

Operational Regulations for Irrigation System

Technical Policy Instrument for a better Inter-provincial Water Management in the Mekong Delta

Management of the multi-purpose irrigation systems of the Mekong Delta is highly challenging

The Mekong Delta of Vietnam is located at the interface between fresh and saline waters, with a dense network of 91,000 km rivers and canals^[1], including 240 inter-provincial rivers and canals. Therefore, the irrigation systems here have a high level of complexity, and perform multiple tasks – draining floods, supplying water for both fresh and saline/brackish economies, preventing salinity intrusion, as well as mitigating pollution. The demands for different types of water vary by users, sectors, provinces, and are even conflicting sometimes. That creates difficulties for local authorities in the management and operation of irrigation infrastructures, especially those of the 07 existing inter-provincial irrigation systems of the delta.

Before 2017, the management and operation of the irrigation infrastructures in Mekong Delta in general and in Quan Lo - Phung Hiep (QLPH) (covering Ca Mau, Bac Lieu, Soc Trang provinces) and Long Xuyen Quadrangle (LXQ) (covering An Giang and Kien Giang provinces) sub-regions in particular – were carried out largely individually, based on experience of the respective local authorities, and for single hydraulic works or a cluster of structures. There was no mechanism for cross-provincial coordination and science-, evidence- and consensus- based approach to address the emerging challenges in water management.

Systemic policy intervention to address the challenges

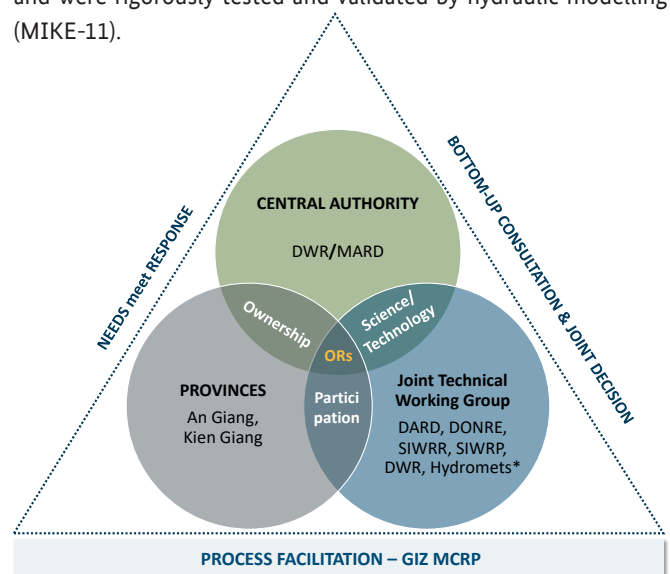
The “Operational Regulations (ORs) for irrigation systems” are now explicit policy in the legislation framework of Vietnam’s water sector. They provide concrete technical and institutional guidance on how to operate hydraulic infrastructure to maximise the benefits, and minimise costs and conflicts between all concerned water users.

With the support of German Development Cooperation, the two ORs for QLPH and LXQ irrigation systems were successfully developed and issued in 2017. Recent developments in the Long Xuyen Quadrangle, especially the construction of two large sluice

gates Tra Su and Tha La to replace the existing rubber dams, and some sluice gates located along the West Sea including Song Kien, Kenh Cut and Kenh Nhanh, caused an urgent need to revisit the ORs for the LXQ irrigation system and address the inter-provincial coordination from both technical and institutional perspectives.

The revision of LXQ’s ORs was initiated by the Directorate of Water Resources (DWR) under Ministry of Agriculture & Rural Development (MARD) in their role as the central state management agency and was later confirmed and closely participated by the local authorities of An Giang and Kien Giang. DWR took the lead in supervising the development process of the ORs and performing quality control and approval of the final ORs^[2].

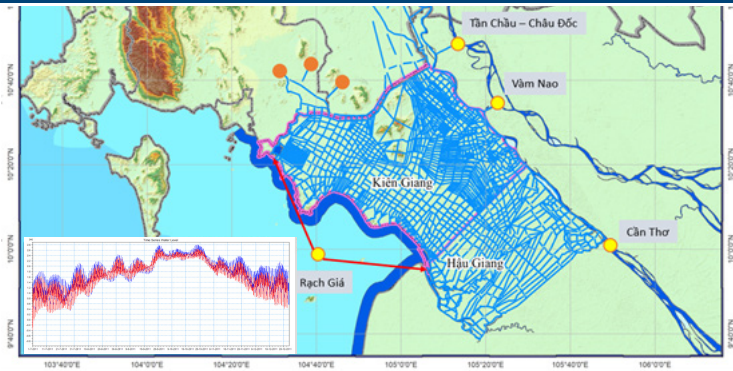
The Joint Technical Working Groups (JTWG) on water management, which operated in the two sub-regions LXQ and QLPH with the facilitation of German Development Cooperation’s “Mekong Delta Climate Resilience Programme (MCRP)”, played key roles in the ORs development process. Comprehensive consultations and technical recommendations for the ORs were discussed at the quarterly meetings of the JTWGs, including the application of digital technology, which provided a sound scientific basis for the new ORs. In particular, the operational scenarios were built based on comprehensive GIS datasets on irrigation systems operation and were rigorously tested and validated by hydraulic modelling (MIKE-11).



[1] Report on irrigation infrastructures in the Mekong Delta to support Mekong Delta Irrigation Planning to 2030, vision to 2050 (SIWRR, 2019).

[2] The updated Operational Regulations for LXQ irrigation system was issued on September 22, 2021 (Decision No. 3829/QĐ-BNN-TCTL).

* SIWRR: Southern Institute of Water Resources Research, SIWRP: Southern Institute of Water Resources Planning;
DARD: Department of Agriculture & Rural Development, DONRE: Department of Natural Resources & Environment



Results

The Operational Regulations for the two big inter-provincial irrigation systems (ORs for QLPH in 2017; and ORs of LXQ in 2017, updated in 2021) allowed timely and optimal operational decisions to be made for the complex irrigation systems across five provinces, facilitating closer cooperation across provincial boundaries. They proved to be a cost-effective and sustainable intervention.



14,266 kilometres of canals are improved in regards to water management



3.5 million rural people are benefited



680,000 hectares of agriculture and aquaculture land are now better served

«Six months after the issuance of the updated Operational Regulations 2021, the irrigation system of the Long Xuyen Quadrangle has been effectively operated. The water flow from upstream to Kien Giang is now more favourable, as observed in the dry season of 2021. This impressive outcome is attributed to the strong participation of provinces as well as the use of robust technologies. I would suggest that relevant local authorities continue monitoring the operation of the irrigation system, the changing climate conditions, as well as the emerging demands from local production. This is to ensure the effectiveness of the ORs, and in the meantime – to inform timely decision-making regarding the needs for further updating the ORs, if required.»

Mr Nguyen Huynh Trung – Director of Kien Giang Irrigation system sub-department speaking at the annual review of the JTWG of LXQ in 04/2022

Key success factors

Partner's ownership and demand-oriented

It is important that the needs for developing and/or updating the ORs are confirmed both by central and local governments. DWR took the lead and accompanied the whole ORs development process from initial steps to its approval..

Bottom-up participation and joint decision-making

The JTWG effectively mobilised inputs and the participation of central and provincial state management agencies and research institutes in the water sector. This created the prerequisites for the effective management of complex hydraulic structures by local actors, ensuring the compliance and successful implementation of the centrally issued technical policy.

Sound technical base aided by science & technology

The high technical quality of the ORs was achieved thanks to the competence and indigenous experience contributed by two prestigious institutions: the Southern Institute of Water Resources Research (SIWRR), and the Southern Institute for Water Resources Planning (SIWRP). It was augmented by the use of accurate digitalised datasets and robust modelling tools.

Sustainability is at heart

The two sub-regions are highly dynamic with regard to both internal and external factors (such as building new structures, restructuring crops, upstream developments and salinity intrusion), hence the ORs would need regular updates. Since they have been well anchored in the policy system, the aspect of sustainability is institutionally guaranteed. Indeed, in 2021 MARD allocated its own resources to update the ORs for QLPH.

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