Draft workplan and budget of CEARAC Activities for the 2022-2023 biennium

1. Background

In the 2020-2021 biennium, CEARAC has implemented specific projects on assessment of eutrophication, mapping of habitats for marine biodiversity conservation by using remote sensing techniques, and on capacity building which are main working areas of CEARAC in recent years.

They are relevant to mandatory tasks of CEARAC and in line with priority areas in the NOWPAP Medium-term Strategy (MTS) 2018-2023. Then, in the coming 2022-2023 biennium, it is expected that CEARAC will continue implementing activities shown in the NOWPAP MTS to contribute to NOWPAP. In addition, the Regional Action Plan for Marine and Coastal Biodiversity Conservation (RAP BIO) has been under development, and it is expected that CEARAC will propose relevant activities for 2022-2023.

2. Proposal for CEARAC activities for the 2022-2023 biennium

A draft workplan of CEARAC activities for the 2022-2023 biennium is shown in Table 1.

Table 1 Draft Workplan of CEARAC activities for the 2022-2023 biennium.

Activity
<Specific Projects>
➢ Implementation of pilot studies at significant tidal flats in the NOWPAP region
➢ Organization of the first e-DNA training course
➢ Update of Cochlodinium website
➢ Construction of a seagrass blue carbon network in the NOWPAP region
➢ Development of a cloud-based bio-optical database for satellite water quality monitoring in NOWPAP coastal waters
➢ Development of remote sensing data analysis training programs and organization of training courses
<Routine Work>
➢ Organization of meetings and cooperation and coordination with other RACs and NOWPAP Partners
➢ Maintenance of websites
<Other Intersessional Work>
➢ Marine Litter activity (Collecting information on actions and best practices on plastic litter in the NOWPAP region)

< Specific Projects >

2.1. Implementation of pilot studies at significant tidal flats in the NOWPAP region

The assessment of the distribution of tidal flats and salt marshes in the NOWPAP region, which was implemented in the 2020-2021 biennium, helped understanding geographical distribution of these important habitats and their historical changes in the NOWPAP region. Based on the output of this work, CEARAC plans to select some tidal flats which are significant for the Ramsar Convention and the Conventions and Agreement for Protection of Migratory Birds. The planned pilot studies focus on collecting information of the tidal flats, such as use of protected migratory birds, management of tidal flats and/or anthropogenic impact on tidal flats by neighboring areas. The collected information will be added into the tidal flats map in the NOWPAP region, which is under construction in the 2020-2021 project.

2.2 Organization of the first e-DNA training course

Due to COVID-19 pandemic, it is still uncertain to organize the first training course on environmental-DNA (e-DNA) analysis in the 2020-2021 biennium. The training course includes practical hands-on sessions, so, it is preferable to organize it in a conventional face-to-face style with lecturers and trainees gathering in person. Therefore, the CEARAC Secretariat proposes to postpone the training course to the 2022-2023 biennium, when it is expected that restrictions for international traveling will be lifted. Environmental DNA is a very useful tool for biological monitoring, and all NOWPAP member states can enhance their use of this technique through the training course. The contents of the training course will be well-developed to suit to the need from the member states, and it is expected the skill and knowledge provided in the training course will be well applied to researches and studies on marine biodiversity conservation.

2.3 Update of Cochlodinium website

In the Regional Action Plan on Marine and Coastal Biodiversity Conservation of NOWPAP (RAP BIO) to be developed in 2021, one of the indicative activities is “identification and monitoring of plankton species relevant to aquaculture and fisheries.” In the past, CEARAC constructed the Cochlodinium website to share information on this causative species not only among the NOWPAP member states but also with other regions; however, the contents have not been updated in the past ten years. In addition, damages to aquaculture and fisheries by other species such as *Karenia minimotoi* have

been reported in recent years. Therefore, CEARAC plans to update the existing website as well as consider expansion of target species introduced in the website.

2.4 Construction of a seagrass blue carbon network in the NOWPAP region

As the next step of seagrass blue carbon study, CEARAC plans to establish the NOWPAP seagrass blue carbon network in the NOWPAP region which consists of (1) making a list of organizations/institutions and/or personnel to conduct mapping seagrass beds in the NOWPAP region, (2) establishing a system to support the organizations/institutions and/or personnel who conducts mapping seagrass beds, and (3) developing a workplan to support seagrass mapping and estimation of seagrass blue carbon in the NOWPAP region in coordination with Blue Carbon Initiative of the United Nations Environmental Programme (UNEP) and other international programmes.

2.5 Development of a cloud-based bio-optical database for satellite water quality monitoring in NOWPAP coastal waters

In 2020-2021, CEARAC developed a cloud-based online match-up tool between in-situ and satellite data as part of the refinement work of NOWPAP Eutrophication Assessment Tool (NEAT). Then, building from the above activity, CEARAC plans to develop a cloud-based database for validating satellite CHL in coastal waters of the NOWPAP region. The main task in this project will be collection of in-situ bio-optical data. The collected in-situ data will be used to build a bio-optical database to support the characterization of NOWPAP coastal waters, and to develop and improve satellite product algorithms, including those of CHL used in the NEAT activity.

2.6 Development of remote sensing data analysis training programs and organization of training courses

Considering the current COVID-19 situation, the planned 5th training course of remote sensing data analysis will likely to be held in a webinar style. In the future, the number of online events may increase, and CEARAC plans to prepare training programs including preparation of materials and textbooks for webinar style training courses. In case of receiving requests and/or external funding from relevant organizations/institutions including NOWPAP Partners, and taking the COVID-19 pandemic situation in the NOWPAP region into consideration, a conventional in-person training course may be organized.

<Routine Work>

2.7 Organization of meetings and cooperation and coordination with other RACs and NOWPAP Partners

CEARAC plans to organize FPMs annually. The 19th FPM will be held in 2022 and the meeting mainly review the implementation plans of the activities for the 2022-2023 biennium. Then, at the 20th FPM to be held in 2023, the meeting will be asked to review the progress of activities for the 2022-2023 biennium and to discuss potential CEARAC activities for the 2024-2025 biennium. If the 24th IGM decides to decrease the budget of RAC activities for the 2022-2023 biennium, one of two FPMs will be organized virtually.

CEARAC has made close contacts with their experts of respective projects such as marine biodiversity conservation, eutrophication assessment and seagrass mapping through e-mail correspondence and occasional online meetings. Then, an expert meeting is organized only when it is necessary for the CEARAC Secretariat and relevant experts to gather to discuss some issues, and in the past, an expert meeting was held almost once in every biennium. In the 2022-2023 biennium, CEARAC will well-consider the timing of an expert meeting, if necessary.

Besides, CEARAC will explore opportunities to promote cooperation and coordination with other RACs and NOWPAP Partner organizations for more effective and efficient implementation of activities and avoiding unnecessary duplication of projects.

2.8 Maintenance of websites related to CEARAC activities

CEARAC will continue updating the contents (data and information) of websites related to CEARAC activities regularly. If the member states agree to increase budget for RACs at the next IGM, CEARAC will enhance functionalities and contents in the following websites.

Table 2 Websites related to CEARAC activities

Fields	Websites
-	CEARAC Website
Remote sensing of marine environment	Marine Environmental Watch Project Homepage
	Marine Environmental Watch cloud GIS prototype
	Maps of potential eutrophic zones and seagrass distribution
	Mapseagrass Project
	Seagrass Mapper
	Seagrass Trainer
Harmful Algal Bloom	HAB Integrated Website

<Other intersessional Work>

2.9 Marine Litter activity (Collecting information on actions and best practices on plastic litter in the NOWPAP region)

In recent years, NOWPAP Marine Litter Focal Points Meeting was held annually to review the progress of RAC activities on marine litter and discuss potential activities for future biennia. In the 2020-2021 biennium, the main project on NOWPAP marine litter activities is revising the Regional Action Plan on Marine litter (RAP MALI), and it is projected the revised RAP MALI will highlight emerging issues such as marine plastic litter and marine microplastics.

CEARAC Secretariat developed a report on national actions on marine microplastics in the NOWPAP member states in 2018-2019 biennium. Then, in the 2022-2023 biennium, CEARAC plans to extend its scope of marine litter and collect information on actions and best practices on plastic litter by governments and private sectors in the NOWPAP member states. The proposal will be submitted to the RAP MALI FPM in September 2021 held virtually for consideration/adoption of the NOWPAP workplan on marine litter for the 2022-2023 biennium.

3. Budget for CEARAC activities for the 2022-2023 biennium

NOWPAP RCU requested all RACs to prepare three budget options for the 2022-2023 biennium. Option I is the same amount as the current 2020-2021 biennium one (Table 3-1), option II is an increased budget (Table 3-2) and option III is a decreased budget (Table 3-3). The difference of the following three budgets occurs by the different budgets for organization of meetings and maintenance of websites, and the budgets for respective specific projects are same.

Table 3-1 Workplan and budget for CEARAC activities for the 2022-2023 biennium Option I (US$ 185,000)

Activity	Budget (US$)	Time
<Specific projects> Implementation of pilot studies at significant tidal flats in the NOWPAP region	20,000	2022-2023
Organization of the first eDNA training course	25,000	2023
Update of Cochlodinium website	9,000	2022-2023
Construction of a seagrass blue carbon network in the NOWPAP region	27,000	2022-2023

Development of a cloud-based bio-optical database for satellite water quality monitoring in NOWPAP coastal waters	20,000	2022-2023
Development of remote sensing data analysis training programs and organization of training courses	20,000	2022-2023
<Routine work> Organization of meetings and cooperation/coordination	54,000	FPM19 - 2022 FPM20 - 2023
Maintenance of websites	10,000	2022-2023
TOTAL	**185,000**	
Marine Litter (collecting info. of actions on plastic litter)	9,250*	

*All activities and budget on marine litter implemented by all NOWPAP RACs and/or RCU for the 2022-2023 biennium will be discussed at the NOWPAP ML FPM held virtually in September in 2021; therefore, the budget ($9,250) is not included in the total budget plan of CEARAC activities.

Table 3-2 Workplan and budget for CEARAC activities for the 2022-2023 biennium Option II (US$ 197,000)*

Activity	Budget (US$)	Time
<Specific projects> Implementation of pilot studies at significant tidal flats in the NOWPAP region	20,000	2022-2023
Organization of the first eDNA training course	25,000	2023
Update of Cochlodinium website	9,000	2022-2023
Construction of a seagrass blue carbon network in the NOWPAP region	27,000	2022-2023
Development of a cloud-based bio-optical database for satellite water quality monitoring in NOWPAP coastal waters	20,000	2022-2023
Development of remote sensing data analysis training programs and organization of training courses	20,000	2022-2023
<Routine work> Organization of meetings and cooperation/coordination	54,000	FPM19 - 2022 FPM20 - 2023
Maintenance of websites	22,000	2022-2023
TOTAL	**197,000**	
Marine Litter (collecting info. of actions on plastic litter)	9,250**	

* The total amount is US$12,000 increase from the current budget (US$185,000).

** All activities and budget on marine litter implemented by all NOWPAP RACs and/or RCU for the 2022-2023 biennium will be discussed at the NOWPAP ML FPM held

virtually in September in 2021; therefore, the budget ($9,250) is not included in the total budget plan of CEARAC activities.

Table 3-3 Workplan and budget for CEARAC activities for the 2022-2023 biennium Option III (US$ 173,000)*

Activity	Budget (US$)	Time
<Specific projects> Implementation of pilot studies at significant tidal flats in the NOWPAP region	20,000	2022-2023
Organization of the first eDNA training course	25,000	2023
Update of Cochlodinium website	9,000	2022-2023
Construction of a seagrass blue carbon network in the NOWPAP region	27,000	2022-2023
Development of a cloud-based bio-optical database for satellite water quality monitoring in NOWPAP coastal waters	20,000	2022-2023
Development of remote sensing data analysis training programs and organization of training courses	20,000	2022-2023
<Routine work> Organization of meetings and cooperation/coordination	42,000	FPM19 - 2022 FPM20 - 2023
Maintenance of websites	10,000	2022-2023
TOTAL	**173,000**	
Marine Litter (collecting info. of actions on plastic litter)	9,250**	

* The total amount is US$12,000 decrease from the current budget US$185,000).

** All activities and budget on marine litter implemented by all NOWPAP RACs and/or RCU for the 2022-2023 biennium will be discussed at the NOWPAP ML FPM held virtually in September in 2021; therefore, the budget ($9,250) is not included in the total budget plan of CEARAC activities.