



Improving Data for Mekong Water Resources Management

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Sound, timely, and sufficient data is fundamental for understanding river systems and for managing water-related resources sustainably. For regional cooperation across a shared river basin, water resource planning requires transparency and integrity in water-related data to build trust among data providers and data users.

In the Lower Mekong region, great progress in both national and regional water data and information development has been achieved by many initiatives and institutions. Nevertheless, capacity gaps persist and the demand for many critical data products and services is outpacing the regional capacity to generate, share, and apply data.

Water Data Gaps and Opportunities

The Sustainable Infrastructure Partnership is currently in the process of surveying perspectives on data management and sharing across the Mekong basin. Below are some early identified gaps and potential opportunities for existing and new initiatives to leverage. This paper also outlines some of the key datasets publicly provided by the Mekong River Commission (MRC) and other initiatives. There are many other important data sets that focus on climate, sediment loads, groundwater, fisheries, development projects, and data sharing infrastructure, among others. Despite challenges and difficulties, it is undeniable that there have been great strides made in strengthening data and information management and sharing in the Lower Mekong region. However, there is still much work to be done to build on this foundation, strengthen trust and transparency among stakeholders, and to improve the well-being of the Lower Mekong communities.

Hydrological and flood forecast data is provided by the MRC, and is mostly available for the Mekong main stream, but is reportedly of varying benefit to the MRC Member Countries. Viet Nam, the most downstream country, has confirmed that flood forecast data helps their agencies assess routine flood levels for the Mekong delta. Cambodia still heavily relies on the flood information from the MRC HYCOS stations. Lao PDR and Thailand, as the up-stream countries, may not benefit as much from such data. The two MRC HYCOS stations in Yunnan province across the border in China report discharge flows only in the flood season. But discharge flows in the dry season that go unreported can still be damaging to riverine communities in Lao PDR and Thailand due to drastic fluctuation levels.

OPPORTUNITY: *Maintain the existing HYCOS stations and establish new ones throughout the Basin. Promote efficient means of communication among the MRC, national agencies, and local communities during flood (and drought) events. Prioritize the full use of the data by concerned stakeholders and affected groups and maintain timeliness of flood forecast data reporting and delivery.*

Water data collection process and methodology: At national level, most of the Lower Mekong Countries lack some financial and technical capacity to effectively collect hydrology, flow, weather, and land use data. Most still rely on manual data collection and are challenged by poor data quality and delays in dissemination. Though automatic telemetry technologies have been extensively supported by the WB, ADB, MRC, and ADF unfortunately many stations have been decommissioned due to lack of maintenance, technical capacity, and proper internet connectivity. Thailand however uses its own telemetry technology and license which is comparably more reliable.

OPPORTUNITY: *Leverage Thailand's leadership and lessons learned to build regional capacity and promote a knowledge and technology transfer program.*

Regional land use spatial data has not been updated since 2008, and in some cases since 2003. Up to date spatial data is produced in an ad hoc manner by some development and aid projects, and largely focused on Thailand and Viet Nam. Data custodial and ownership rights often create barriers to sharing those datasets. Additionally, standardizing and analyzing datasets from different sources can be a very time-consuming task.

OPPORTUNITY: *Work with the MRC, relevant national ministries, and development partners to apply remote sensing technology for up to date land-use spatial data for the Lower Mekong Basin.*

OPPORTUNITY: *Increase the number of regional water quality monitoring stations. Include participatory monitoring of macroinvertebrates (i.e. biomonitoring) as a cost-effective proxy for water quality to promote local participation.*

Regional water quality data has not been updated since 2015. Furthermore, certain water quality parameters are also not available (i.e. dissolved oxygen, biochemical oxygen demand, pH, etc.). In some cases, monitoring stations may not actually be well situated to gather water quality data regularly around key sites, such as the Xayaburi hydropower project.

Water resources-based socioeconomic and livelihood data is essential for building an understanding of how Mekong water resources are used, especially by the poor and vulnerable. National census data shared by Member Countries still largely lacks this detail.

OPPORTUNITY: *Conduct a water resources-based socioeconomic and livelihood survey across the Basin.*

User-friendly, web-based disaster warning mobile application tools should be developed and kept updated to complement user-friendly websites that are a key medium for dissemination of data and information.

OPPORTUNITY: *Design and use of a mobile application that provides real-time information and alerts on hydrological monitoring and flood forecast, allowing LMC governments to efficiently and effectively expand the reach of their water data.*

OPPORTUNITY: *Develop an innovative web-based platform that allows stakeholders to quickly assess different tools addressing multiple types of impacts and scenarios related to hydrology, environment, socioeconomic, and climate change. Such a platform could facilitate the dissemination and exchange of data among data providers and data users.*

Web-based data sharing platforms and impact assessment tools have been introduced by several entities to date, but they are generally geared towards technical experts or are not made widely accessible for a broader spectrum of users.

Groundwater and water quality monitoring: Groundwater and water quality data at national and tributary levels as well as along the main stream of the Mekong have been found to be insufficient or non-existent in certain areas, including parts of Cambodia, Lao PDR and Myanmar. As the rapid pace of development and climate-related risks mount across the region, many governments still lack the technical and financial capacity to effectively monitor groundwater and water quality.

OPPORTUNITY: *Build long-term national institutional capacity in groundwater and water quality monitoring and planning.*