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## Fast Integrated Systems Modelling: The method and its application in Bangladesh and the Philippines

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## Fast Integrated Systems Modelling for Collaborative Decision Making under Uncertainty; the Bangladesh Delta Plan 2100 case

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### Abstract:

The use of simplified complex quantitative models to improve the use of modelling tools in decision-making processes has raised attention in the last few years. These are faster to develop and use, and can be adapted to the needs of decision makers and stakeholders. Keeping them simple facilitates the involvement of stakeholders in the modelling process, the communication of associated uncertainty, and improves the credibility of its results. We can find 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 on the use of such meta-models in such scarce dynamic environments characterized by limited system knowledge due to lack or limited data availability and accessibility, and/or complex hydrology of the river(s). We will present Fast Integrated Systems Modelling (FISM). FISM follows a collaborative modelling approach that integrates and simplifies existing complex quantitative models to develop a fast, low-resolution, dynamic model jointly with stakeholders and decision-makers and that it is suitable for high-level reasoning 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 helps creating a collaborative environment by means of team work and a continuous, structured collaborative prototyping process. We will present action-oriented outcomes from two cases: the development of the national water security Delta Plan 2100 for Bangladesh, and the improvement of the master plan for Jalaur river basin in the Philippines. The strengths and limitations of FISM – in particular, the tradeoffs between simplified models – will be finally presented and being opened for discussion with the public.

**Keywords:** participatory modelling; water security; adaptive planning; uncertainty, meta-modelling; Bangladesh; Philippines