



## Mekong River Commission

For Sustainable Development

### TERMS OF REFERENCE

#### 1. CONSULTANCY SUMMARY

<b>Title:</b>	<b>Riparian Hydrology Expert as Project Officer (PO2)</b>
<b>Consultancy Type:</b>	Service Contract (SC) (full time, 21.75 days/month)
<b>Division:</b>	Technical Support Division (TD)
<b>Duration:</b>	12 months from December 2021 to November 2022 (can be extended and subject to the availability of funds)
<b>Duty Station:</b>	Regional Flood and Drought Management Centre (RFDMC)
<b>Reporting to:</b>	TD Director and Head of RFDMC
<b>Expected Deliverables:</b>	Models/ tools for flood extent and flood depth mapping, Component document "Flood Forecasting and Mapping", implementation plans for four selected pilot cases, implementation and evaluation reports of the pilot cases.

#### 2. INTRODUCTION AND BACKGROUND

The Mekong River Commission (MRC) was established by the 1995 Agreement on Cooperation for the Sustainable Development of the Mekong River Basin, between the governments of Cambodia, Laos, Thailand, and Viet Nam. The Mission of MRC is: "to promote and coordinate sustainable management and development of water and related resources for the countries' mutual benefit and the people's well-being by implementing strategic programmes and activities and providing scientific information and policy advice."

The MRC Secretariat (MRCS) is the operational arm of the MRC. It provides technical and administrative services to the Joint Committee and the Council to achieve the MRC's mission.

The TD of the MRCS is in charge of managing the implementation of various projects and to provide technical support to the MRC Member Countries (MCs) on Hydrological River Modelling, Database Management and Information Systems, Modelling and Assessment, GIS and Remote Sensing Applications, Flood and Drought Monitoring and Forecasting, and importantly the implementation of the MRC procedures.

The RFDMC as core part of the TD performs daily, weekly, and monthly flood and drought monitoring and forecasting services, and provides early warning information including state emergencies to the four MCs for flood and drought management and preparedness.

The Government of Japan through its Official Development Assistance (ODA) has committed to support the MRC-RFDMC to enhance the institutional and technical capability of the RFDMC, enhancing the flood and drought monitoring and forecasting systems, improving the dissemination of information, warnings and alerts, and upgrading the operational room in line with modern and international good practices and thereby facilitating the integration of flood and drought management at the MRC's RFDMC in Phnom Penh, Cambodia.

According to the proposed Project Implementation Plan the Japan-ODA funded project on flood and drought management will be implemented from 2021 to 2024 and is divided in (Part 1) “Development of new operational tools for broadening flood & drought forecasting & monitoring products & services; analysis of extreme weather events & climate variability in the Lower Mekong Region (LMB)” and (Part 2) “MRC Drought Management Strategy 2020-2025 Project for operation of drought forecasting and early warning, and formulation of Drought Adaptation Guideline for the LMB”.

Part 1 of the project is divided into six Development Component (DC1 – 6):

DC1: Monthly flood & drought forecast

DC2: 3- 6 months flood & drought forecast/ outlook

DC3: Flood extent and flood depth mapping

DC4: Analysis of extreme weather events and climate variability

DC5: Experimental flood & drought website pages, operations room facilities, warning & alerts dissemination through mobile phone, social media systems

DC6: Facilitation of management support to RFDMC for flood component implementation

For the management of Part 1 of the ODA funded project, two Project Officers (PO1 and PO2) will be hired.

### **3. OBJECTIVES OF THE CONSULTANCY**

The Project Officer (PO2) requested in this ToR will be responsible for the daily management of DC3, delivering models/ tools for flood extent and flood depth mapping, preparing in cooperation with the MCs implementation plans for four pilot cases (one in each MC), and roll out the implementation and evaluation of the pilots. The PO2 will take lead of tasks in close cooperation with the MRC TD and the RFDMC in particular, and other external experts.

### **4. EXPECTED RESULTS**

One of the most effective means in flood forecasting is the dissemination of the flood extension/ flood depth information. The forecasting of water levels should always be facilitated as ‘easy understandable’ method for practitioners and the public. For many people, a flood extension/ flood depth map is generally ‘easy understandable’ as it is an effective early warning tool (what may happen) or in case of flooding the recognition of the flood depth and flood extent (what has happened) for the phases of ‘response’ and ‘recovery’ services.

DC3 is to enhance the existing short-range (1-5 days) Mekong River Flood Forecasting System of the RFDMC by combining the system with a flood extent and flood depth mapping tool for selected urban and rural areas along the Mekong River mainstream in the LMB. The system will then provide more specific flood early warning information for selected local communities. DC3 is designed as a pilot project. On the long broadening, the mapping is envisaged to be extended to more and larger areas.

During the consultancy of the requested PO2 the methods/tools will be designed, pilot cases identified, and detailed implementation plans for each pilot case (one in each MC) will be developed. The PO2 will support the implementation of the pilot cases during the first two testing phases. In the first phase, during the dry season 2022/2023, the methods/ tools will be tested based on past flooding events, in order to verify the modelling results with historic reported flood extends/depths. The second phase will be a real time trial during the wet season 2023.

The proposed approach will be developed in close cooperation and coordination with the MCs National Technical Working Groups (NTWGs).

**5. DELIVERABLES AND CONCRETE TIMELINES**

<b>DC3 Deliverables and Expected Quality</b>	<b>Number of Month</b>	<b>Deadline</b>
Detailed workplan and time schedules for the implementation of DC3 also defining the support from the MCs and external consultants.	1 months	End of December2021
Drafted component document “Flood Forecasting and Mapping”.	1 months	End of January 2022
Agreed component document “Flood Forecasting and Mapping” by MCs.	2 months	End of March 2022
Updated component document “Flood Forecasting and Mapping” with the results of the testing phase at the RFDMC.	4 months	End of July2022
Drafted implementation plans for the selected pilot cases (4 plans).	2 months	End of September 2022
Agreed implementation plans for the selected pilot cases.	2 months	End of November 2022

**6. REQUIRED TASKS AND RESPONSIBILITIES**

The PO2 will provide the following services:

General Project Management:

- Manage the schedule: Report and follow-up on the project progress, prepare detailed workplans and time schedules.
- Organize project meetings for internal and external consultations, including 3 NTWG meetings.
- Prepare and maintain project documentation including reports, meeting minutes and all correspondence.
- Identify and document progressive risks, key and emerging issues hampering the progress of the project implementation including foreseen and/ or actual deviations from the work plans, milestones, and indicators, assess consequences, select and implement appropriate response measures.

For the implementation of DC3:

- Prepare the component document for DC3 “Flood Forecasting and Mapping”, proposing methods/ tools for flood extent and flood depth mapping taking into consideration the existing tools and models at the RFDMC and the national forecasting centres.
- Discuss the component document with the NTWGs for further improvement and agreement during 1<sup>st</sup> NTWG meeting.
- Start testing phase of the flood mapping at the RFDMC based on the approved project document approaching a relevant modelling consultant/ partner organisation for technical support and provision of tools; trying out demo tools and maps in preselected area(s), testing, refining, and evaluating the application.

- Update component document “Flood Forecasting and Mapping” with the results of the testing phase at the RFDMC.
- Get verification and feedback from the NTWGs on the testing/ application of the tools, and consult and agree with MCs on pilot cases (one in each MC) during 2<sup>nd</sup> NTWG consultation round.
- Prepare a detailed implementation plan for each pilot case.
- Discuss the implementation plan for each pilot with the respective NTWG for further improvement and agreement during 3<sup>rd</sup> NTWG consultation round.
- Support the implementation of the pilot cases based on the agreed plans during the first two testing phases (one during dry season based on historic data and one real time mapping of flood events during the wet season).
- Write one implementation and evaluation reports after each testing phase, clearly explaining the chosen methodology for evaluation and giving suggestions for further improvement.
- Prepare final component document including all findings and operational procedures for the RFDMC to further manage, coordinate and evaluate the flood mapping. This should also include lessons learned and suggestions for future upscaling.

## **7. PAYMENT MODALITY**

Monthly payment is applied.

Note: Consultancy rate is defined by the MRCS consultancy rate policy and the level of consultancy. MRC is a tax-exempted agency for the work done for the MRC. Consultant, in case mission is required, will be covered with a return ticket to and from the assigned duty stations with a daily related subsistence allowance of 75% of the UN for the mission days.

## **8. INTELLECTUAL PROPERTY RIGHTS**

Intellectual property rights - IPR: Information, data, database, knowledge resources in the forms of briefings, reports, proceedings, articles, essays, etc. issued by and for the MRCS will be the MRCS property.

Any utility, announcement and disclosure that are without MRCS highest levels of authority’ permission is considered illegal and will be charged by relevant local and international legal procedures.

## **9. DECLARATION OF NON-FRAUDULENCE AND PROTECTION OF PERSONAL DATA**

The Subscriber shall adhere to the MRC’s relevant rules and regulations of the MRC on personal data protection, business exclusion, and fraud prevention and anti-corruption principles, and shall be under strict disciplinary measures should any violation occurs.

## **10. WORKING ARRANGEMENT**

In order to secure the most reliable, up to date and high standard solutions, the PO2 will be supported by the modelling consultant and staff of the RFDMC. Additional IEs can be hired on demand. The PO2 will take lead of tasks for DC3. The Head of the RFDMC will coordinate and supervise the overall process. Close cooperation and coordination with the MCs NTWGs are essential.

### **Communication Line:**

- The PO2 will communicate with and report directly to the Head of the RFDMC for verification of the products and compliance with ToR.
- Close guidance will be given by the TD Director and the Head of the RFDMC.

**11. QUALIFICATIONS AND REQUIREMENTS** *(select or add as appropriate)*

- Master or higher degree(s) in hydrology, hydro-informatics or related relevant discipline with at least 15 years of work experience.
- Excellent knowledge and professional experience on flood mapping, remote sensing and hydraulic modelling is strongly required.
- Demonstrated skills in project/ programme management (project planning, coordination, report writing) is a must.
- Previous experience in the Mekong basin, preferably working with or for the MRC
- Fluency in English, both written and spoken, is required. Working knowledge of one more riparian language is an advantage.
- Good knowledge on Microsoft Office and Microsoft Project is a must.

**12. SIGNATURE BLOCK**

MRCS:

Full Name: \_\_\_\_\_

Incumbent’s Full Name: \_\_\_\_\_

Title: \_\_\_\_\_

Signature: \_\_\_\_\_

Incumbent’s Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Date: \_\_\_\_\_