

# UNESCAP Experiences in Policy Tools and Practices in Adaptation Planning

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## Adaptation planning concept

- It is a development planning process
- **It prepares for decision making under higher level of uncertainties**
- New practices involve procedures to minimize risks with new tools and enhance resilience with better preparedness
- **New tools include more sophisticated models, higher complex frameworks of assessment, and more effective systems of participation of stakeholders in decision making**



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## Points of discussion

- Perception of risks in adaptation planning
- From conventional to adaptation planning practices: risk minimization and resilience enhancement
- Tools based on sophisticated models
- Tools in more complex frameworks of assessment
- Tools in more effective participation of stakeholders
- Concluding remarks



## Risks and adaptation planning

- Climate Change will have important impacts on natural resources and the natural cycle, such as hydrologic cycle!
- How to quantify Climate Change?  
General Circulation Models (GCMs): adequacy?
- How to develop Climate Change scenarios for impacts studies in hydrology? Spatial & temporal scales
- Expected responses to new conditions



## Conventional to adaptation planning

- ❑ Conventional planning: well-established procedures, well-known detailed systemic behaviors and good framework of decision-making
- ❑ Adaptation planning: reduction of uncertainties
  - External factors: scenario planning
  - Internal factors: extrapolation of systemic characteristics
- ❑ Adaptation planning: resilience enhancement
  - Social aspects: better focused
  - Decision-making: more effective participation of stakeholders

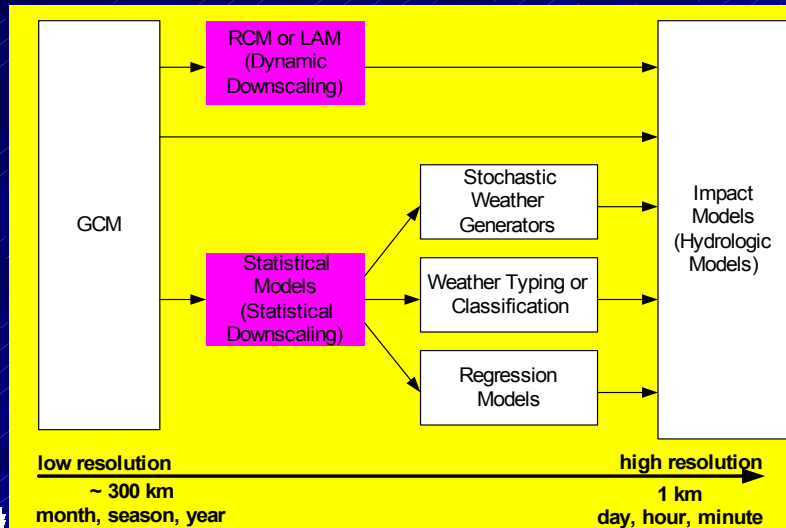


## Sophisticated tools: Down-scaling

- ❑ Coarse GCM + High resolution AGCM
- ❑ Variable resolution GCM (high resolution over the area of interest)
- ❑ GCM + RCM or LAM (Nested Modeling Approach)
  - More accurate downscaled results as compared to the use of GCM outputs alone.
  - Spatial scales for RCM results ~ 20 to 50 km ⇒ still large for many hydrologic models.
  - Considerable computing resource requirement.



# Downscaling Methods



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Source: Thanh-Van Van Nguyen, McGill University, 2004



## Tools of assessment: measuring socio-economic impacts

- ❖ Measuring concept: *development context*
- ❖ Structure of assessment: *sectoral approach*
- ❖ Types of assessment: *direct damage, indirect loss and overall effects*



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# ECLAC methodology and experiences of its application

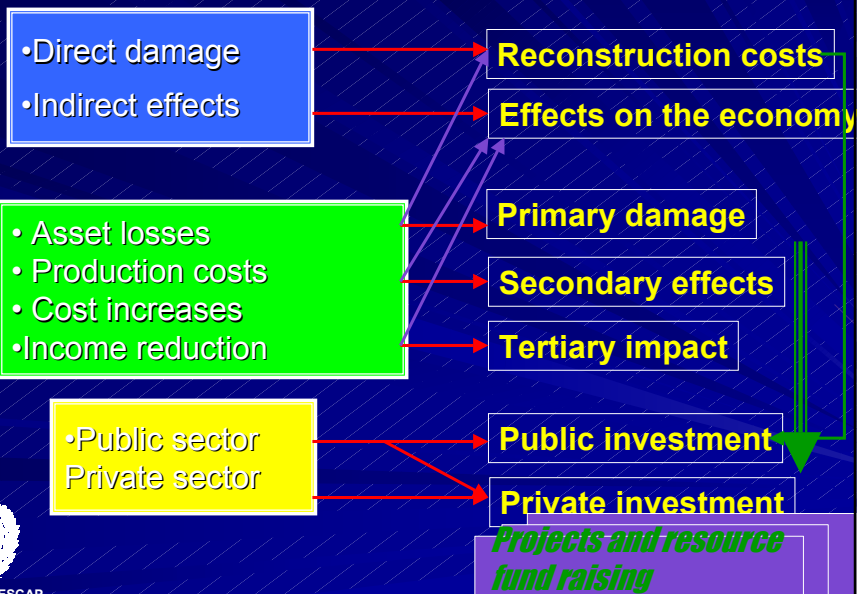
- Impact in the social sectors
- *Impact in infrastructure*
- Impact in the economic sectors
- *Global effects of damage*



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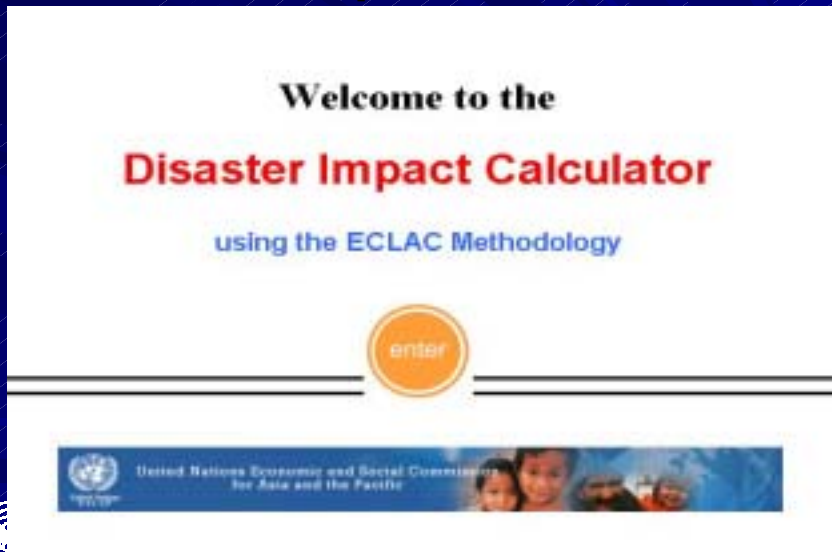
## Decomposition of total damage



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# UNESCAP Template of Assessment



## Tools for effective participation

- 🔥 **Project-based approach:** project-focused tools to support decision-making (*Local optimization*)
- 🔥 **Natural resource-based approach:** Water balance models; Basin-system simulation; System optimization models (*Master Plans, Basin Plans*)
- 🔥 **Socio-economic approach:** Multi-criteria models; Utility trade-off analysis; Generalized optimization models (*Regional plans & strategies*)
- 🔥 **Integrated water resources management approach:** strategic planning and management models (*integration of models including consensus building, conflict resolution and prevention*)



## Basin planning experience

- Variety of problems in river basin management
- Difference of approaches and tools in river basin management

**KEY ISSUE:** How to prioritize water resources management activities within limited resources and diverse interests and different perception of priorities



## Tools for effective participation

- ❑ Effective decision-making requires adoption of “Strategic Planning and Management” (SPM)
- ❑ *Effective participation requires decentralization*
- ❑ Successful application of SPM requires change of “Mindsets” of key stakeholders



## *Trends of SPM in water resources*

### **Example of the River Rhine**

- **Ecological recovery (from 1991):** brings salmon back to the Rhine - *Salmon 2000*
- **Action Plan on Flood Defense (1998-2020):** protect people and goods against flooding while integrate ecological improvements of the Rhine and its floodplains.



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## **Development of Rhine Strategies**

- ⊙ Strategic approaches to flood control and management: *NEW PERCEPTION* which involves also spatial planning and land use
- ⊙ Integration of flood control and management into national development process: *PRINCIPLES*
- ⊙ Establishment of a priority action plan: *ACTION TARGETS*



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# Principles

- Integration of related sectoral measures: *(i) water management, (ii) spatial planning and urban development, (iii) nature protection, and (iv) agriculture and forestry.*
- Integration of preventive measures: *(i) water is part of the whole, (ii) store water, (iii) let the river expand, (iv) beware of the danger, and (v) integrated & concerted action.*



## ACTION TARGETS

- ◆ **Reduce damage risks:** *no increase until 2000, reduction up to 10% by 2005 & up to 25% by 2020*
- ◆ **Reduce flood stages:** *reduction of extreme flood stages downstream of the impounded part of the river up to 30 cm by 2005 and up to 70 cm by 2020*
- ◆ **Increase of awareness of floods:** *risk maps for 50% of the floodplains and areas at flood risk by 2000 and 100% by 2005*
- ◆ **Improve flood forecasting system:** *prolong forecasting period by 50% by 2000 and by 100% by 2005*



# COSTS OF MEASURES

(millions of ECUs)



	Nether-lands	France	Germany	Switzer-land	Total
Basin storage	350	40	6,790	1,210	8,390
Channel storage	760	90	1,560	0	2,410
Dykes	970	0	450	0	1,420
Preven-tive	1	1	10	50	60
Forecas-ting	1	4	4	4	12
<b>TOTAL</b>	<b>2,080</b>	<b>140</b>	<b>8,810</b>	<b>1,260</b>	<b>12,290</b>



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## Network on strategic planning & management of water resources

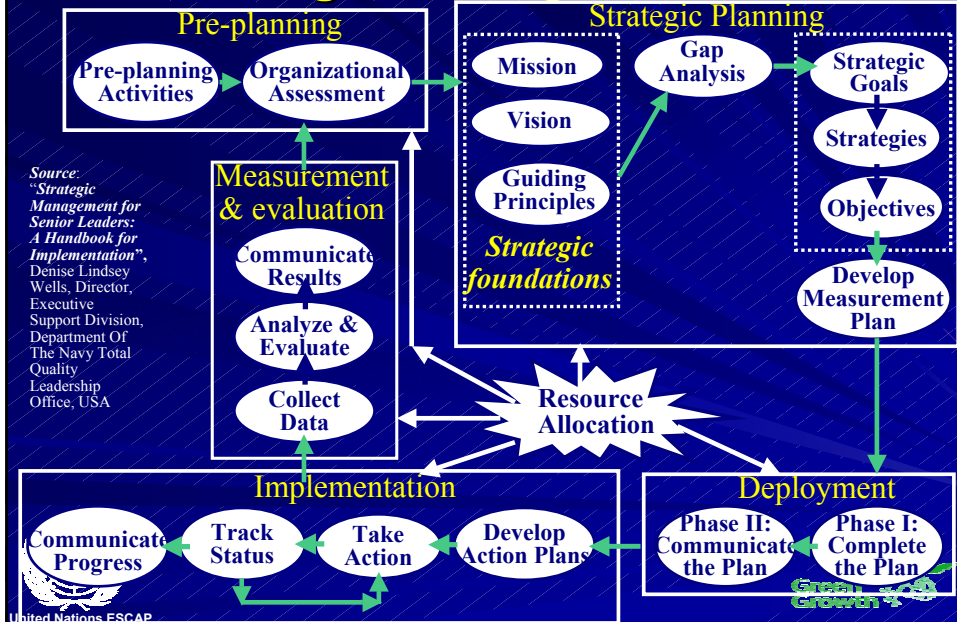
- Preparation of Guidelines on Strategic Planning and Management of Water Resources
- Application of SPM to IWRM planning
- [www.spmwater-asiapacific.net](http://www.spmwater-asiapacific.net): to promote e-networking on SPM & ILWRM



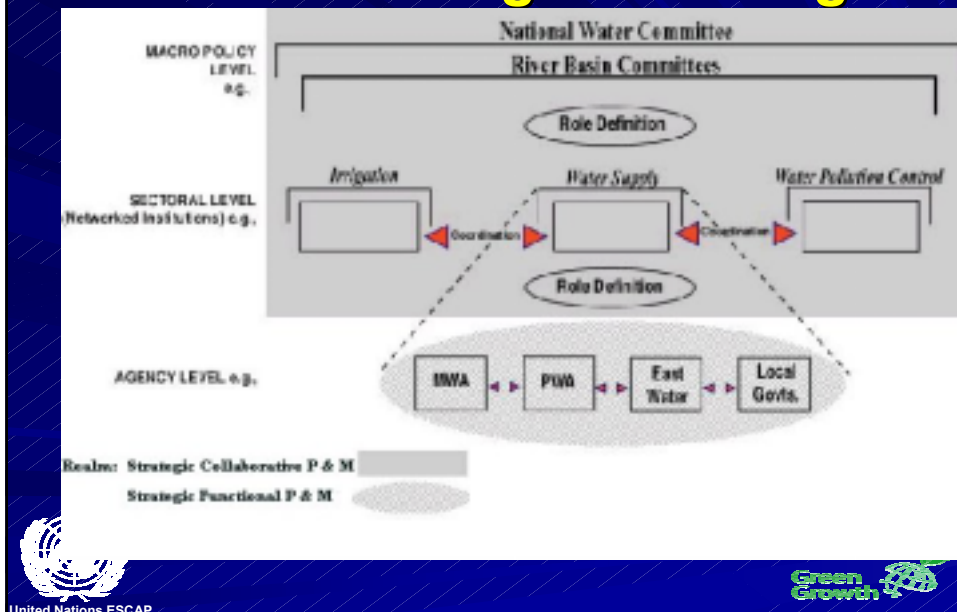
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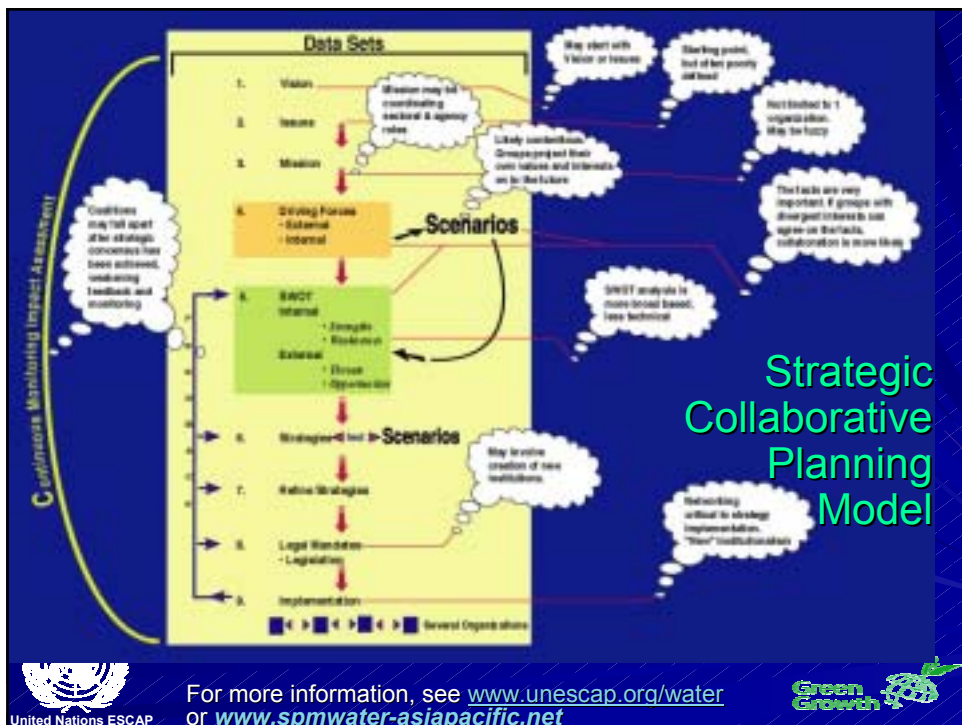


# The Strategic Management Model



# Nested Strategic Planning





ENVIRONMENTALLY SUSTAINABLE ECONOMIC GROWTH FOR THE WELLBEING OF ALL

## Concluding remarks

- **Adaptation planning practices: an evolving process, which requires more research and supportive monitoring system for learning**
- **Adaptation planning tools: a new area of development which involve not only deterministic concept, but also stochastic concept; not only natural sciences, but also social sciences; not only accountability principle, but also participatory framework**
- **Adaptation planning needs larger investment, which must start from commitment to changes at the top for better preparedness towards more resilient systems of development**



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## Ecological efficiency tools promoted by UNESCAP Green Growth Program

Sustainable Consumption  
and Production

Sustainable Infrastructure

Green Business

Eco-Efficiency Indicator

Green Taxation and  
Budget Reform



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Sustainable growth: Green Growth



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# Thank you

for more information our activities

[www.unescap.org/esd/water](http://www.unescap.org/esd/water)



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