

*2nd Regional Stakeholder Forum on Basin Development Plan
15-16 October 2009
Chiang Rai, Thailand*



Basin Development Plan Programme Phase 2

Development Scenarios for Basin Development Planning

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Scenario-based Approach in Basin Development Planning



Why basin-wide development scenarios?

- The context of Mekong River Basin
- Need to assess national plans and projects in an integrated basin framework
- The **main objective** of the formulation and assessment of alternative development scenarios is **to support the definition of the “Development Space”** for LMB that will be defined in the IWRM-based Basin Development Strategy

The Scenarios

Nine main scenarios have been defined in response to each country's suggestions

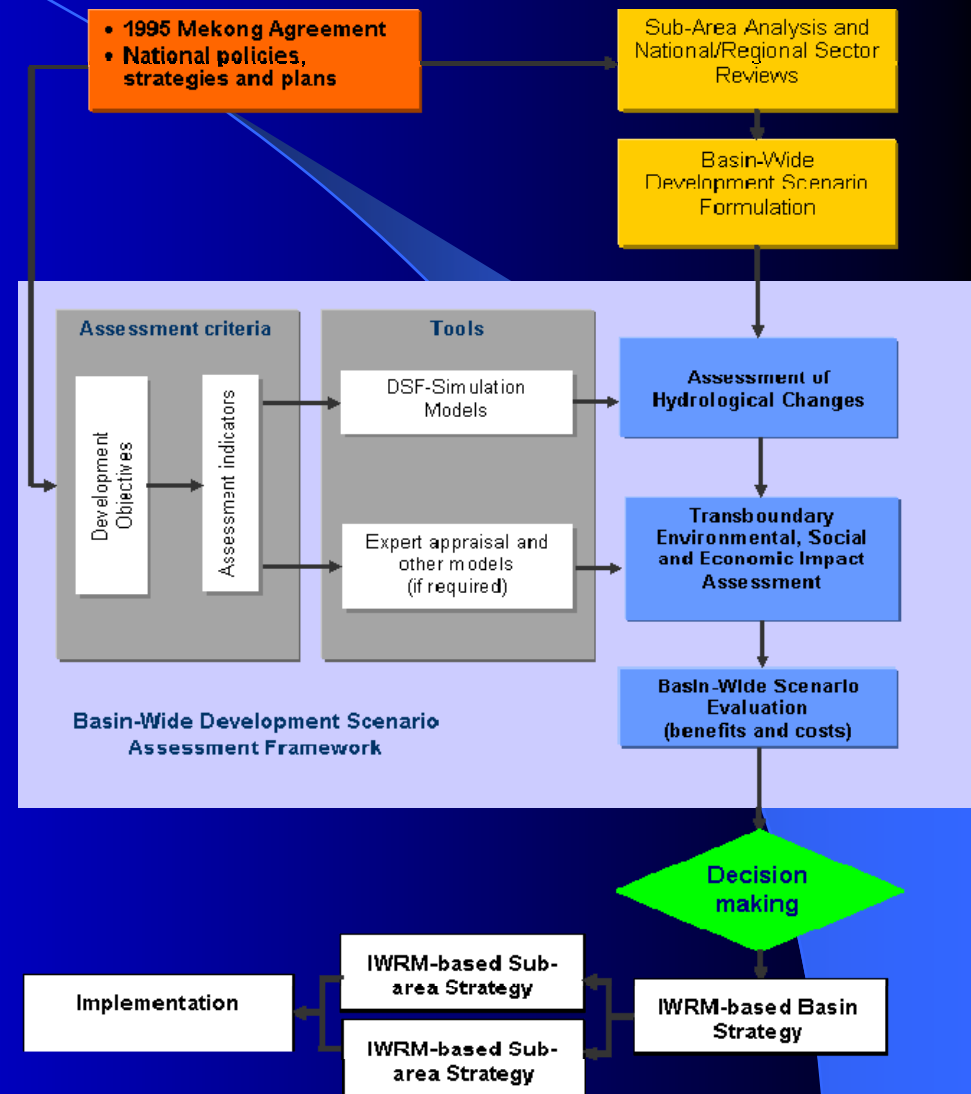
Effects of climate change will be investigated also

	Title	Time horizon
1	Baseline scenario	Baseline (1985-'00)
2	Upper Mekong Dam scenario (UMDS)	Definite future over next 5-10 years
3	Definite future scenario (DFS)	
Foreseeable future situation (FSS)		
4	LMB 20-year plan scenario	Foreseeable future over next 20 years
5	LMB 20-year plan without mainstream dams	
6	LMB 20-year plan with 6 m/s dams in upper LMB LMB 20-year plan with 9 m/s dams	
7	Mekong delta flood management scenario	Baseline (1985-'00)
Long term future		
8	LMB long-term development scenarios	Long term future over next 50 years
9	LMB very high development scenarios	
10	Further scenarios	

Scenario formulation and assessment process



- Series of the RTWG and participatory approaches (NGOs, Academia, Sub-area), and the 1st Stakeholder Forum in 2008
- Draw on extensive reviews of national policies and plans, and MRC's programme, researches to establish relevant assessment criteria
- Guided by 1995 Mekong Agreement to appraise how well each scenario will achieve the triple bottom line objectives and trans-boundary impacts of the LMB



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Proposed Approach to Scenario Impact Assessment



Background to assessment

- ❑ **Approach of the assessments required has been discussed and agreed in consultation with the MRC member countries**
- ❑ **Key reference: Scoping and planning of the assessment of basin-wide development scenarios, March 2009**
- ❑ **Also drew on WUP discussions about assessment criteria**



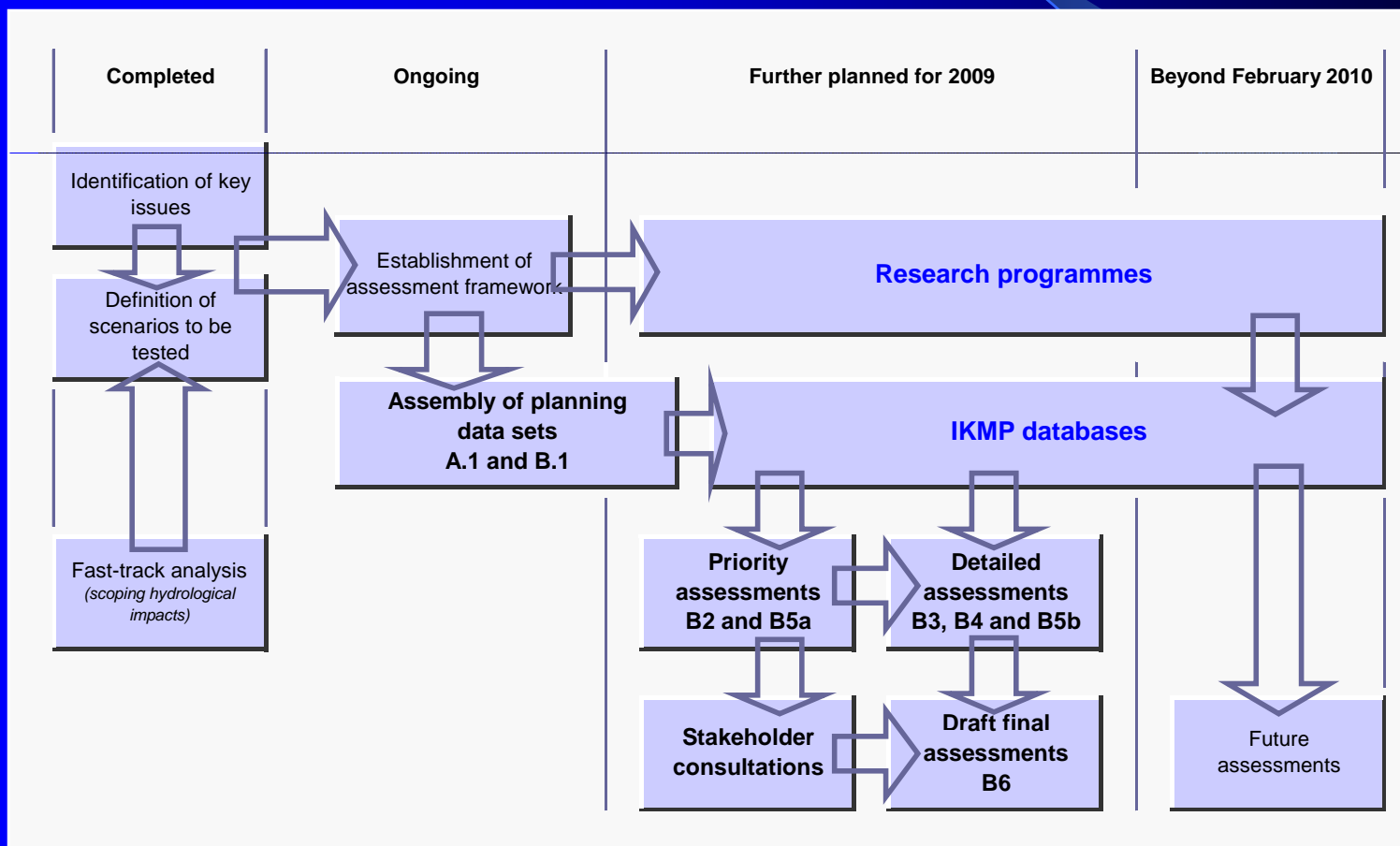
Goal	Primary Objectives	Assessment Criteria				High relevance to Work Package					
		Specific development	Issue	Indicator Description	Unit	B2	B3	B4	B5	B6	
Sustainable development (triple bottom line)	Optimal development (triple bottom line)	1. Economic development	1.1 Increase irrigated agricultural production	Irrigable area, production tonnage and value	Incremental area Incremental crop production Net incremental economic value	'000 ha '000 ton NPV US\$m	✓		✓	✓	✓
			1.2 Increase hydropower production	Hydropower capacity, power generated and value	Incremental installed capacity Incremental power generated Net incremental economic value	MW GWh/year NPV US\$m	✓			✓	✓
			1.3 Improve navigation	River transport	Incremental navigable days by class Net incremental economic value	'000 boat-days NPV US\$m					✓
			1.4 Decrease damages by floods	Extent and duration of annual flooding by class	Average area flooded annually to max 0.5-0.9m depth Average area flooded annually > max 0.9m depth Incremental net economic value of flood damage	'000 ha '000 ha NPV US\$m		✓	✓	✓	✓
			1.5 Maintain productivity of fishery sector	Capture fisheries and aquaculture production	Incremental annual average capture fish availability Incremental annual average aquaculture production Net incremental economic value	'000 ton '000 ton NPV US\$m	✓		✓	✓	✓
		Impact of flow and sediment transport changes on deep pools		Sediment loads at specified locations on mainstream Water levels at specified locations on mainstream Net incremental economic values	Trend m Trend		✓		✓	✓	
		2. Environmental protection	2.1 Maintain water quality and acceptable flow conditions	Water quality	Water quality incl. sediment in transport in mainstream	Trend			✓	✓	✓
				Flow characteristics	Key flow characteristics (to be defined)	Trend					
			2.2 Maintain wetland productivity and ecosystem services	Protection of forests around Tonle Sap	Forest flooded for specified depth duration at Tonle Sap Net incremental economic values	'000 ha NPV US\$m			✓	✓	✓
				Productivity of wetland ecosystems	Incremental wetlands with required depth-duration Net incremental economic value	'000 ha NPV US\$m			✓	✓	✓
	2.3 Manage salinity intrusion in the Mekong delta			Impact of salinity intrusion on land use potential	Area within delta within thresholds of salinity levels Net incremental economic value	'000 ha NPV US\$m			✓	✓	✓
	2.4 Minimize channel effects on bank erosion	River bank erosion	Incremental area at risk to erosion Vulnerability to bank erosion Net incremental economic values	'000 ha Trend Trend		✓		✓	✓		
	2.5 Conservation of biodiversity	Impacts of flow management changes on endangered species	Incremental area of suitable habitats Estimated number of species affected Incremental net economic value of habitat areas	'000 ha no. NPV US\$m			✓	✓	✓		
	3. Social development	3.1 Maintain livelihoods of vulnerable resource-users	Health, food and income security	No. of people affected Severity of impact on health, food and income security	'000 h/h Trend	✓		✓	✓	✓	
		3.4 Increased employment generation in water related sectors	Incremental sustainable employment from water resource interventions	Agriculture	'000						
				Fisheries Water-related service industries Tourism	'000 '000 '000	✓		✓	✓	✓	
	4. Equitable development	4.1 Ensure that all four LMB countries benefit from the development of water and related resources	Aggregate benefits by country	Summation of incremental net economic benefits Summary of non-quantifiable impacts	NPV US\$m Trends	✓		✓	✓	✓	

The assessment criteria include 12 specific development objectives within economic, environmental and social spheres

A total of 37 indicators have been identified within the framework

In addition, equity is evaluated

A structured approach that is based on transparent data sets and facilitates further scenarios to be assessed if needed



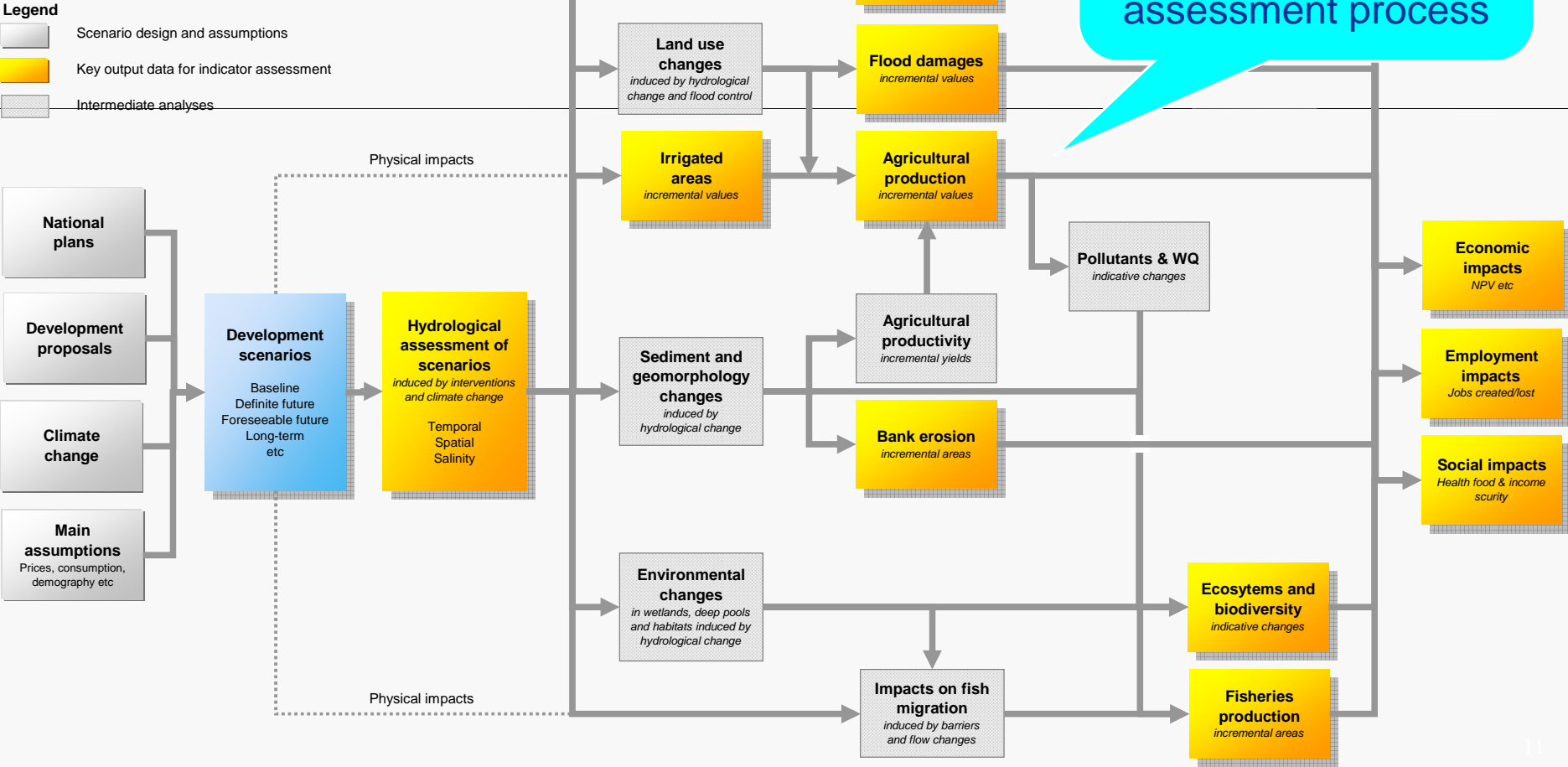
Overview of assessment approach

The key aspects of the assessment approach are:

- ❑ Founded on the principles of **integrated water resources management**, recognising the inter-dependence of the different sectors
- ❑ Building on the rich body of acquired knowledge of the natural resource system and a **structured approach** to identifying and assessing the **key issues** that will affect strategic decision-taking
- ❑ **Dealing with uncertainties** in an open and transparent manner and understanding their development implications

Hydrological changes and physical impacts caused by interventions are assessed for their environmental and economic impacts and thence their social impacts.

Overview of assessment methodology and processes



Uncertainties about future conditions

- ❑ The proposed assessment methodologies must deal effectively **future changes outside the water sector** which will affect the magnitude of impacts and about which opinions may be divided
- ❑ Methodology generally will be to assess impacts upon the **current landscape and socio-economic conditions** (the base case) ...
- ❑ ... and thereafter to state clearly the **assumptions about how conditions may change** that would affect the magnitude of the impact (*eg economic growth prompting decreased direct dependency upon water resources etc*)
- ❑ Different assumptions can be tested to see how they would influence strategic choices

Spatial integration

Using GIS as a means of integrating the different spatial impacts associated with hydrological, eco-system, land use and administrative boundaries

- ❑ Land use, cover, water bodies, wetlands and topography – from existing MRC mapping cover
- ❑ Extent of flooding and salinity intrusion – boundaries determined by the DSF
- ❑ Irrigation areas – based on BDP irrigation database aggregated to district
- ❑ Dams and hydropower – point data as available in MRC database
- ❑ Agricultural data – aggregated or distributed to districts
- ❑ Fisheries productivity data - distributed by land and water body types based on provincial data relevant to different guilds
- ❑ Population numbers and characteristics – aggregated or distributed to districts + “hot spots”
- ❑ Economic data - aggregated or distributed to districts (except hydropower)

Districts will be the basic admin unit

Reporting

- ❑ **Results** will be summarised in an overall assessment report, **comparing scenario performance** against the agreed assessment criteria
- ❑ **Risks and uncertainties** will be summarised and their potential impact on decision-taking described
- ❑ **Possible trade-offs** between water-related sectors and between member countries will be set out
- ❑ Where appropriate to informed decision-taking, **other water-related transboundary issues**, not captured in the agreed water resources development scenarios, will be described and discussed

The assessment report will conclude with how the results may be used to:

- ❑ **facilitate basin wide stakeholder discussions**, government consultations and the detailed evaluations that each country must undertake to define the range of ‘acceptable trade-offs’, and ultimately
- ❑ **assist in the preparation of the Basin Development Strategy**, in particular the definition of the ‘development space’ and the strategic guidance for the integrated development and management of the various water-related sectors

Structure of methodology report

- ❑ **Main report** – amplifies this overview
- ❑ **Annex 1 – Hydrological assessment**
- ❑ **Annex 2 – Environmental assessment**
- ❑ **Annex 3 – Social assessment**
- ❑ **Annex 4 – Economic assessment**
- ❑ **Annex 5 – Fisheries assessment**

*Draft for comments available at
<http://www.mrcmekong.org/programmes/bdp>*



Thank you