Methods integration and interlinkage

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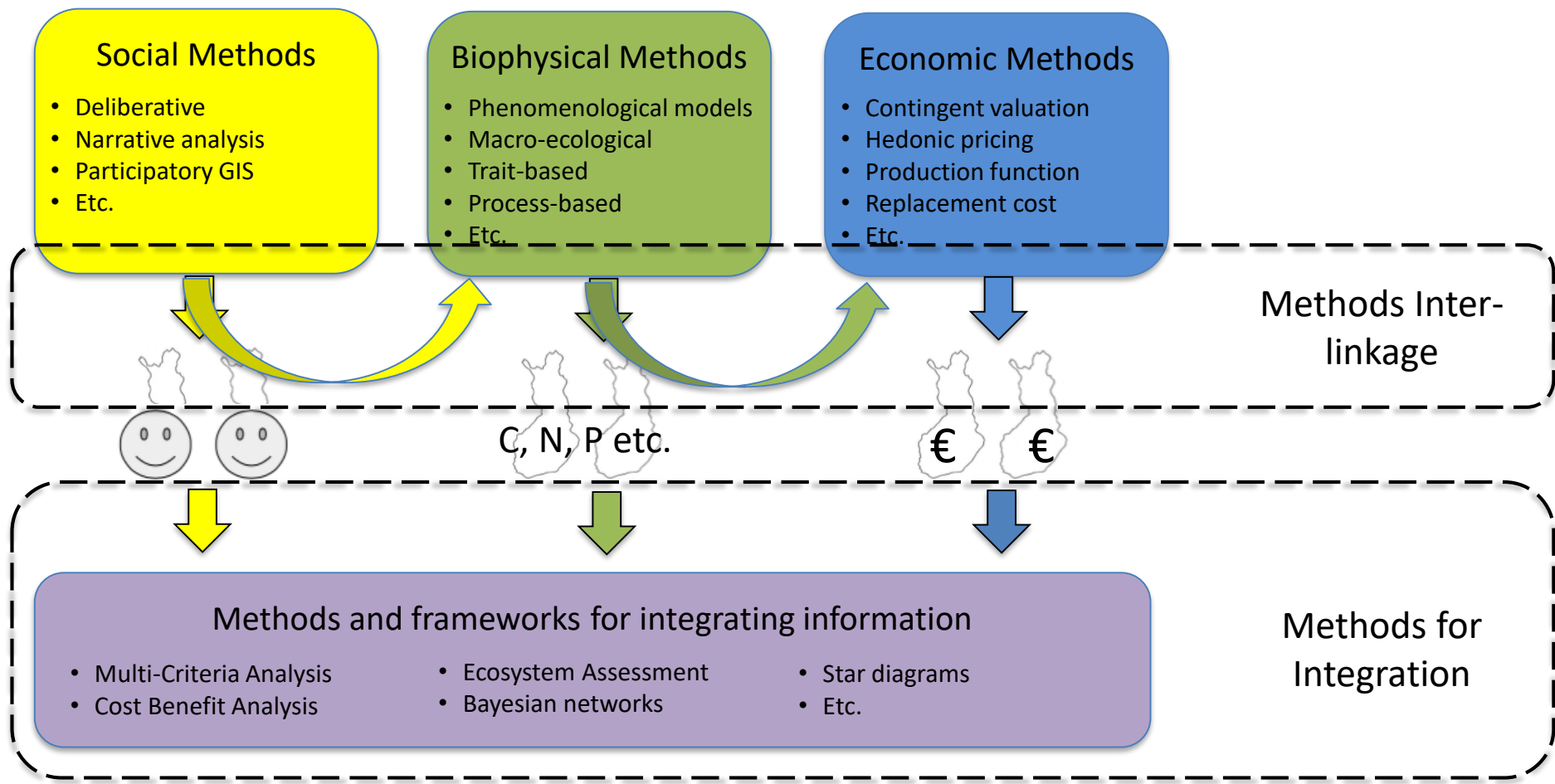Pieter van Beukering (VU), Petteri Vihervaara (SYKE)

EU Horizon 2020 Coordination and support action

Outline

- Interlinking methods

- Methods for integration

- Examples:

  - Interlinking methods (Tier 1)

  - Methods for integration (Tier 2)

  - Interlinking and integration (Tier 3)

- Developing guidance on multi-tiered flexible methodology

Methods interlinkage and Methods for integration

Social Methods
- Deliberative
- Narrative analysis
- Participatory GIS
- Etc.

Biophysical Methods
- Phenomenological models
- Macro-ecological
- Trait-based
- Process-based
- Etc.

Economic Methods
- Contingent valuation
- Hedonic pricing
- Production function
- Replacement cost
- Etc.

Methods Inter-linkage

C, N, P etc.

€   €

Methods and frameworks for integrating information
- Multi-Criteria Analysis
- Cost Benefit Analysis
- Ecosystem Assessment
- Bayesian networks
- Star diagrams
- Etc.

Methods for Integration

Policy question: What are the most important coastal habitats for fisheries?
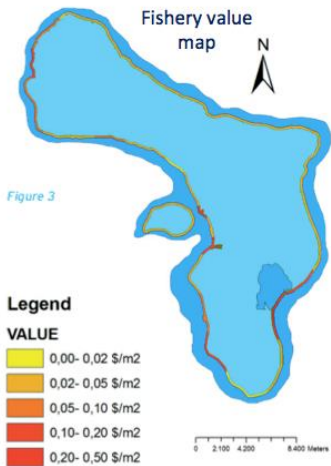
Biophysical Method:
- Habitat mapping
- Statistical model

Economic Method:
- Market price of fish harvest
- Choice experiment to value recreational fish catch

Linkage:
- Maximum sustainable yield

Fishery value map

N

Figure 3

Legend

VALUE
- 0,00- 0,02 $/m2
- 0,02- 0,05 $/m2
- 0,05- 0,10 $/m2
- 0,10- 0,20 $/m2
- 0,20- 0,50 $/m2

0   2 100   4 200   8 400 Meters

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Policy question: Which development path should Bonaire take?

Weights

Economic effect
Social effects
Environmental effects

Social Methods
- Stakeholder scenario mapping

Biophysical Methods
- Phenomenological models

Economic Methods
- Input-Output model

- Development visions

- Sedimentation
- Land cover

- GDP
- Employment

Integration Method: Multi-Criteria Analysis (MCA)

Current Bonaire

Touristic Bonaire

Sustainable Bonaire

Result   0.76   0.58   0.47

Economic effect   0.53   0.47   0.50

Social effects   0.83   0.70   0.92

En...ental effects   0.92   0.58   0.00

Sustainable Bonaire | Touristic Bonaire | Bonaire extrapolated
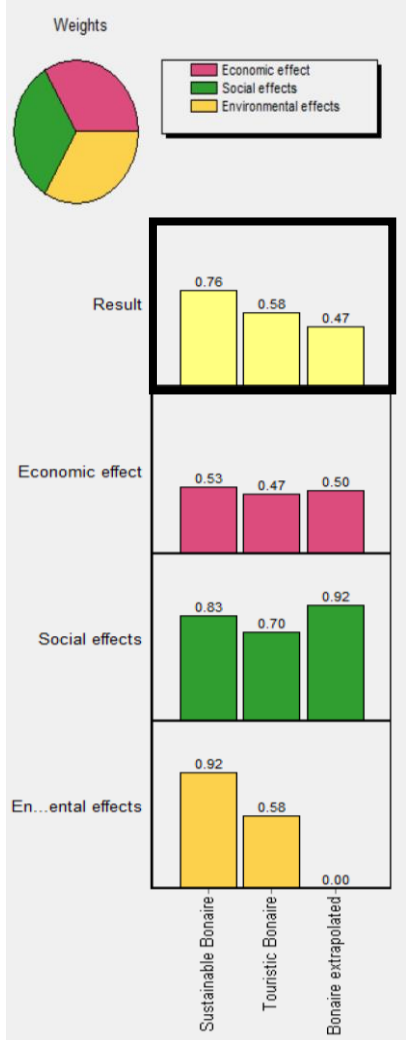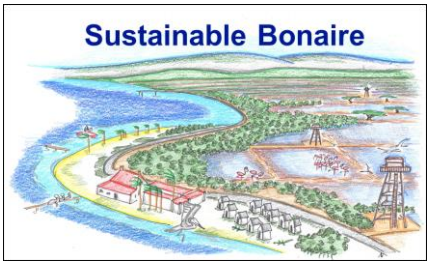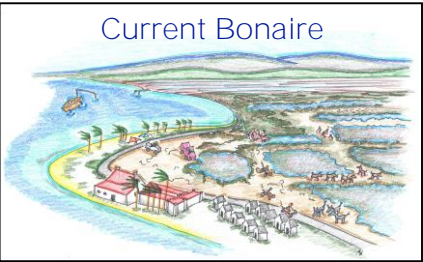
Policy question: Should Bonaire invest in new waste water treatment?
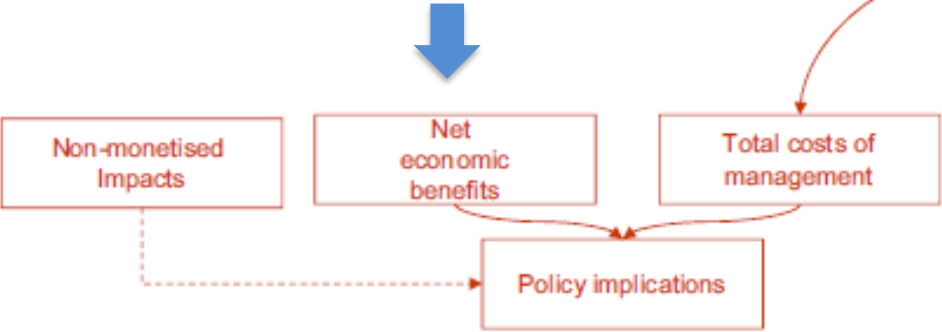
Biophysical Methods:
- Process based models

Economic Methods
- Choice experiments
- Market prices

Social Methods:
- Stakeholder workshops
- Focus group discussions

Supply of ecosystem services

| Coral reefs | Sea grass | Fish stock | Mangroves | Dry Forest | Kunukuros |

Protection values | Recreational values | Tourism values | Non-use values | Fishery values | Farming values

Non-monetised Impacts | Net economic benefits | Total costs of management

Policy implications

Integration Method: Cost-Benefit Analysis

Guidance on multi-tiered flexible methods

- Descriptions of methods for integration

- Example applications

- Guidance:

  - Policy driven research design

  - Iterative process of study design

  - Multi-disciplinary teams

  - Avoid common pitfalls

  - Match scales and units across methods

  - Consistency across tiers

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Guidance report on social, economic and biophysical methods integration

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Enhancing ecosystem services mapping for policy and decision making