



DHI MARKET AREA: SURFACE & GROUND WATER

RIVERS

Sustainable river management for the benefit of all

Rivers and their floodplains are vital to societies and nature. But human intervention puts the delicate balance of natural river processes at risk. Building infrastructure in the riverine environment to control flooding or to regulate flows for navigation or water storage can have profound impacts on river flows, morphology and water quality.

Typically, rivers in built-up areas need to be controlled so that their natural movement is restricted. In rural areas, the focus is often on sustainable flows, navigation, flood protection as well as river and floodplain health. Moreover, river transport is being increasingly seen as a viable alternative to land or air transport. Understanding the complex relationships between different river processes is crucial to the effective design of costly river and transport infrastructure. It's also imperative for the maintenance or improvement of river health. Once constructed, the efficient operation of river infrastructure such as dams, weirs and flow regulators is essential to supply river users with the right amount of water when needed and to maintain inland navigation routes. Undertaking any of these activities in rivers and on floodplains, while minimising adverse impacts on the environment, requires expert knowledge and assessment tools.

THE CHALLENGES

- Understanding complex morphological processes
- Managing river flows
- Predicting the impacts of river works
- Designing efficient river structures
- Controlling erosion and siltation
- Protecting valuable infrastructure
- Operating river infrastructure efficiently
- Increasing the viability of river transportation
- Restoring river and floodplain ecosystems
- Assessing water quality impacts

OUR APPROACH

At DHI, we focus on customising our services to meet our client's needs. We assist river and reservoir managers in meeting the various demands of riverine environmental management. With our extensive experience of hydrology, water resources management, morphology and hydraulics, we strive to cater to both real-time operations and planning requirements for river management.

OUR SOLUTIONS

- River flow and water quality modelling
- Sediment and morphological modelling
- Erosion and sedimentation assessments and mitigation
- Optimising infrastructure design
- River training and bank protection design
- Information management systems for river operations
- Planning and management of inland navigation
- Real-time data acquisition and management
- Real-time operation optimisation

THE ULTIMATE GOAL

SOLVING RIVERINE ENVIRONMENTAL CHALLENGES EFFECTIVELY

Freshwater lakes and rivers contain an estimated **105,000 km³** or around **0.3%** of the world's freshwater

UNEP

OUR TOOLS AND SERVICES

We can provide you with everything you need to effectively overcome the challenges in river management. Our tools and services include:

- analysis, impacts and concept design of river infrastructure, protection and training works
- river sedimentation/erosion and dredging studies
- river and floodplain restoration design and analysis
- real-time river operation and optimisation systems
- effluent dispersion studies
- inland water transportation development studies
- capacity building and training by THE ACADEMY by DHI
- MIKE Powered by DHI software tools:
 - MIKE 11
 - MIKE 21
 - MIKE 21C
 - MIKE ECO Lab
 - ABM Lab
 - MIKE SHE
 - MIKE FLOOD
 - PLANNING
 - REAL TIME

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