

Outline for the progress report of Regional Training and Research Center on Plastic Marine Debris and Microplastics

1. Introduction

Background

Marine plastic, including microplastic, is ubiquitous in marine environment ranging from the beach sediment, water column, to the deepest ocean trenches. Marine plastic pollution has become a major marine environmental issue that needs to be tackled globally. Its movement is complex and driven by many factors including winds, buoyancy biofouling, polymer type, size and shape, local and large-scale currents and wave action. Despite an increasing number of publications, there is little understanding of how plastics are altered in the ocean environment through physical and biochemical processes in transport. Further scientific research in a number of areas will help pinpoint the most effective actions and create new solutions.

To this end, there are some countries in the world, including China, the United States, Japan, Norway, the United Kingdom, and South Korea, that have been advancing plastic and microplastic related research and monitoring in order to provide solutions. By contrast, most of IOC developing countries in the region, especially those in Southeast Asia, have a limited capacity for conducting relevant research and monitoring, and therefore are in an urgent need for increasing their research and monitoring capacity. The establishment of this center is aiming to closely link the capacity building activities to the attainment of international research goals, transfer marine technology, and improve research capacity of countries in the Asia-Pacific region to address marine plastic and microplastic pollution.

2. Timeframe and objectives

Specific, Measurable, Achievable, Relevant, and Time bound)

What was expected to achieve over the project timeframe?

Time frame:

2019.06–2026.12

Overall objectives:

The objectives of the Center, as a partner in the UNESCO/IOC Network of Training and Research Centers in the Western Pacific, shall be to improve the research and monitoring capacity of countries in the Asia-Pacific region, for plastics and microplastics, including sampling techniques, measurement, modeling and impact assessment methods and techniques; to develop and cultivate a network of talented young researchers on plastics and microplastics from IOC member states, particularly those from developing countries; and to share and learn the best practices on marine environmental governance among developing countries in the region through:

- a. provision of training courses in English at least once a year on a free of charge basis for postgraduate students or early career scientists from member states of IOC in the Western Pacific and adjacent regions; organization and hosting of workshops and seminars in English on related topics to provide recommendations of policies and measures for regional control of marine microplastics ;
- b. conduct of joint research among member states of IOC in the Western Pacific and adjacent regions.
- c. exchange of visiting professor(s), and provide postgraduate teaching program(s) and scholarship(s) for PhD candidates

Achievable outputs/outcomes (Time Frame):

- (1) By June 2023, a set of standardized methodology developed for riverine plastic and microplastic monitoring and flux estimate.
- (2) By June 2023, a training manual developed;
- (3) By 2024.12, at least 100 young scientists and students in Asia countries trained to do riverine plastic and microplastic related research.

3. Activities and progress made from 2022 to April 2023

The activities and progresses made since it was registered till April 2023

As a result of the travel restrictions imposed by the COVID-19 pandemic in 2022, we are unable to conduct in-person training activities. Nevertheless, we are committed to making progress.

Here are the rewritten versions of the provided statements:

- (1) Local training sessions on microplastics and plastic sampling in surface water and water column were held in Sanya, Hainan province, China from October 2021 to February 2022. A training video was produced based on these sessions.
- (2) In 2022, we delivered three public lectures on marine plastic and microplastic pollution to increase public environmental awareness. More than 500 people attended, including high school students.
- (3) We finalized the Guidelines draft for microplastic sampling and monitoring in the surface and water column of the ocean.
- (4) We analyzed the controlling factors of microplastic riverine flux and proposed a reliable monitoring strategy. Our findings were published in the peer-reviewed scientific journal Environmental Science & Technology.

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

- (1) By June 2023, a set of standardized methodology developed for riverine plastic and microplastic monitoring and flux estimate.
- (2) By 2024.12, at least 100 young scientists and students in Asia countries trained to do riverine plastic and microplastic related research.

5. Planned activities for May 2023- April 2025

- (1) In April 2023, hold an international workshop (Online or in person), discussing the harmonized methodology for riverine plastic and microplastic monitoring as well as pilot monitoring sites.
- (2) In May 2024, hold an international workshops to share experiment and discuss the progresses made.
- (3) In October 2024, hold another training workshop on the transport of plastic and MPs in rivers.

[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. International workshop on harmonizing methodology for riverine plastic and microplastic monitoring	Develop standardized methodology for riverine plastic and microplastic monitoring and flux estimate.	A set of standardized methodology developed for riverine plastic and microplastic monitoring and flux estimate.	April 20 th , 2023 Online	0	20,000 RMB From East China Normal University	
	2. Training workshops for the riverine plastic and microplastic sampling,	Based on the methodology established, train young scientists and students in the Asia-Pacific region on the using of the methodology	At least 50 young scientists and students will be trained.	June 26-28 th , 2023 Sanya, Hainan, China	0	50,000 RMB From East China Normal University	
	3. Training workshop on the transport of plastic and MPs in rivers.	Train young scientists and students in the Asia-Pacific region on the modeling the transport of plastic and microplastic in rivers.	At least 50 young scientists and students will be trained.	Oct 16-18 th , 2024 Sanya, Hainan, China	0	50,000 RMB From East China Normal University	