



Mekong River Commission

For Sustainable Development

TERMS OF REFERENCE

1. CONSULTANCY SUMMARY:

Title:	International consultant for MRC PDIES Cloud Migration & Workflow Integration
Consultancy Type:	Framework Contract
Division/OC:	Technical Support Division
Duration:	58 days from June to December 2025
Duty Station:	Home-based and, if required, at the MRC Secretariat in Vientiane
Reporting to:	Technical Support Division Director, Chief Hydrologist and Database and Information System Specialist
Expected Deliverables:	<ul style="list-style-type: none">- MRC-IS PDIES Unique/Single Gate platform prototype with detailed technical design documents for regional and national linkages- Migrated AQUARIUS¹ systems/services to Amazon Web Services (AWS) private cloud with cold backup mechanisms- Expanded ingestion workflows to incorporate all drought and water quality parameters in support for the integrations to Water Status Dashboard (WSD).

2. GENERAL BACKGROUND AND OBJECTIVES OF THE CONSULTANCY

The Mekong River Commission (MRC) was established by the 1995 Agreement on Co-operation for the Sustainable Development of the Mekong River Basin, between the governments of Cambodia, Lao PDR, Thailand, and Viet Nam. The role of the MRC is to coordinate and promote cooperation in all fields of sustainable development, utilisation, management and conservation of the water and related resources of the Mekong River Basin.

The MRC Secretariat is the operational arm of the MRC. It renders technical and administrative services to the Joint Committee and the Council to achieve the MRC's mission in promoting and coordinating sustainable management and development of water and related resources for the countries' mutual benefit and the people's well-being.

The Technical Support Division (TD) takes lead in the MRC PDIES implementation and Reinvigoration on Data, Information, Modelling, and Forecasting. The quality assured data and information would be updated and integrated into MRC-IS databases, visualized and shared to MRC stakeholders and partners through Data Portal services², Water Status dashboard, MRC Web Services, Mobile Apps, etc. Furthermore, development of the robust MRC-IS PDIES unique/single gate will manage all types of incoming and outgoing data flows with required metadata validations and facilitate tracking and recording of the transactions from the member country line agencies and the NMCs through the National Information Systems (NIS) in exchange and sharing of the data and information to the MRC-IS gate for regional and national linkages. On this connection, a complete migration of the MRC Aquarius systems/services to private cloud platform will facilitate the linkages for seamless

¹ <https://aquaticinformatics.com/products/aquarius-environmental-water-data-management/>

² <https://portal.mrcmekong.org/home>

interconnections and secured access to authorized stakeholders as well as rapid backup and recovery mechanisms for availability of the services. Additionally, expanded ingestion workflows to integrate all the telemetry parameters to the unified WSD will greatly improve performance on both monitoring and forecasting services in the long run. Therefore, within this context, more workloads and activities need to be carried out is required.

3. EXPECTED RESULTS

For the tasked assignments, the expected results are as follow.

- MRC-IS PDIES Unique/Single Gate platform prototype with detailed technical design documents for regional and national linkages
- Migrated AQUARIUS systems/services to AWS private cloud with cold backup mechanisms in place
- Expanded ingestion workflows to incorporate all drought and water quality parameters in support for the integrations to WSD.

4. REQUIRED TASKS AND RESPONSIBILITIES

Under direct supports from the Specialists and Technical Experts and overall supervision of the TD Director, the consultant is expected to perform the following assigned tasks.

- a) MRC-IS PDIES Unique/Single Gate platform prototype with detailed technical design documents for regional and national linkages
 - Provide consultancy services for designing the technical details of the MRC-IS PDIES Unique/Single Gate, to provide additional data management services and ensuring it integrates well with the existing systems and components
 - Develop an initial basic demo showcasing core features of the system, including
 - Support the managing of incoming and outgoing data flows, including required metadata validation, with a proper tracking system
 - Consider pre-QA/QC functionalities to ensure data quality before integration into MRC-IS repositories
 - Regional platform incorporating quality-assured dataset endpoints, supporting both pull-based and push-based secured integrations with national and regional sources
 - Facilitate metadata and information exchange services with MRC partners
 - Adopt a universal unique ID system for MRC data catalogues and common reference data
- b) Migrated AQUARIUS systems/services to AWS private cloud with cold backup mechanisms in place
 - Migrate the existing AQUARIUS system and services to a private cloud platform (AWS), maintaining an on-premises system as a cold backup
 - Set up backup and restore procedures for rapid recovery in place
 - Ensure the cloud-deployed AQUARIUS system enhances web services, allowing for smooth integrations and improved performance in near real-time services
 - Adjust other MRC-IS system components and services to facilitate the AQUARIUS cloud deployment, ensuring no AQUARIUS-related services running on-premises
 - Extend secured access to authorised stakeholders for controlled access to the AQUARIUS systems on the deployed cloud platforms
- c) Expanded ingestion workflows to incorporate all drought (Kisters .ZRXF format) and water quality (OTTml format) parameters in support for the integrations to WSD

- Extend the telemetry ingestion mechanisms to incorporate drought data and all water quality parameters in seamless integration to the AQUARIUS systems
 - Support in recovery on the MRC-IS critical historical data
 - Extend MRC-IS API to allow access to additional parameters for data consumers/services, including WSD, the Data Portal, and the mobile apps
 - Ensure the quality assured near real-time data propagation within the MRC-IS ecosystems.
- d) Draft technical documentations and handing-over the updated source codes to MRCS is required.

5. DELIVERABLES AND CONCRETE TIMELINES

The following shows an indicative timeframe of the anticipated tasks and assignments. Final services and products should be delivered in a reasonable timeframe following discussions and mutual agreements as outlined below.

Deliverables and expected quantity / quality	Expected time (days)³	Deadline
<p>1. MRC-IS PDIES Unique/Single Gate platform prototype with detailed technical design documents for regional and national linkages</p> <ul style="list-style-type: none"> • Technical design documents for the MRC-IS PDIES Unique/Single Gate • Initial basic demo showcasing core features, including <ul style="list-style-type: none"> - Online platform prototype for managing data flows - Implementation of QA/QC functionalities for data preview and validations - Development of a regional platform for secured data integrations - Establishment of a metadata exchange framework with member countries, MRC partners, and other relevant systems - Adaptation of a universal unique ID system for MRC data catalogues and common reference data 	18	Nov. 2025
<p>2. Migrated AQUARIUS systems/services to AWS private cloud with cold backup mechanisms in place</p> <ul style="list-style-type: none"> • Successfully migrated AQUARIUS system to a private cloud platform • Cold backup mechanisms established and documented • MRC-IS system integration and service adjustments completed and in place • AQUARIUS cloud system secure access permissions configured for authorised stakeholders 	25	Sep. 2025

³ The consultant may propose a reasonable or suitable number of days for each activity to the deliverables

<p>3. Expanded ingestion workflows to incorporate all drought and water quality parameters in support for the integrations to WSD</p> <ul style="list-style-type: none"> • Expanded telemetry ingestion workflows incorporating all drought and water quality parameters in place • Recoveries on MRC-IS historical data • Updated MRC-IS web services endpoints functionalities • Real-time data propagation successfully integrated. 	15	July 2025
Total	58	

6. PAYMENT MODALITY

This position is paid based on daily rates upon satisfactory submission of works delivered. The consultant is required to submit an invoice with supporting documents for each payment. DSA and relevant travelling expenses, if incurred, will be provided in accordance with the MRC guidelines.

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.

7. INTELLECTUAL PROPERTY RIGHTS

Intellectual property rights - IPR: Information, data, database, documents, and 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.

8. 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.

9. WORKING ARRANGEMENT

The assignments will require the consultant to work remotely from his/her home country and some time at the MRC Secretariat or its Member Countries, with frequent communication with the personnel of TD in Vientiane Office.

- 9.1. Director supervisor: TD Director
- 9.2. Communication line: Communication with the personnel of Database and Information System Specialist and Chief Hydrologist.

10. QUALIFICATIONS AND REQUIREMENTS

The following are minimum requirements for a successful consultant for the position.

- A postgraduate degree (or a bachelor's degree with two additional years of practical working experience) in computer science or a related field
- Proven work experience in developing websites for international organisations, with specific reference to river basin or knowledge-based organisations is preferable
- Knowledge and understanding on MRC Procedures, especially the PDIES TGs, and data and information management workflows demonstrated through prior experiences on database design and information systems integrations, development, and management
- Knowledge on metadata standard and QA/QC procedures
- Solid technical skills in modern web development technology stacks and frameworks (MVC/MVVC/MVT)
- Minimum of 10 years' professional experience in advanced web programming skill sets
- Working experience on cloud platform, especially AWS services, including Lamda, SQS services, Kubernetes, etc. an assets
- Proven work experience within Southeast Asia, and/or a solid knowledge of local and regional's social, economic, cultural, and political structures an assets
- Knowledge of natural resources management / environmental awareness in the communication context is desirable
- Excellent interpersonal and cross-cultural communication skills
- Good sense of initiative and sound judgment
- Excellent command and written of English language is required.

11. SIGNATURE BLOCK

MRC Secretariat

Division: Technical Support Division

Name: Director Nguyen Huy Phuong

Signature: _____

Date: _____

Consultant: _____

Date: _____