



# A framework for implementing a benefit-sharing approach

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# Content

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- Benefit-sharing defined, types of benefits, etc.
- Basis in IWRM and Water Law
- How to do it?
  - Science – providing the objective basis
  - Facilitated decision-making
- Examples, conclusions, recommendations



# Benefit-sharing: the new paradigm

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- Benefit-sharing – promoted as the ‘new paradigm’
- Consistent with a ‘win-win’ approach to basin management and development
- Consistent with contemporary principles of international water law and IWRM
  - Basis for all recent transboundary agreements
- But, limited experience/know-how in implementation - delivering tangible outputs



# Benefits defined

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- *“Benefits broadly defined to include economic, social, environmental and political gains”* (Sadoff and Grey, 2005)
- Benefit-sharing implies *positive-sum* “win-win” outcomes/agreements
- The size of the “pie” must increase
  - ➔ also the individual pieces increase, or at least do not decrease



# Types of benefits

(Sadoff and Grey, 2005)

Type	Opportunity
<b>1. To</b> the river	Improved quality, flow regime, biodiversity, sustainability
<b>2. From</b> the river	Increased benefits from hydropower, agriculture, flood/drought management, navigation, environmental conservation, recreation, etc.
<b>3. Because of</b> the river	Improved regional relations based on cooperation and development for food and energy security... e.g. reduced conflicts
<b>4. Beyond</b> the river	Regional integration of markets and trade



# Benefit-sharing - how to do it?

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- Implies valuation and quantification  
→ economic assessment
- Should be consistent with assessment of *all relevant factors and circumstances* – including all types of benefits
- Information to enable discussions, negotiations, trade-offs and exchanges
  - resulting in sound decisions and agreements by decision-makers – usually political



# Benefit-sharing framework summarised:

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1. Rooted in:
  - IWRM
  - International Water Law
2. Based on objective scientific assessments of the impacts (benefits/costs) of proposed developments including:
  - environmental (bio-physical) assessment – based on environmental flows methods
  - social assessments, and
  - economic assessments and valuation
3. Facilitation for decision-making



# IWRM

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- *“... a process which promotes the coordinate development and management of water, land and related resources in order to maximise the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital eco-systems”*

GWP, 2007



# International water law

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(Phillips et al, 2006,  
1997 UN Convention,  
1966 Helsinki Rules)

- Key legal principles:
  1. Equitable and reasonable use: → through considering *all relevant factors and circumstances*
  2. Avoidance of significant harm
  3. Prior notification of works which may affect co-riparians
- Affirmed in all new transboundary agreements
- Provides the enabling environment for positive-sum benefit-sharing



# The science

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- How to determine “all relevant factors and circumstances”?
- Requires a comprehensive assessment of the full range of bio-physical, social and economic impacts (+/-) → benefits and costs linked to basin development
- Flow regime assessment...



# Flow regime assessment

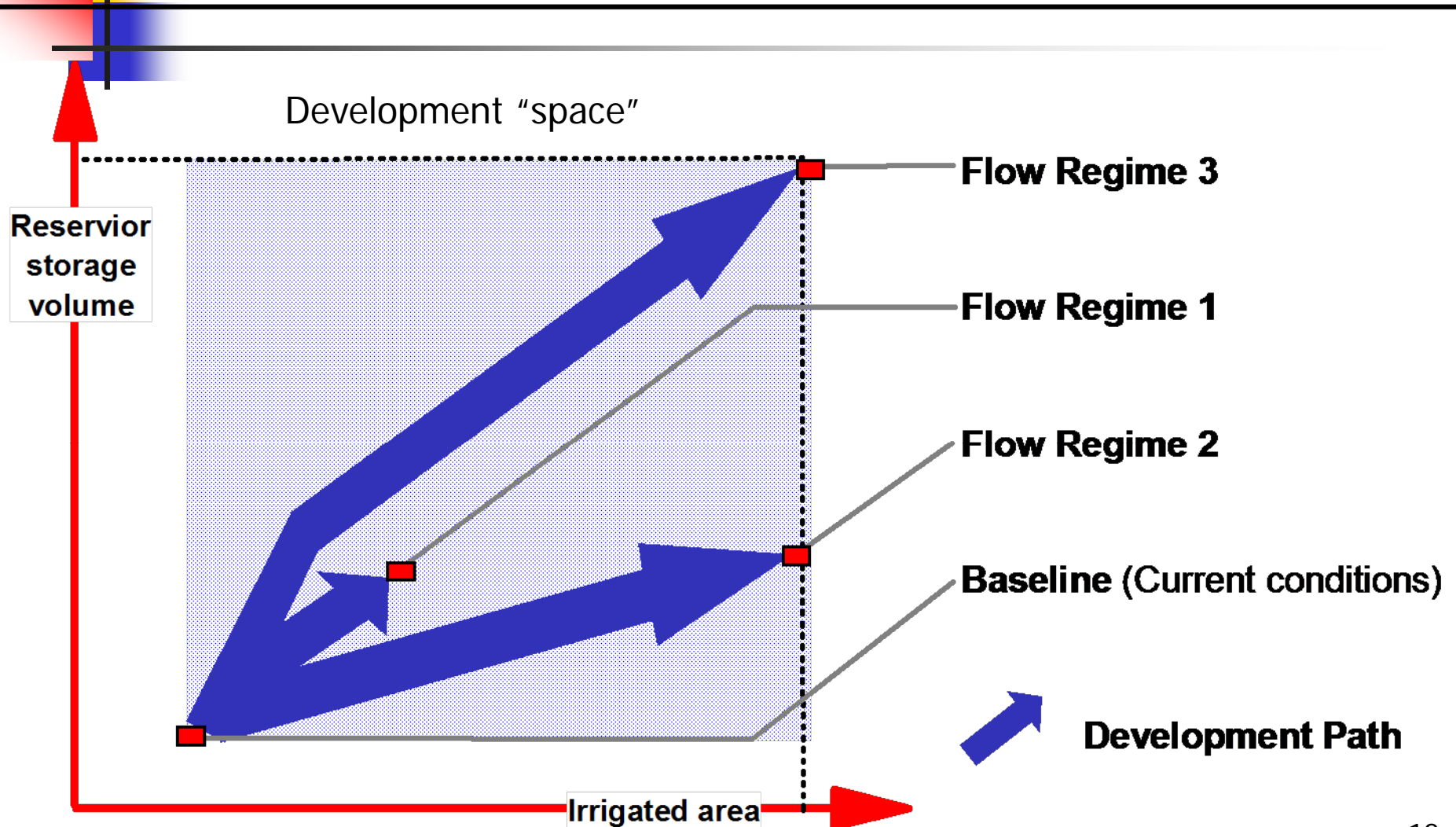
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(King and Brown, 2009)

- Integrated Basin Flow Assessment - IBFA:
  - approach developed over >10 yrs
  - bio-physical assessments based on “environmental flows” methods
  - broadened to including social and economic assessment
- Based on scenario analysis:
  - present and future development
  - guided by a planners, economists, social modellers, etc. – including climate change

# Development scenarios

(MRC, 2006)





# Integrated Basin Flow Assessment - IBFA

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- Multi-disciplinary - consistent with an IWRM approach:
  1. Bio-physical: hydrology, hydraulics, geomorphology, aquatic chemistry, ecology (fisheries, invertebrates, birds, reptiles, vegetation, etc.),
  2. Social scientists
  3. Economics – benefit and cost analysis



# Bio-physical assessment

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- Starts with a hydrological assessment
  - present, and
  - future changes due to basin development
- Assesses impacts of flow changes on the bio-physical parameters – e.g. morphology, floods, droughts, wetlands, vegetation, reptiles, water birds, etc.



# Social assessment

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- Describes the present socio-economic status of the river and basin
  - how does the river benefit the people?
  - “State of the Basin”
- Assess and quantify the impacts (+/-) of the development scenarios to the people



# Economic assessment

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- Valuation - benefits and costs for all uses – present and future scenarios:
  - Agriculture - irrigation
  - Hydropower
  - Fisheries
  - Navigation
  - Environmental uses – “goods and services”
  - Potable water supply
  - Floods and droughts
  - Others – e.g. tourism, recreation, etc.



# Scenario analysis

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- Useful tools:
  - Hydrological models
    - e.g. Mekong DSF, Nile DSS
  - Economic models



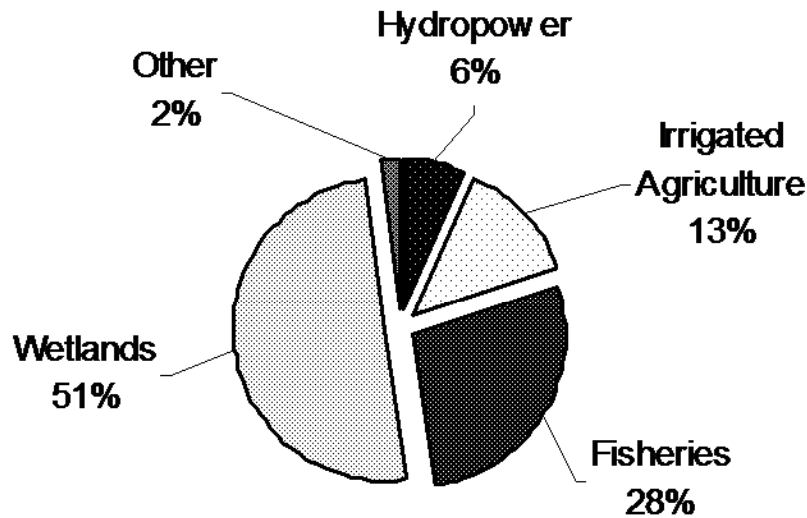
# Decision-making

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- Benefits should outweigh the costs
  - The “pie” should increase
  - The individual pieces of the pie should increase, or at least not decrease
- Decisions – politically acceptable
  - Discussions, negotiations, trade-offs, exchanges, etc. may be required
  - May need facilitation

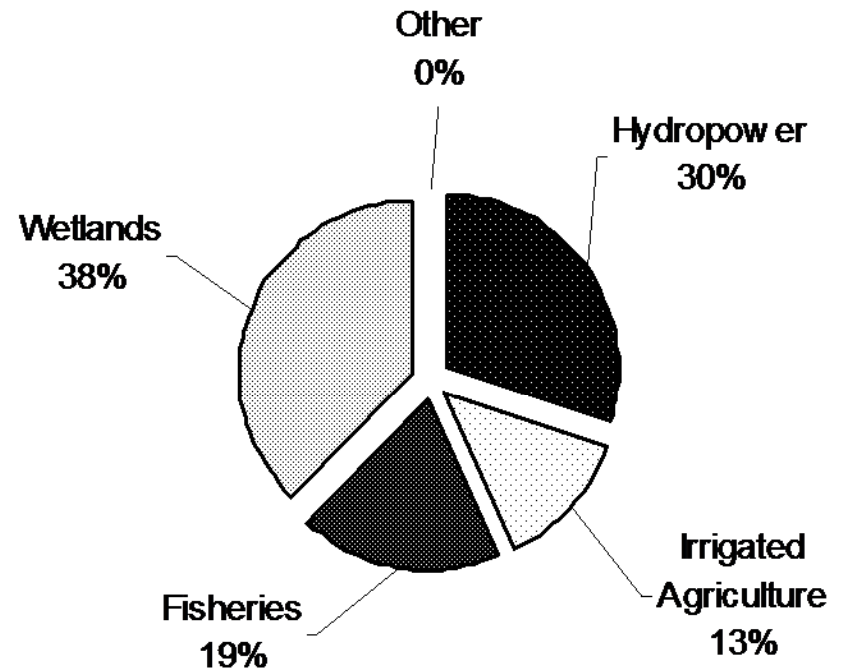
# Mekong example by sector

(MRC, 2006)



**Baseline Value: \$3.4b**

**Present day**

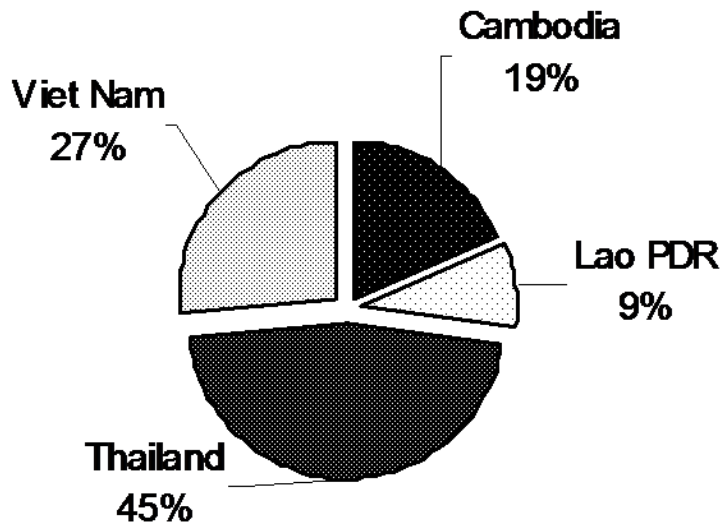


**Flow Regime 3 Value: \$4.5b**

**Future**

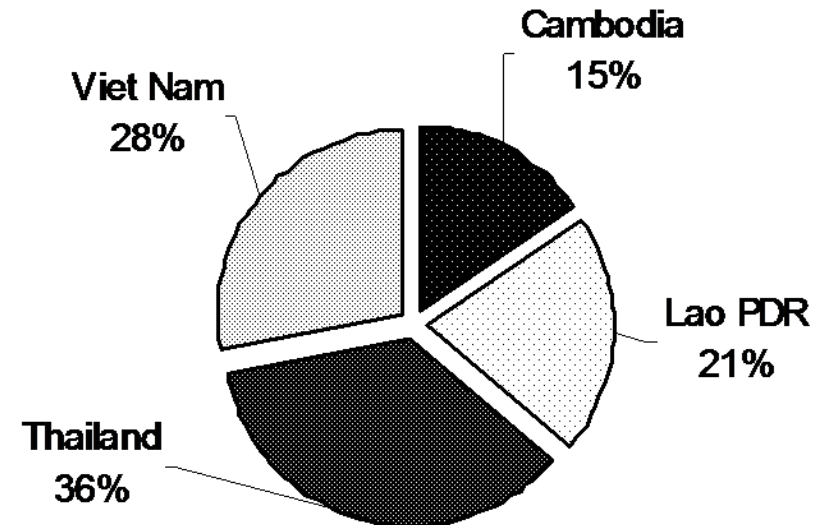
# Mekong example by region

(MRC, 2006)



**Baseline value: \$3.4b**

**Present day**



**Flow Regime 3 Value: \$4.5b**

**Future**



# Facilitation

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- Clear, concise, simple presentation of the “information” to decision-makers
- Economic valuation - useful as a basis for discussions and negotiations
- Independent, neutral facilitation → with no interest in the outcome
- Decision-making – finally a political process

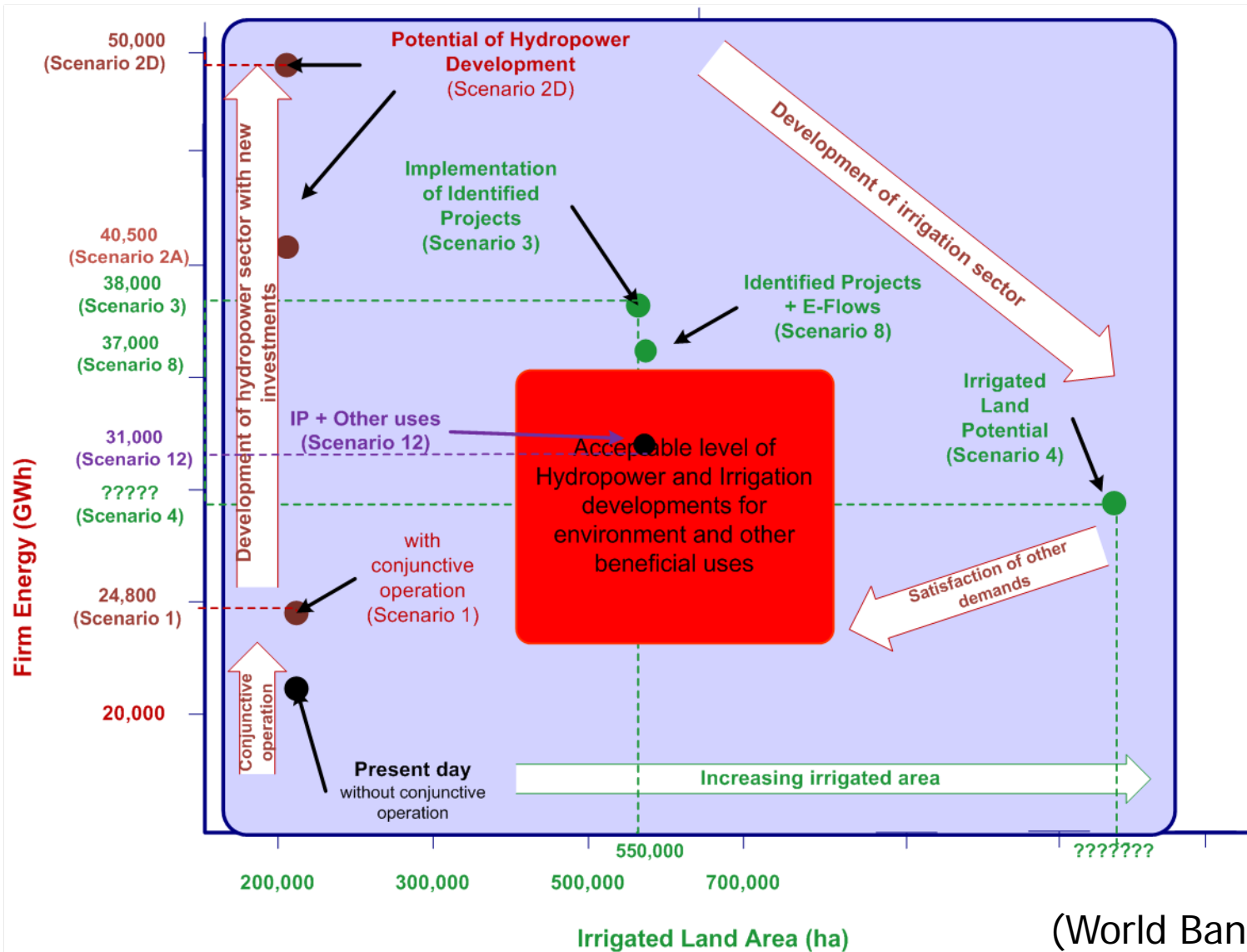


# Examples

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- MRCS Basin Development Plan
- Multi-sectoral investment analysis of the Zambezi River basin
- Lake Victoria release policy
- Nile DSS?

# Zambezi basin multi-sectoral investment opportunity analysis



# New Lake Victoria Release Policy



Owen Falls Dam





# Conclusions and for discussion

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- Benefit-sharing approach - supported by international water law and IWRM
- Objective information for decision-makers can be determined through comprehensive environmental, social and economic multi-disciplinary assessments  
→ the science is well established
- Hydrological and economic modelling tools are useful
- Complex, time-consuming and costly  
→ Challenging to ensure “buy-in” by decision-makers
- Facilitated decision-making required
- Economics → a key tool