

## **The progress report on Regional Training and Research Center on Marine Toxins and Seafood Safety (RTRC-MTSS)**

### **1. Introduction and justification**

Most of countries in the region do not have enough capacity and human resource to analyze marine toxins. The Vietnam Academy of Science and Technology (VAST) has already established the key lab in IO on “Food and Environmental Safety (Central of Viet Nam)”, with a strong support for IOC to procure relevant equipment and develop human resources. As the host, IO would provide advanced facilities in the VAST key lab on “Food and environmental safety” including efficient tools for biotoxin analysis. It is a good opportunity to utilize facility and human resource from Viet Nam for regional serving on Marine toxins and Seafood Safety.

The Regional Training and Research Center on Marine toxins and Seafood Safety (RTRC-MTSS) in IO, VAST addresses the need for high quality trainings for all countries in the region in order to train experts in marine toxins and seafood safety research. IO is a leading institute in Viet Nam for marine toxin research, and has been taking a lead since 2010 in the WESTPAC established project of marine toxins and seafood safety. In the next coming years, IO would intensify its efforts in marine toxin research and seafood safety, including contamination of marine toxins, chemical residues, virus/bacteria. With the long experience of Institute of Oceanography (IO), VAST in marine toxins, Viet Nam would take the leadership by providing laboratory facility and experts on toxin study. With self-sustaining, non-profit and institutional arrangement, the center aims to build capacity of scientists in the region through the operation of professional trainings and expertise exchanges, develop and coordinate projects; create a node for data and information exchanges and regional networking; create an enabling environment for international scientists to conduct researches in Vietnam; and promote cooperation in marine toxins and seafood safety research among member states and international organizations. The project is secured the support from member states (Japan, Malaysia, HongKong-China). To reach the objectives, key activities including technical assistance, education (train for trainers), and science workshop, would be conducted.

### **2. Timeframe and objectives**

IOC-UNESCO Regional Training and Research Center on Marine Toxins and Seafood Safety in IO, VAST, Viet Nam is proposed to work in 06 years (May 2023-April 2029) with the objectives of:

- 1) To enhance the capacity of developing countries, particularly in the region for marine toxin detection, identification and analysis, through the development and operation of professional trainings and expertise exchanges;
- 2) To promote cooperation and conduct joint studies on marine toxin research and seafood safety among WESTPAC scientists, institutions and countries.

#### **Expected Outputs:**

- ✓ Scientific materials (protocols) jointly developed on the study and chemical analysis of specific marine toxins which are hot issues related to seafood safety in most of member states.
- ✓ Shared working environment for toxins analysis and joint studies on marine toxin research and seafood safety.

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

The planned activities of RTRC-TMSS could not conduct in May 2021-April 2023 due to a global effect from COVID-19. However, using practical protocol to CTX which developed before, RTRC-TMSS have supported Malaysia to identify causative toxin cause snapper poisoning. The results were provided local public awareness as well as published in international scientific journal.

### **4. A summary of key achievements since its establishment**

RTRC-MTSS have developed outreach materials (protocol) for chemical analysis on marine toxins causing Ciguatera. On the other hand, key persons on toxin analysis have regenerated. Using a protocol developed for marine toxin studies in the Pacific region, the project's participants have collected samples of poisonous fish, screened them for toxicity and verification of the toxins in suspected causative fish. The results were published in public awareness as well as the scientific journal as the 1<sup>st</sup> finding in Southeast Asia of the causative toxins.

#### **5. Self-assessment on implementation against objectives**

The capacity in the region for marine toxin detection, identification and analysis are improved through the development and operation of professional trainings and expertise exchanges. On the other hand, the cooperation on marine toxin research and seafood safety among WESTPAC scientists, institutions and countries have been promoted using RTRC in Viet Nam.

#### **6. Problems encountered and recommended actions**

Member states (accepted Japan, HongKong-China, Viet Nam) still have facing with difficulty on human capacity, specific equipment, scientific environment to work on marine toxins and seafood safety. The efforts need to be made continuously in improvising and supporting toxin analysis capacity in member states to minimize the risk of seafood poisoning to the public health. It is also need to have stronger collaboration among member states to share data, experience and/or provide scientific materials (potential poisonous specimens) for supporting each other's.

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

In order to reach the objectives of whole life time of 06 years, the objective of RTRC-MTSS in period of May 2023 -April 2025 is to provide scientific materials (practical protocols for sampling and analysis of marine toxins) which can be applied in RTRC and improve capacity to serve member states on toxins analysis.

#### **8. Planned activities for May 2023- April 2025**

[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)	
	High quality training on marine toxins verification/ confirmation	To improve capacity for ciguatoxin verification/confirmation	02 trained persons who can work on verification/confirmation of ciguatoxin in RTRC-MTSS	03-04 weeks, Jun./Sept.2023, HongKong/Japan	0	10 USD (IO, VN) ??? from HongKong/Japan	
	Training workshop on “Scientific sampling for toxic organisms”	To provide scientific materials (protocol) and improve technical skill on scientific sampling of ciguateric organisms	-Practical protocol for scientific sampling for ciguateric organisms which can be applied in the region. -05-10 persons who can work on scientific sampling on ciguatera for member states and RTRC-MTSS	One week, Apr/Sept. 2024, IO, VN	20 K USD	10 K USD (IO, VN)	
	Developing practical protocols for analysis of tetrodotoxins in marine organisms (fish, gastropod and crab)	To provide scientific materials (protocol) for marine toxin analysis	03 developed practical protocols for analysis of tetrodotoxins in marine organisms (fish, gastropod and crab) which can be applied in RTRC-MTSS	06 months, Oct. 2024-Mar. 2025, IO, VN	0	30 K USD (IO, VN)	