> Assessed Metamodel projects include Restoration of Chalan Beel and North Rajshahi Irrigation Project

BANGLADESH METAMODEL

Using an integrated tool to support decision making

Context and problem
The Bangladesh Delta Plan 2100 comprises many existing and new projects. With different project concepts, outcomes and funding requirements, it becomes difficult for administrators to decide on projects that need to be prioritised.

How can policy makers take informed decisions while implementing of BDP2100?

Researching this question
Bangladesh Metamodel, an integrated tool, has been developed to enable policy makers decide on projects by taking various aspects into consideration.

The Bangladesh Metamodel is a decision support tool that analyses and evaluates projects and programmes to be implemented under Bangladesh Delta Plan 2100. Projects are prioritised by considering various scenarios and uncertainties related to climate change.

THE BANGLADESH METAMODEL IN BRIEF

- **Planning tool that supports decision makers**
- **Supports implementation of BDP2100**
- **Develops adaptive pathways that takes climate-related uncertainties into account**
- **Simplified calculations in a short time**
- **Accurate results**
- **Analyses impact and investment requirements of future projects in different scenarios**

Workshop in Dhaka, Bangladesh.

Joint Cooperation Programme Bangladesh-the Netherlands

Identifying pathway

The analytical results from the Metamodel helps administrators identify the most suitable pathway for a project since the tool takes benefits, risks and costs into account, besides the social, economic, and environmental aspects of projects.

KEY MESSAGE

An integrated tool that supports policy makers compare analytic results and take decisions.

For more information contact Kymo Slager at kymo.slager@deltares.nl

www.jcpbd.nl

Deltares CEGIS Center for Environmental and Geographic Information Services WAGENINGEN UNIVERSITY & RESEARCH IWM Water Environment & Climate Kingdom of the Netherlands

BANGLADESH METAMODEL

PURPOSE

1. Analyse and compare the impact of projects in future in different scenarios in line with BDP2100
2. Develop adaptive pathways by providing quantitative information on different pathway options
2. Analyse the investment requirements of projects

IDENTIFYING AND PRIORITISING PROJECTS

1. Objective of Metamodel
As BDP2100 is a long-term plan, the government has to continuously select projects for implementation. The main objective is to support key stakeholders such as the General Economics Division and Ministry of Water Resources in choosing projects. The Metamodel helps in assessing and prioritising projects.

2. Integrated planning
As BDP2100 involves water and land management, concepts of integrated water resources management (IWRM) and adaptive delta management (ADM) have been used in a synergetic manner.

3. Comprehensive approach
The Metamodel tool takes various indicators such as food security, annual flooding and crop yields into consideration, under different components such as fisheries module, agricultural waste demand module, salinity module, etc. through different scenarios in choosing a project.

Metamodel indicators

State indicators
- River flow
- River flood extent, depth & duration
- Waterlogging extent, depth & duration
- Ground water level average change
- Irrigation water volume
- Volume groundwater recharge
- River salinity
- Root zone water availability

Decision support indicators
- Crop production (ton/year)
- Food security for the poor (average dietary energy supply adequacy, ADESA)
- River flood damage (Taka)
- Total flood damage (Taka)
- Agricultural flood & drought damage
= Environmental flow regime indicator
- Capture fishery in rivers
- Population affected by river flooding

Joint Cooperation Programme Bangladesh-the Netherlands

For more information contact Kymo Slager at kymo.slager@deltares.nl

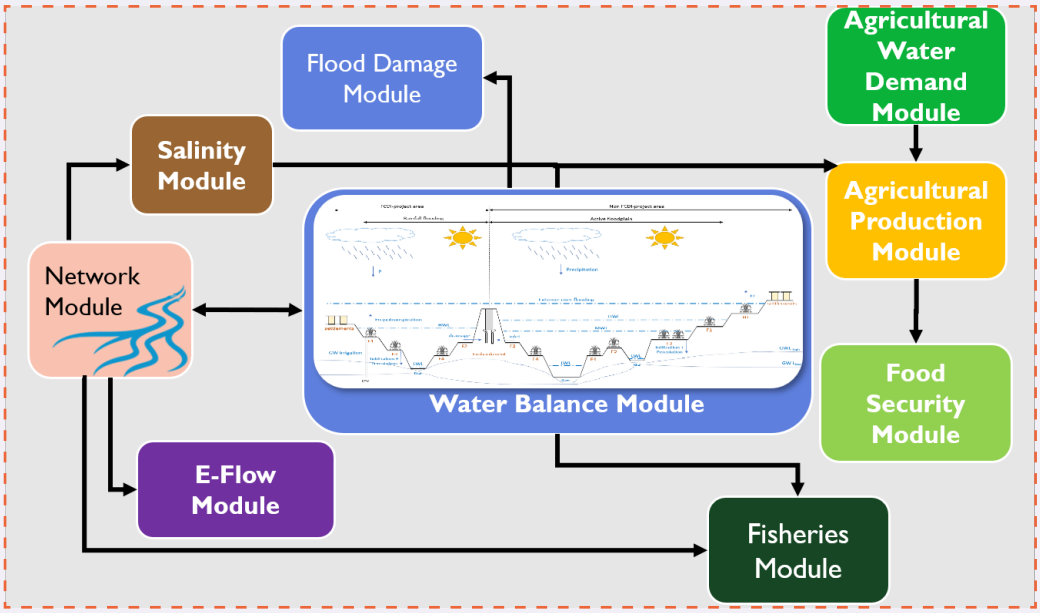
www.jcpbd.nl

Deltares
CEGIS Center for Environmental and Geographic Information Services
WAGENINGEN UNIVERSITY & RESEARCH
IWM Water Environment & Climate
Kingdom of the Netherlands

BANGLADESH METAMODEL

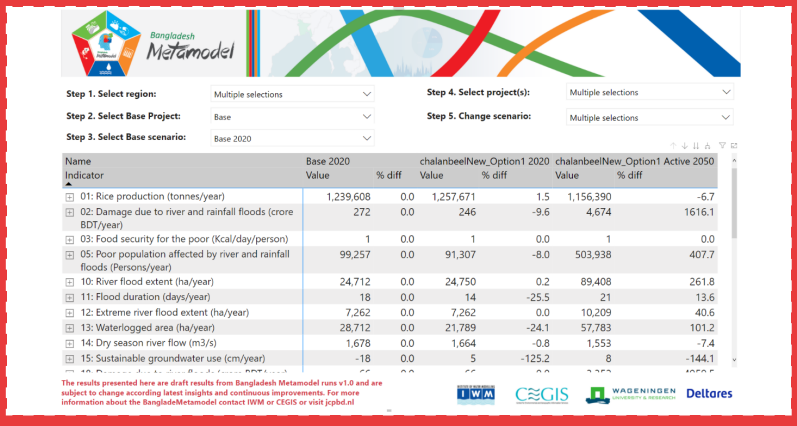
METAMODEL COMPONENTS AND MODULES

Metamodel Engine



Database

Dashboard



Joint Cooperation Programme Bangladesh-the Netherlands

For more information contact Kymo Slager at kymo.slager@deltares.nl

www.jcpbd.nl

Deltares

CEGIS Center for Environmental and Geographic Information Services

WAGENINGEN UNIVERSITY & RESEARCH

IWM Water Environment & Climate

Kingdom of the Netherlands

BANGLADESH METAMODEL

DASHBOARD

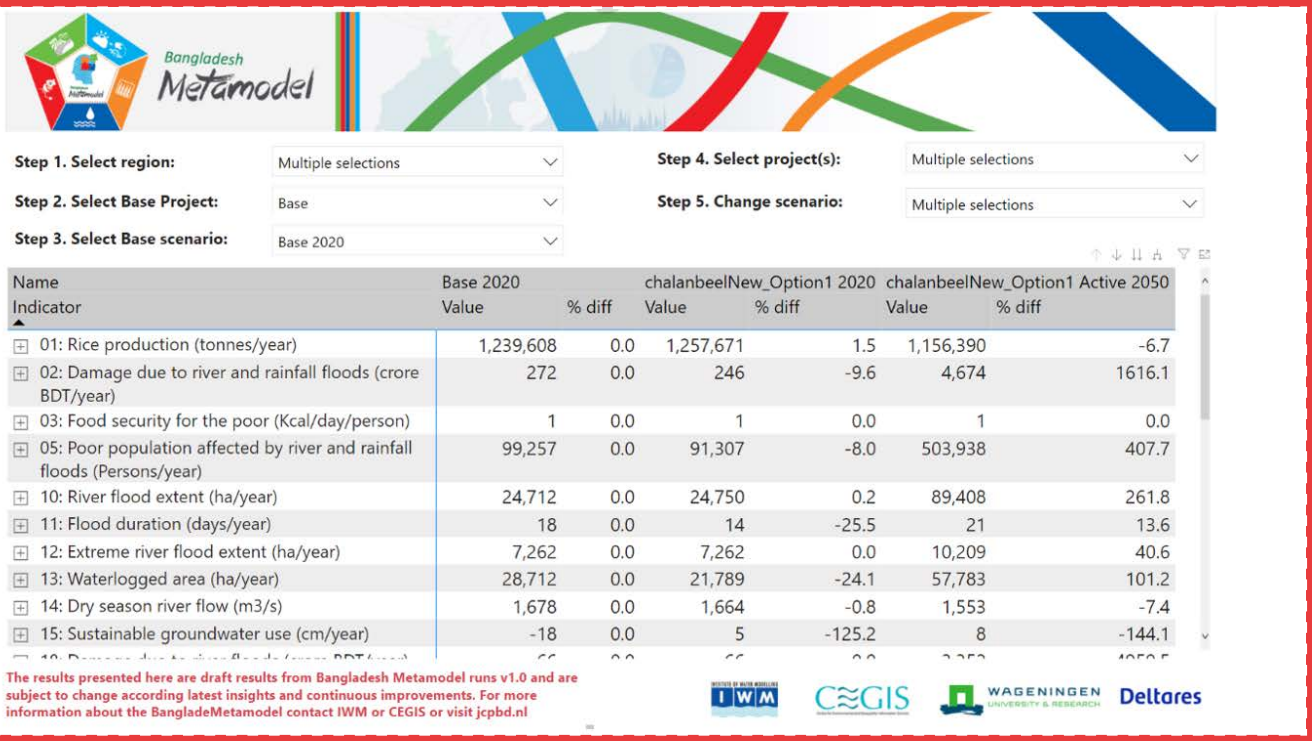
The dashboard can be used to compare the results of different simulations to assess the impact of:

- **Scenarios**
- **(Versions of) projects**
- **Combinations of projects in programs**
- **Projects and programs under different scenarios**

Assessed Projects using Bangladesh Metamodel

	CEGIS	IWM
NW	Revitalization and Restoration of Chalan Beel	North Rajshahi Irrigation Project
ECZ	Coastal Embankment Improvement Project – 2nd Phase Southern Agriculture Improvement Project	Develop and restore navigability of different rivers of Khulna Division through capital dredging Develop and restore navigability of different rivers of Barisal Division through capital dredging

IMPACT EXPLORER



Joint Cooperation Programme Bangladesh-the Netherlands

For more information contact Kymo Slager at kymo.slager@deltares.nl

www.jcpbd.nl

Deltares

CEGIS Center for Environmental and Geographic Information Services

WAGENINGEN UNIVERSITY & RESEARCH

IWM Water Environment & Climate

Kingdom of the Netherlands