

# Analitical Framework for the Planning of Integrated Water Resources Management

## What is an Analytical Framework ?

An analytical framework is a structured planning procedure that provides relevant information to planning bodies to help them assess and compare alternative courses of action for final decision making.

The Analytical Framework for the Planning of Integrated Water Resource Management aims to support the formulation, analysis and evaluation of alternative water management strategies and provide a structured approach based on consensus on the required information. The framework will be used in updating the NWMP and in analyzing the impacts of the Inter Basin River Link Project on land-water resources, socio-economic condition and environment.

## The Models & Tools:

- are transparent in terms of hydrologic/hydraulic computations for easy understanding.
- are simple and easy to apply in testing planning ideas, scenarios or options

An analytical framework for macro level planning of IWRM is being developed by CEGIS and WARPO. The framework will be used to assess and evaluate programs under the National Water Management Plan (NWMP).

## Challenges of WRM in the 21<sup>st</sup> Century...

- Meet human demand for water
- Protect and nurture nature & natural system
- Sustainable development
- Adequate technical skills and expertise
- Professional need
- Communication skills
- In-depth knowledge of policy, financing and public involvement

## What will the Analytical Framework do?

- Reflect the changes in the utilization and availability of the water resources and in the water resources system itself
- Predict the relevant impacts on ecosystems and on the social economic conditions of the different users of the resources and the society as a whole.
- Account for all changes in the upper water shed or in the water levels in the Bay of Bengal

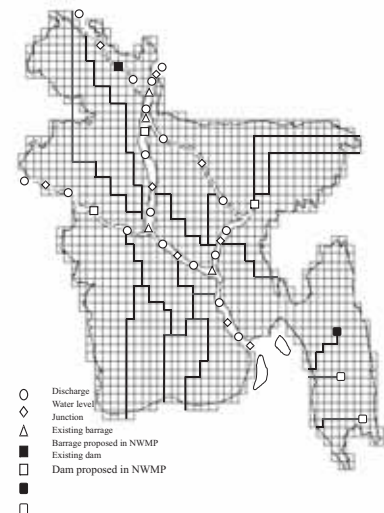
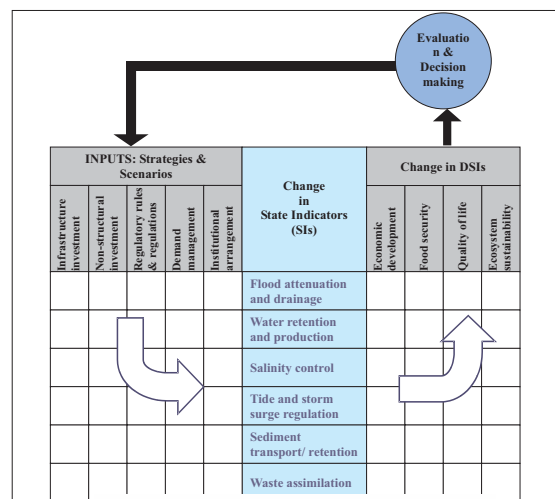
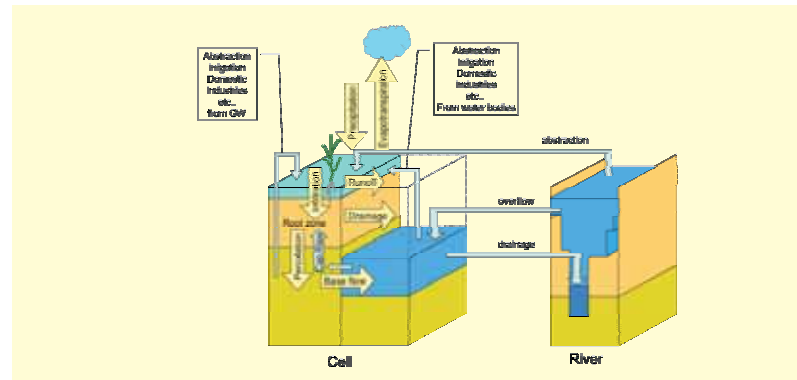
## Key components

Conceptual framework that describes the steps to be taken in the analysis of water resource management strategies and the kind of information needed (e.g., problem statement, objectives, indicators).

Computational framework that includes a set up of models and databases, and the procedure for their operation and interaction.

## Analytical Framework for the Planning of IWRM in Bangladesh

The Analytical Framework connects three important parties or stakeholders in the planning process: CEGIS in analysis, WARPO and LGED in planning, and the Ministry of Water Resources in decision-making.



## Analytical Framework Strategies

### Orange Strategy

#### Balance surface and ground water development

- Restore surface water for environmental demand and domestic supply
- Increase irrigation coverage (for boro production)
- Increase surface water availability
- Protect the major towns and cities from bank erosion
- Improve fish migration by dredging off-takes
- Provide safe drinking and domestic-use water in Dhaka city

### Green Strategy

#### Live with flood and demand management

- Conduct flood proofing for both rural and urban areas
- Flood preparedness and early warning system
- Expand wheat area coverage
- Decrease water loss by using lined channels
- Regulatory laws on discharging industrial waste

### Red Strategy

#### Full development

- Pump water from the Jamuna to the Dhaleswari and the Old Brahmaputra
- Increase irrigation coverage (for boro production)
- Introduce /promote / encourage HYV Rice
- Increase monsoon rice (aman) production
- Rehabilitate existing FCD projects

#### Example Application for North Central Region Problems and issues:

- Shortage of water supply and pollution in Dhaka city
- Surface water pollution
- Deficit in water availability
- Reduction of fish and fisheries resources
- Flooding and maintenance of the existing FCD

#### The Blue Accounting Conceptual Framework approach.....

provides a framework to assess changes of proposed interventions in terms of national policy objectives.

It has indicators that characterizes its functions and values: State Indicators (SI) represent the performance of the functions. Decision support indicators (DSI) reflect policy and decision making objectives.

It has three components: Inputs, Outputs and Outcomes. The Input includes strategy and scenarios which impact on the water resources system as an output. Based on the SI - DSIs relationships, the impacts from the inputs on the outcomes (development objectives) will be evaluated. s in decision-making.

#### National Water Management Objectives...

relevant for the evaluation of alternative water management strategies include: i) Economic development; ii) Poverty alleviation; iii) Food security; iv) Public health and safety; v) Decent standard of living for the people; and vi) Protection of the natural environment

#### Characteristics of the WRS of Bangladesh

The land phase of the hydrologic cycle is influenced by land use distribution dominated by homestead, agricultural land, wetlands and high density of river.

- External runoff through major trans-boundary rivers, the Ganges, the Brahmaputra and the Meghna, dominate the surface water flow regime in all hydrologic regions except Chittagong.
- Tides from the Bay of Bengal influence the flow regime.
- Rivers are characterized by very small slopes, shallow and wide sections, and distinct low flow sections.
- Extensive rainfall occurs during monsoon, with long spells of non-rainy days creating droughts.
- Floodplains and wetlands play important water storage functions in the country's mainly flat topography.
- Rivers, wetlands and ground water storage (aquifer) are interconnected.

