Case Story – Highlights

Assessing the impacts of hydropower projects on the Mekong Delta

Providing a comprehensive set of models for impact assessment of hydropower development on the Mekong River mainstream

Transparent and science-based tools using available knowledge base

Impact assessment in the Mekong River and the Delta with a high temporal and spatial resolution

Better understanding of cumulative impacts on biodiversity, livelihoods and the economies of the lower Mekong countries

Challenge

Hydropower development plans along the Mekong River mainstream have raised serious concerns about their impacts on the Mekong Delta. For that reason, from 2013 to 2015, the Government of Vietnam, with participation from the governments of Cambodia and Laos, conducted a 'Study on the Impacts of Mainstream Hydropower on the Mekong River', also known as the Mekong Delta Study or MDS. The objective was to assess the fluctuations on the flow regime of the construction and operation of the mainstream cascade hydropower scheme, and the impacts due to these changes on the natural, economic and social environment in the Mekong Delta regions of Vietnam and Cambodia.

A comprehensive integrated system of models was developed by DHI as part of the Study to understand and quantify these impacts.

Solution

The MDS was initiated by the Government of Vietnam to study the overall impact of the proposed hydropower cascade in the Mekong River mainstream on the natural, social and economic systems of the Mekong River Delta and the Tonle Sap basin.

The Study's approach to the impact assessment is based on internationally accepted standards, principles and experiences, such as those of the International Organization for Environmental Impact Assessment. The guidelines have been recommended by the International Organization for Environmental Impact Assessment, the United Nations Environmental Policy Law, and the World Bank's Standard for Social Environmental Sustainability. The study also uses the best available data sources and proven scientific analysis methods to calculate and quantify impacts.

The modelling work was completed using MIKE Powered by DHI software (MIKE HYDRO River, MIKE HYDRO Basin and MIKE 21C) and available knowledge base to forecast both spatial and temporal changes in river flows and water quality. The MDS adopted a multi-scale modelling approach in combination with field surveys in order to represent the general features of the LMB and also to represent details of alternative hydropower project development scenarios.

For each development scenario, the output of the hydrological model consisted of multi-year time series of water flows, velocities, sediment concentrations and nutrient levels. Morphological changes, as a consequence of the erosion and sediment deposition processes, were provided in terms of changes to the longitudinal river profiles.

Contact: mike@dhigroup.com

Visit: www.dhigroup.com

More: link to online story