

Mekong Delta Water Database

A digital tool for promoting institutional cooperation in the Mekong Delta of Viet Nam

1. Context

In recent times, water security and management have become increasingly important concerns for all nations and territories. For the Mekong Delta of Viet Nam, this is even more true. That is why water management is central to all development strategies and agendas of the region.

The Mekong Delta is characterised by a highly complex hydrological landscape, with a dense network of rivers and canals, and a large amount of water infrastructure¹ and monitoring stations². The intense impacts of climate change and natural disasters are major challenges for water management in the region. Anthropogenic interventions are also rendering dramatic changes in the flow regime and water availability.

Under the governance structure of Viet Nam's water sector, **institutional remains the most challenging issue in the Mekong Delta**. The region consists of 13 sub-territories (provinces and cities) over which the rivers, canals and irrigation systems are shared. Each province has a Provincial People's Committee (PPC) and different provincial line departments (PLDs) who have mandates related to water, including the collection and management of water data (which largely involve Department of Agriculture & Rural Development (DARD), Department of Natural Resources & Environment (DONRE), and Hydromet stations). As a result, presently:

- Data is owned and managed by different agencies
- Flexible protocols for data sharing between provinces and sectors are scant or completely absent.
- Data is stored in and by many formats and systems which are highly inconsistent and often incompatible.

With such a fragmented structure, effective water management, with close cooperation and coordination across the provinces, as well as across sectors in each province is problematic. A holistic, inter-provincial and cross-sectoral approach is currently under-developed. One of the main reasons for this was identified as there being no practical tools available to assist relevant provinces and agencies in jointly sharing and maintaining a comprehensive and accurate water data system.

[1] Dense network of water infrastructure includes 954 sluice gates, 28,304 culverts, 5,773 anti-flood embankments, 5,000 pump stations, 1,264 km river and sea dikes

[2] Monitoring network includes 33 meteorological stations, 50 hydrological stations, 138 automatic water level gauging stations and 34 salinity and water monitoring points, which are managed by Hydromet Stations and/or Department of Natural Resources and Environment (National hydro-meteorological master plan for the period 2021-2035, vision to 2050 [MONRE, 9/2022; under public consultation]).

2. Our approach

The German technical cooperation project *Mekong Delta Climate Resilience Programme (MCRP)* has collaborated with five provinces (An Giang, Kien Giang, Ca Mau, Bac Lieu, Soc Trang) to jointly develop the **Mekong Delta Water Database System (MD-WADS)**.

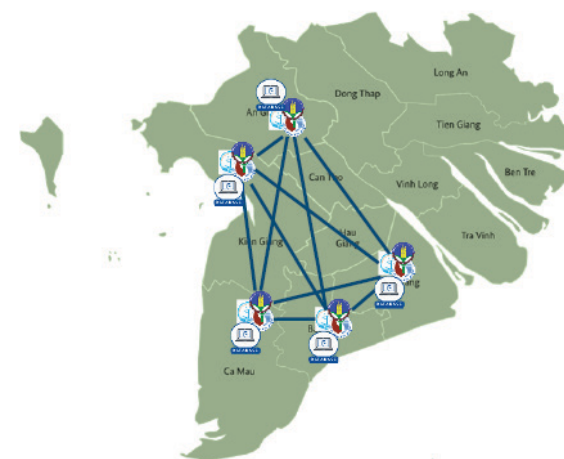
The MD-WADS has responded to the urgent needs of local authorities by providing assistance with:

- Water and irrigation management
- Management and operation of water infrastructure
- Water resource monitoring
- Hydrometeorological monitoring
- Climate change and disaster prevention

The system consists of two main components:

1. **Technical:** to set up a shared and online water database platform between five provinces
2. **Institutional:** to develop and codify protocols for data sharing and system management

Capacity building for local authorities on the system's use and maintenance is integrated throughout the process to ensure stakeholder uptake and sustainability of the system.



Online and synchronised water database system between 3 concerned agencies (DARD, DONRE, Hydromet) in 5 beneficiary provinces

Technological solution: For the first time in the Mekong Delta, an inter-sectoral and inter-provincial online database has been established and made functional. The MD-WADS has provided innovative transformations in the collection, management and sharing of water data, including:

- **Homogeneous and consistent structure:** the online system was developed for five provinces with the same structure and functions. A wide range of multi-owner data and information in five provinces are now digitalised, stored, and managed in a standardised format.
- **Easy retrieval, updating, and sharing of data:** digitalised water data is standardised following local regulations and guidelines, and can now be easily accessed, updated and shared with just a few clicks using agile tools and interfaces provided by the system.
- **Innovative data connection:** digitalisation enables three key provincial line departments (DARDs, DONREs, and Hydromet stations) to easily manage and share water data. The system design eliminates data fragmentation and redundancy, and thus improves the quality of individual and joint decisions.
- **Open access:** the database platform offers full open access to the public including farmers, students and researchers. This opportunity did not exist in the delta before.

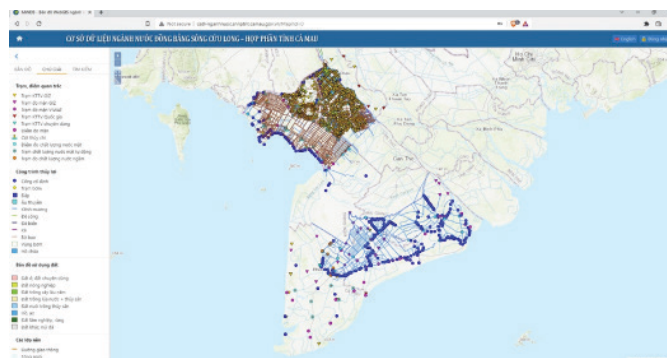
Institutional measure: MCRP successfully facilitates the dialogue between five beneficiary provinces to connect and integrate provincial and sectoral data into the shared database system. Different water datasets in the Mekong Delta which belong to different owners are now homed together and synchronised in a regular and continuous manner, following agreed protocols.

3. Result and outlook

The MD-WADS was completed and launched in October 2021. It was successfully integrated into the electronic portal (website) of the DARD in five provinces with open access for provincial authorities and public stakeholders such as researchers, students, and the wider community.

The database system can be accessed via the following websites:

- An Giang: <http://csdl-nganhnuoc.sonongnghiep.angiang.gov.vn/>
- Kien Giang: <http://csdl-nganhnuoc.snnptnt.kiengiang.gov.vn/>
- Ca Mau: <http://csdl-nganhnuoc.snnptnt.camau.gov.vn/>
- Bac Lieu: <http://csdl-nganhnuoc.snn.baclieu.gov.vn/>
- Soc Trang: <http://csdl-nganhnuoc.soctrang.gov.vn/>



GIS data layers accessed via online interface

Technical officers of provincial authorities and their affiliated offices in five beneficiary provinces were provided with intensive training on how to install, manage, operate, and maintain the database system.



Training of Trainers on the MD-WADS (Can Tho, February 2022)

To further promote the role of digitalisation in facilitating inter-sectoral and inter-provincial cooperation in water management, with a vision to 2025, MCRP plans to expand the MD-WADS to other provinces and sub-regions in the Mekong Delta.

The Mekong Delta Climate Resilience Programme (MCRP) is a technical cooperation project co-financed by the Governments of Germany and Switzerland. MCRP is implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH in close cooperation with the Ministry of Agriculture and Rural Development, Ministry of Construction and the 13 Mekong Delta provinces. MCRP's objective is to support the Vietnamese authorities in enhancing the climate-resilience of the Mekong Delta and its communities, thereby ensuring sustainable development in the region.

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