



IWRM-based Water Planning Approach in Lao PDR

By Department of Water Resources
Ministry of Natural Resources & Environment, Lao
PDR

Brief information about Lao PDR

- Lao PDR located in South-East Asia
- Area 236,800 km² (half size of Spain)
- 90% of the country are in Mekong Basin
- Water resources per capita is around 55,000 m³ per year
- 35% of annual flow (or equal 270,000 m³) in Mekong is from Lao tributaries
- The monthly rivers flow by the pattern of rainfall is around 80% during the rainy season and 20% in the dry season.



THE BASIN LINKAGES

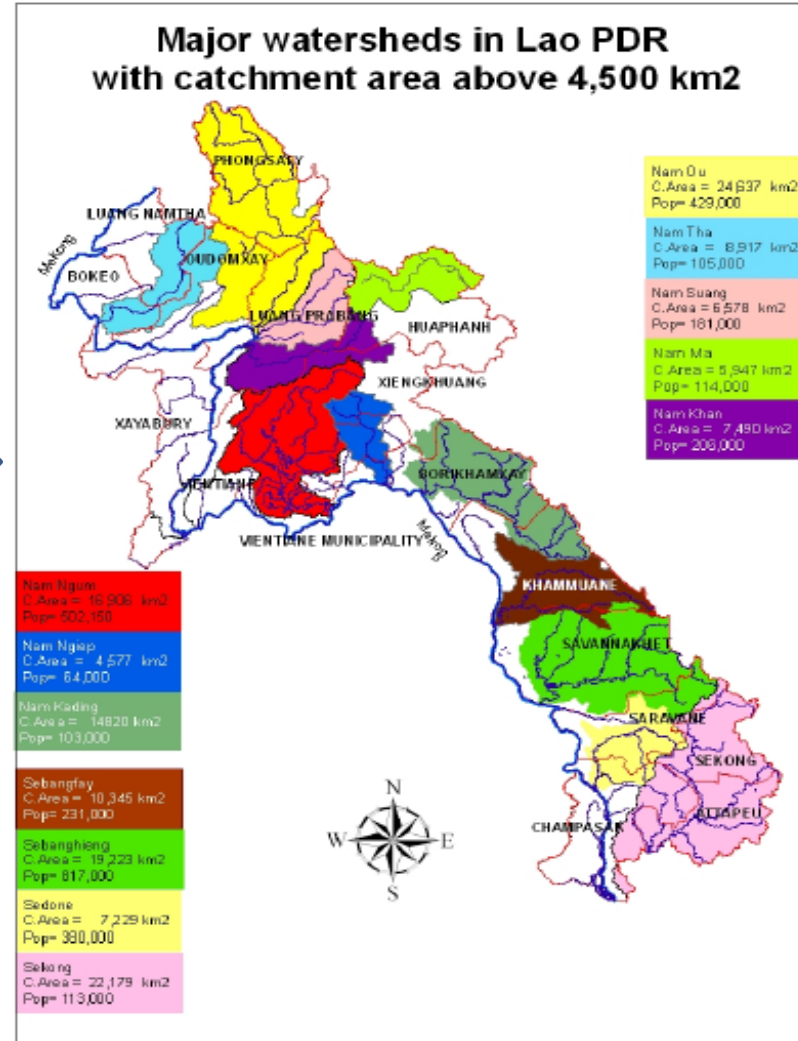
The Mekong River Basin

Characteristics:

Area: 795,000 km² (21)
 Length of mainstream: 4,800 km (12)
 Average discharge: 15,000 m³/s (8)



Major watersheds in Lao PDR with catchment area above 4,500 km²



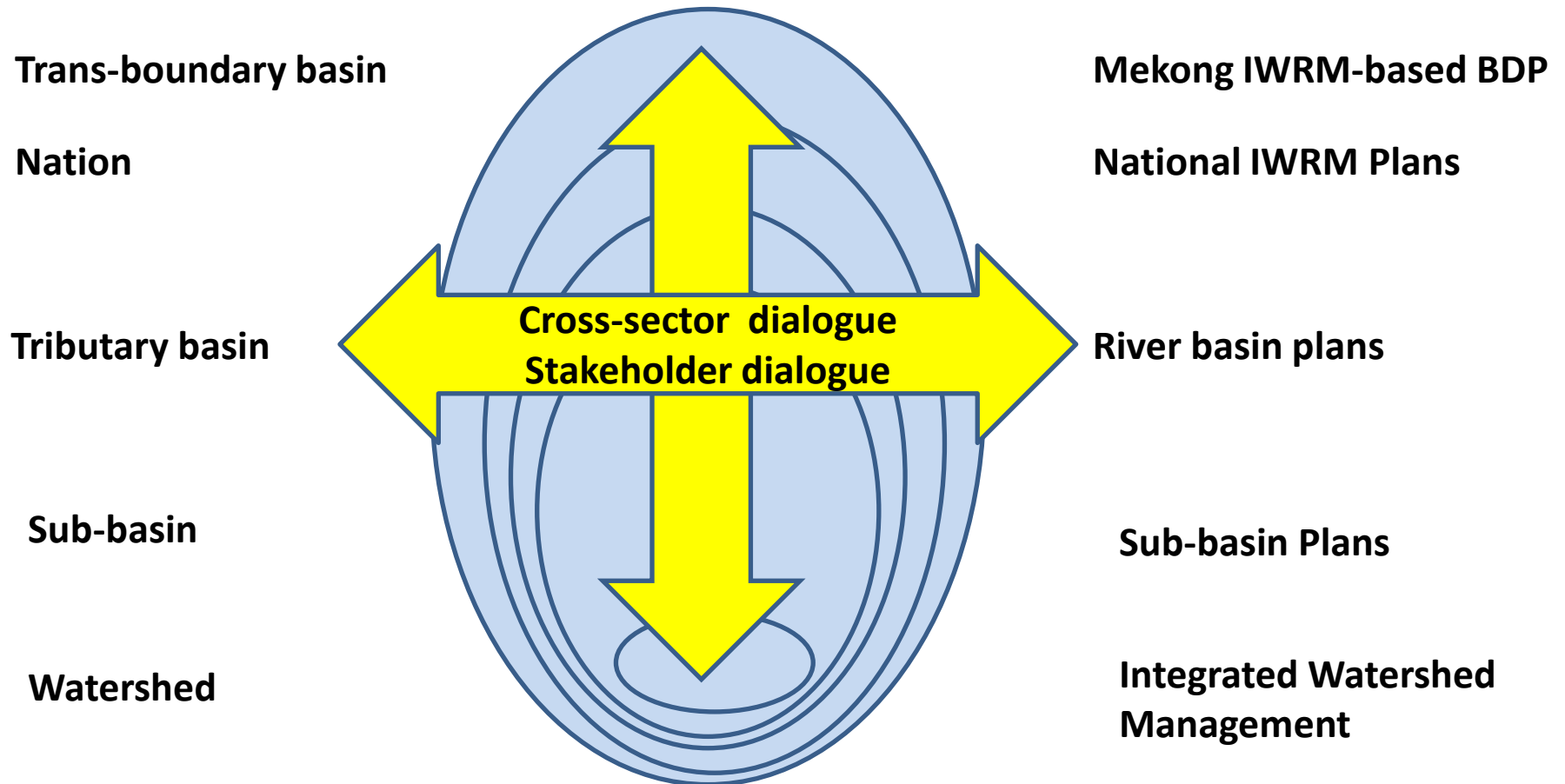
Challenges for Water Resources Planning



- Population Increase
- Increase in access to tap water
- Increase in energy consumption
- Promising trend in becoming regional source of energy so called Battery of ASEAN
- Irrigation expansion program
- Commitment in Mekong Agreement

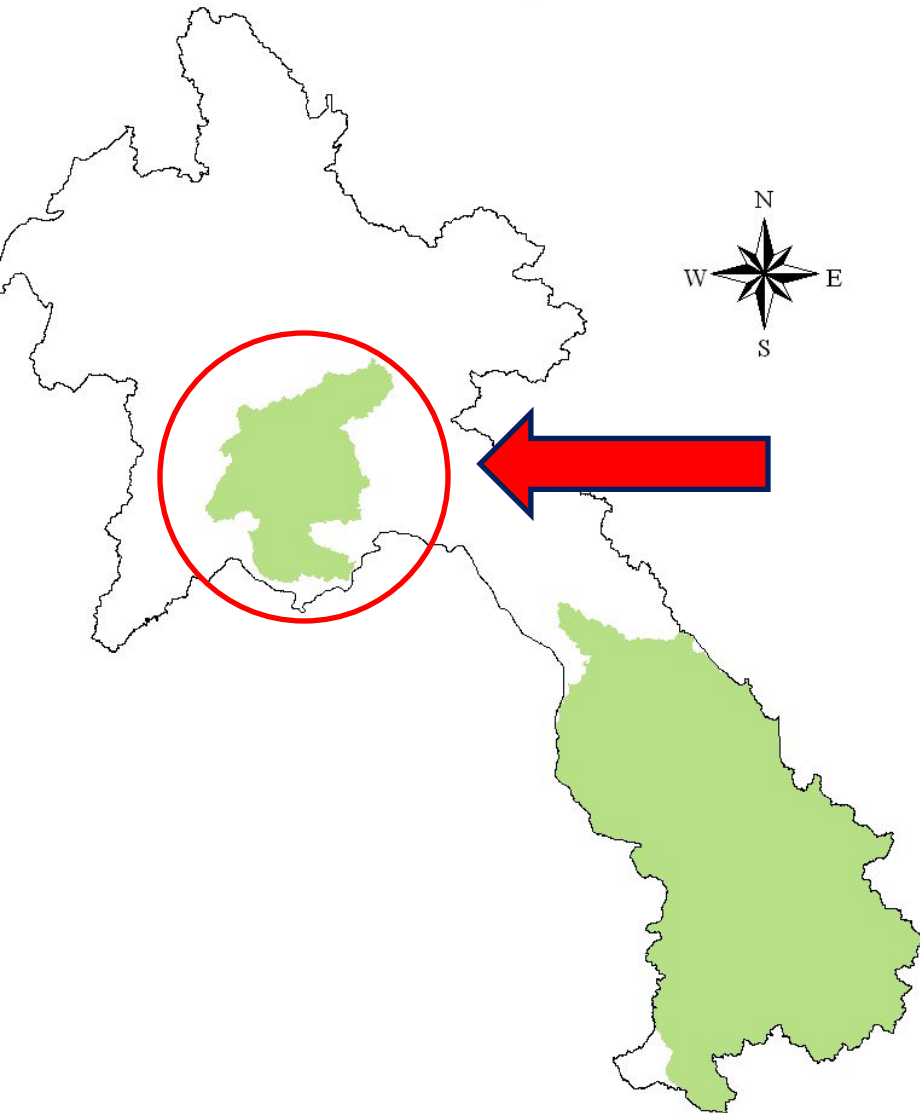
IWRM IN THE MEKONG BASIN

- VERTICAL AND HORIZONTAL "INTEGRATION"



Case study of Nam Ngum

The Lao case: The Nam Ngum River Basin (RBC 2010)



- Area: 16,841 km²
 - Population: 550,000
 - Annual rainfall: 2,200 mm
 - Coverage: 5 provinces
- Increasing mining and plantation development

MAJOR EMERGING CHALLENGES

The Lao case: The Nam Ngum River Basin (RBC 2010)



Currently 4 hydropower schemes:

- storage capacity of 7,300 mcm
- gen. cap. of 255 MW

Additional 6 dams (up to 14 total)
are being planned:

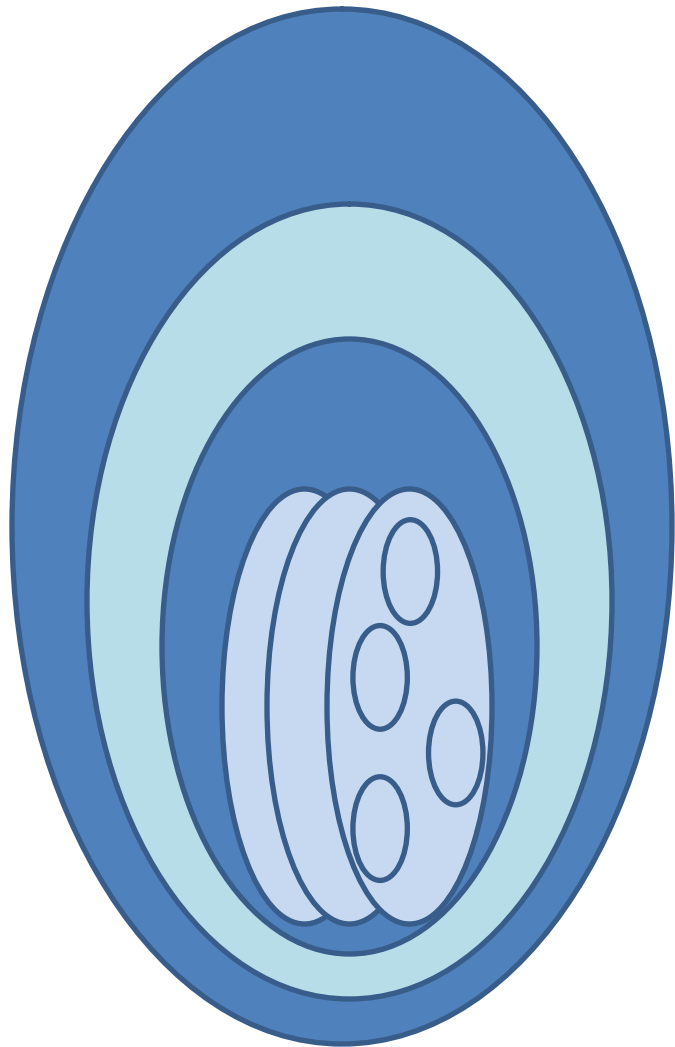
- storage capacity to 17,000 mcm
- gen. cap. To 1,500 - 1,800 MW

Increasing mining and plantation
development



MAJOR EMERGING CHALLENGES

The overall planning context



Geography

Mekong Basin



Laos



Nam Ngum



Nam Ngum sub-Basins



Watersheds

IWRM instruments

Mekong IWRM Strategy 2010
Mekong IWRM-based BDP

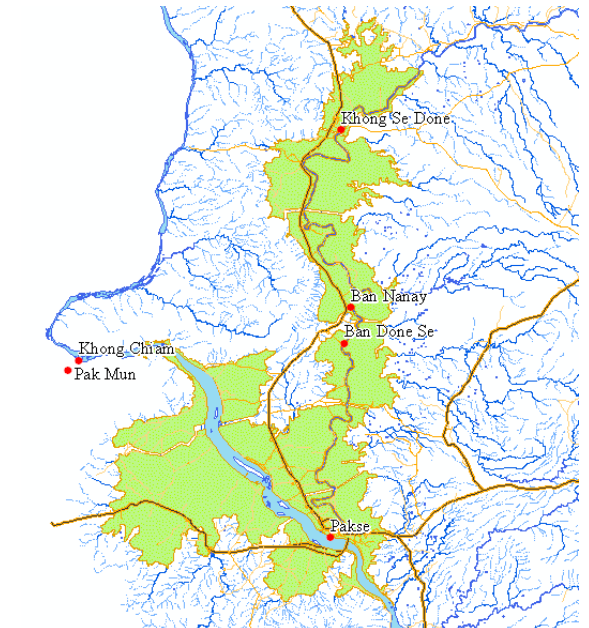
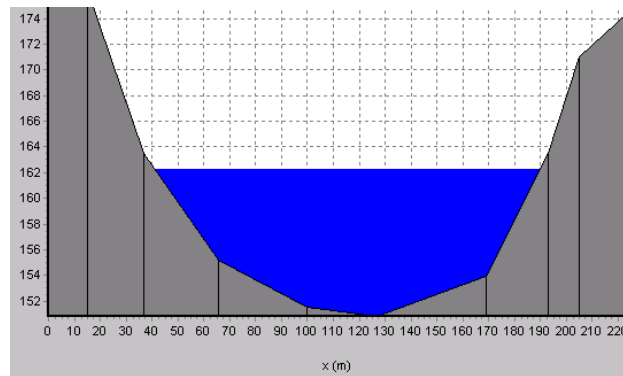
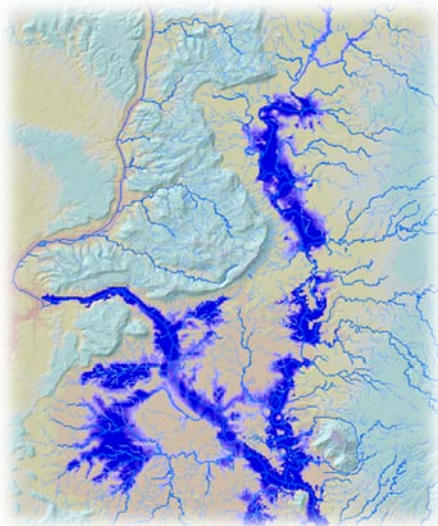
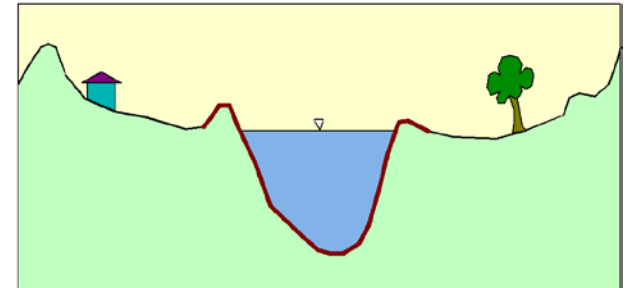
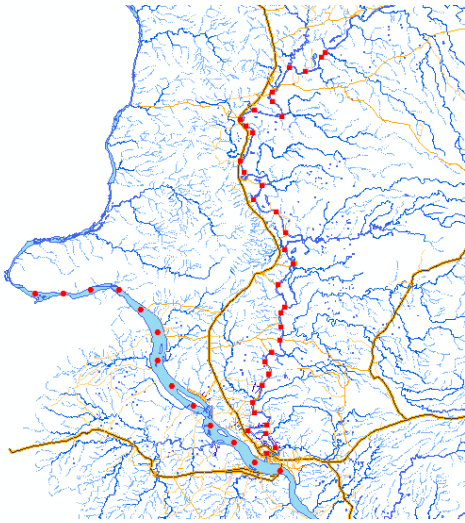
National Water Resources Policy,
Strategy and Action Plan 2011-2015

Nam Ngum IWRM Plan

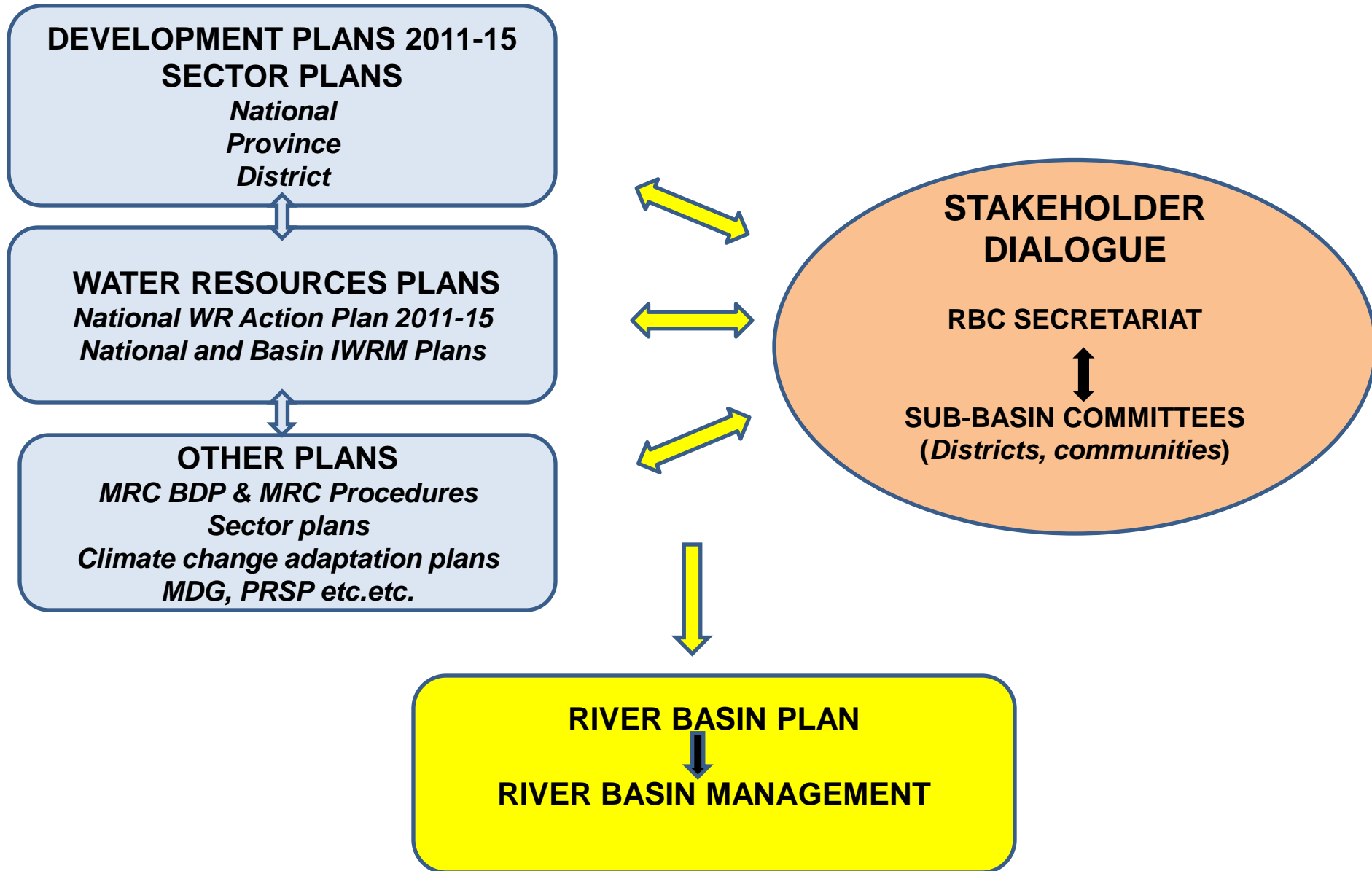
Nam Ngum sub-basin plans
(as e.g. Nam Song and Nam Kho)

Integrated Watershed
Management Plans

Modeling development scenarios



The river basin planning process





Khob Chai
Gracias
Thank you