Jun 26th, 3:40 PM - 5:00 PM

Fast Integrated Systems Modelling for Adaptive Delta Management in Bangladesh

Eelco van Beek
Deltares, eelco.vanbeek@deltares.nl

Laura Basco Carrera
Deltares, laura.bascocarrera@deltares.nl

Marjolijn Haasnoot
Deltares, marjolijn.haasnoot@deltares.nl

Willem van Deursen
wvandeursen@carthago.nl

Giasuddin Ahmed Choudhury
choudhuryga@gmail.com

The Bangladesh Delta Plan is following an adaptive management approach to deal with the uncertainties involved in the fast socio-economic development of the country and in climate change. The analysis of such adaptive approach requires tools that enables the quantification of the impacts of many possible interventions in the system for different future socio-economic and climate conditions. The tools should be able to be used in the participatory setting of collaborative modelling. The use of simplified versions of complex quantitative models to improve the use of these tools in decision-making processes has received much attention in the last few years. We can find many examples of the use of such meta- and "quick scan" models in data-rich contexts and regions where there are many models available. We focus in this presentation on the use of such meta-models in an environment characterized by limited system knowledge due to limited data availability and accessibility, and/or complex hydrology of the river system.

We will present the approach we applied to develop a Fast Integrated Systems Model (FISM) in Bangladesh. For this we followed a collaborative modelling approach that integrates and simplifies existing complex quantitative models to develop a fast, low-resolution, dynamic model, i.e. the FISM. This is done jointly with stakeholders, local developers and decision-makers and is suitable for high-level discussion and communication, exploratory analysis and long-term decision support. It supports the quantification and prioritization of possible interventions by quantifying their policy-relevant impacts under various scenarios about the future. The approach also helped to create a collaborative environment by means of team work and a continuous, structured collaborative prototyping process. The tools will be used to support the development of the next 5-year plan for Bangladesh.