed methods for monitoring the health of coral reefs and related ecosystems. These methods and all research experiences are very important for implementing in Indonesia and the region, especially in the coral triangle region, in terms of sustaining the marine and coastal ecosystem. Therefore, the RTRC MarBEST would be very useful for young marine scientists and lecturers to enhance their capacity for doing research and monitoring in marine and coastal areas.

RTRC MarBEST was officially inaugurated and determined by the Head of LIPI, Prof. Dr. Iskandar Zulkarnain on October 17, 2016, and focuses on regional human resource capacity building through training, research collaboration and scientist exchange.

2. Timeframe and objectives

RTRC MarBEST will be continued and designed for the next 4 years (2023-2026). It remains focused on strengthening the capacities and capabilities of early career professionals including scientists, lecturers and policy makers who related to marine science disciplines. However, perhaps the format of implementation of activities managed by RTRC MarBEST will involve several other institutions and universities.

The main objectives of the RTRC MarBEST for the 2023-2026 period still following the objectives of the previous period (2016-2022), which covering aspects of human resources, research methodology, infrastructure and cooperation schemes. Furthermore, the additional objective is to make RTRC MarBEST a hub for various research and training information from Indonesia for the region and the world.

1. To develop and strengthen the capacity and capability of human resources, especially young researchers and lecturers from member countries in the Indo-West Pacific region through training related to marine biodiversity and ecosystems.
2. To establish and develop a common platform for methodologies in marine ecosystems research, and monitoring the ecosystem health, especially coastal ecosystems such as coral reefs, seagrasses and mangroves.
3. To promote scientific collaboration among experts in this region and beyond, for long-term monitoring of the health of marine ecosystems.
4. To facilitate the transfer of knowledge and technology related to marine biodiversity, assessments of the ecosystem, the ecosystem health status and trends for policy implementation.
5. To become a hub for various marine and fisheries training and research in the region, and continue to support marine scientists in research and training activities, obtain adequate funding and research facilities.

3. Major activities, outputs & outcomes over the last intersessional period (May 2021-April 2023)

In 2021-2022, major activities were conducted concerning the protocol of COVID-19 pandemic. Three trainings were taken for the last 2 years (one was online and two were on-side). Summary of these three activities as follow;

No.	Activities	Outputs/Outcomes	Note
1.	Training on Mangrove Health Index, 29 Oct - 6 Nov 2021	- 35 participants from 12 countries (Bahrain, Bangladesh, Nigeria, Pakistan, Malaysia, Ghana, Sri Lanka, Bahama, Jamaica, Suriname, Antigua & Barbuda, and Indonesia); - Instructors from 5 countries (England, Japan, the Philippines, New Zealand and Indonesia) - Using the model of distance learning (asynchronous and synchronous) with all teaching material could be accessed through the learning management system of LIPI. - Curriculum consisted of Conceptual of Mangrove Community Structure Monitoring, Identification for study area, Field survey and data collection, Data analysis and interpretation. And Mangrove Health Index (MHI) Analysis and Interpolation.	The entire learning process was virtual.
2.	Training on Fish Taxonomy: Bali, 9-19 June 2022	- 20 participants from 3 countries (Malaysia, Vietnam and Indonesia) - 15 instructors from Indonesia with 5 disciplines (Fish taxonomy, marine biotechnology, ichthyoplankton, marine biology, coral reef fish) - Training included lecture, field study, lab works, and result presentations	2 participants from Bangladesh canceled due to restricted overseas travel procedure;
3.	Training for Mangrove Health Index: Suva (Fiji), 26-30 Sep 2022	- 18 participants from Fiji - 3 instructors from Indonesia - Introduction for using the application MonMang 2.0 to assess the condition of the mangrove ecosystem.	Archipelago and Island States Forum, UNDP, Government of Fiji supported the activity.

4. A summary of key achievements since its establishment

The RTRC MarBEST training has benefited young researchers and practitioners in the field of marine and coastal areas. Some of them have been able to conduct research and publish these results in various scientific journals and proceedings.

Besides that, collaboration has indirectly been developed between training participants from foreign countries, and it will be very useful for the development of marine science in Indonesia and the region.

Several RTRC MarBEST trainings have attracted other parties to get involved such as the Indonesian Ministry of Foreign Affairs, the Archipelago and Island State Forum, UNDP and the Coordinating Ministry for Maritime Affairs and Investment, Republic of Indonesia.

5. Self-assessment on implementation against objectives

In general, RTRC MarBEST has been able to make a significantl contribution to increasing the human resource capacity of young researchers and lecturers in the West Pacific region, even globally.

The development of the MonMang 2.0 application and measurement of carbon stocks in seagrass have shown that the activities managed by RTRC MarBEST could be able to strengthen research methodology.

Strengthening research collaboration has occurred naturally through all training managed by RTRC MarBEST.

6. Problems encountered and recommended actions

Due to restructure of research organization in Indonesia, and also COVID-19 pandemic, RTRC MarBEST needs to be reformed and adapted to the new business process of the new organization of National Research and Innovation Agency (BRIN), the Republic of Indonesia. This process also effects on an extension the Memorandum of Understanding for RTRC MarBEST between IOC UNESCO and Indonesia government. However, several training and research on marine and coastal ecosystems for 2023-2025 have remained to design and organize through RTRC MarBEST.

7. Objectives to be achieved, if applicable, over the next intersessional period (May 2023-April 2025)

We will continue to maintain the goals of the previous RTRC MarBEST, and will strive to make RTRC MarBEST as a platform for various training and research activities related to marine and coastal ecosystems in Indonesia and the West Pacific region.

8. Planned activities for May 2023- April 2025

A number of training programs in 2023 - 2025 are still tentative, because we want to encourage other institutions in Indonesia to become partners in conducting training and research. At least 3 training activities have been registered for 2023-2024, while for 2025 it will be announced later. These 3 activities such as

1. Summer course on tropical mangrove ecosystem; vegetation and fish monitoring (Jun 2023)
2. Fish taxonomy in coastal ecosystems (Nov-Dec 2023)
3. Coastal and small island management (2024)

[provide, in tabular form, the action items that should be included in the work plan and budget]

Program					***Funding Required***		***Remark***
	Activities	***Objectives***	***Expected outputs/outcomes***	***Date and place***	***IOC***	***Other sources (i.e., from national or international)***	
	1. Summer Course on tropical Mangrove Ecosystem: Vegetation and fish Monitoring	1. To enhance capacity building for monitoring mangrove ecosystems; 2. To introduce the latest methods (e.g. app MonMang 2.0) for mangrove monitoring 3. To strengthen networking in mangrove monitoring	Increased number of researchers and lecturers for mangrove monitoring and using application of MonMang 2.0, and establishment of networking for mangrove monitoring	June 2023	10K	30K	Udayana Univ.
	2. Fish taxonomy in coastal ecosystems	1. To attract young scientist and lecturers to study fish taxonomy 2. To enhance capacity of fish taxonomist using various fish identification techniques 3. To build collaborative research among fish taxonomists	Increased number of fish taxonomists, and strengthening the collaborative works between fish taxonomists	Nov-Dec 2023	10K	15K	Pattimura Univ. + JSPS
	3. Coastal and small island management	1. To develop capacity building; 2. To enhance partnerships 3. To strengthen collaborative works among stakeholders	Increased number of stakeholders in understanding coastal and small island management, and establishment the	2024	10K	50K	IPB Univ.

Program	Activities	Objectives	Expected outputs/outcomes	Date and place	Funding Required		Remark
					IOC	Other sources (i.e., from national or international)	
			networking on the related activities in the coastal and small island ecosystems				