MODELLING OF STORMWATER DRAINAGE NETWORKS AND SEWER COLLECTION SYSTEMS using MIKE URBAN

Development and rehabilitation of urban collection systems can pose major challenges to planners and engineers. The systems must be cost-effective, yet also sufficiently resilient to handle the effects of demographic processes as well as the consequences of climate change. Moreover, neither of those processes are easily predictable. To meet these challenges, access to the right tools is essential. MIKE URBAN helps you make sound decisions in a challenging world. MIKE URBAN makes you the expert and enables you to create future concepts for urban stormwater drainage networks and sewer collection systems - concepts that are cost-effective as well as resilient to change.

SUSTAINABLE DESIGN STRATEGIES FOR SEWER SYSTEMS
Using MIKE URBAN, evaluation and optimisation of rehabilitation concepts can be performed with respect to:

- Hydraulic performance
- Cost-benefit analyses
- Mitigation of flooding caused by extreme events
- Modelling of all water in the city
- Estimation of potential risks for current systems as well as future scenarios
- Carrying out integrated city wide planning of sewer system expansion and rehabilitation - also taking urban flood protection into account.

BENEFITS
- Feature-rich GIS environment: Esri ArcGIS
- Detailed hydraulic modelling
- Flexible import and export of data
- Interpolation, assignment and validation of data
- Powerful result presentation
- Local support in more than 30 countries

FEATURES
- Separate and combined sewer collection systems, stormwater drainage networks
- Modelling of overland flow and pipe flow
- Advanced control strategies
- Long term statistics
- Extendable to MIKE URBAN Flood

MODULES
- Model Manager (main module)
- Rainfall-runoff
- Hydrodynamic pipe flow
- Management of control structures
- Pollution transport
- Chemical and biological processes
- 2D overland flow

METHODS
- Saint-Venant equations
- Implicit Abbott-Ionescu scheme
- Hydrology:
  - Time/area method
  - Non-linear reservoir (kinematic wave) method
  - Linear reservoir method
  - Unit Hydrograph model

Constant challenges with respect to extension and rehabilitation of urban drainage systems. © Shutterstock.com/Zolran
SUSTAINABLE MODELLING

One of the typical MIKE URBAN applications is hydraulic modelling in urban environments. It is particularly modelling of rainfall-runoff, its discharge through open or closed pipes as well as on the surface.

MIKE URBAN also models transportation of dissolved substances and sediments based on actual physical principles.

Additionally, simulations of networks with existing or planned components, such as pumps, weirs or valves up to complex PID control strategies can be launched using MIKE URBAN - including under real-time conditions. The MIKE URBAN engines can be integrated into operational monitoring and control systems.

DATA MANAGEMENT THAT WORKS

Data management in MIKE URBAN includes:

- Fully customisable import and export with many templates
- Create/import/edit time series of rain events
- Create cross-sections based on digital elevation models

PRESENT RESULTS IN AN UNDERSTANDABLE MANNER

Flexible and easy to understand presentation of results and derived action plans towards decision makers and stakeholders is as important as the actual simulation itself. MIKE URBAN provides the following presentation tools:

- Rich symbolisation and labelling options due to seamless integration with ArcGIS
- Static or animated results presentations such as maps, longitudinal profiles and time series
- Export of results to various GIS data formats and video files
- Freeware result viewer: MIKE View

DEDICATED TECHNICAL SUPPORT

Like all MIKE Powered by DHI products, MIKE URBAN is more than just software. Our global technical support organisation offers expert support in more than 30 countries and in your local language. Our support programme offers many benefits, including free software updates, hotline support and access to the world’s largest network of water modelling experts - the MIKE user community.

Through THE ACADEMY by DHI, training is available all over the world in terms of standard courses as well as courses tailored to fit your specific requests and based upon your own data.

Contact: mike@dhigroup.com
For more information, visit: www.mikepoweredbydhi.com