



Stakeholders' Workshop
Bridges and Barriers to Public Participation
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Ecosystem services approach for water management: A soft path.

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Some research results



Assessing and predicting effects on water quantity and quality in Iberian rivers caused by global change

The SCARCE Project: two approaches to Water related Ecosystem Services (WrES)



<http://www.idaea.csic.es/scarceconsolider>





Two approaches to WrES

1. **Monetary valuation** framed in **environmental economics**:

- **Small number of ES** [water provisioning for drinking, irrigation and hydropower, erosion retention (dams), waste treatment (nutrients), habitat for species (recreation)]
- **Valuation of individual ES** (benefit transfer and/or available prices), using **INVEST model** and supported by expert judgement
- **Quantitative results**: partial monetary value of river basin's ES [addition of ES considered], cost-benefit analysis of measures regarding some ES.



Two approaches to WrES

2. *Deliberative scenarios* framed in *post-normal science*:

- Comprehensive list of ES (21 ES/4 categories)
- Identification of ES & their relationships with ecological processes & human uses (scientific & local knowledge), using deliberative scenarios with local stakeholders in two case study (small river sub-basins)
- **Qualitative results**: improved understanding of complexity (context dependencies), trade-offs and feedbacks; expression of different values; emergency of local knowledge; reflection on long term trends; proposal of measures.



Shortcomings and difficulties

1. *Monetary valuation:*

- **Partial view of the picture:** ES not taken into consideration; invisible trade-offs among ES.
- **Problems for modelling ES** separately as ecosystems produce them jointly; lack of knowledge on ES production functions; lack of data & uncertainty on monetary values; models' limits and its use.
- **Distribution of cost-benefits** among territories/scales, as well as definition and distribution of **property rights**.

2. *Deliberative scenarios:*

- Provision of **general criteria and strategic vision** on measures, not optimal solutions.
- Participative processes **require clear political commitment & continuity/coherence** over time.
- **Time consuming & intensive in human resources** (saturation by participation).
- Potential problems for **upscaling**.

Ecosystem services: a promising metaphor

*“Ecosystem services are
the contribution of ecosystems to human well-being”*

New representation of old issues

- Interdependence of humans and the rest of the biosphere
- Development vs conservation

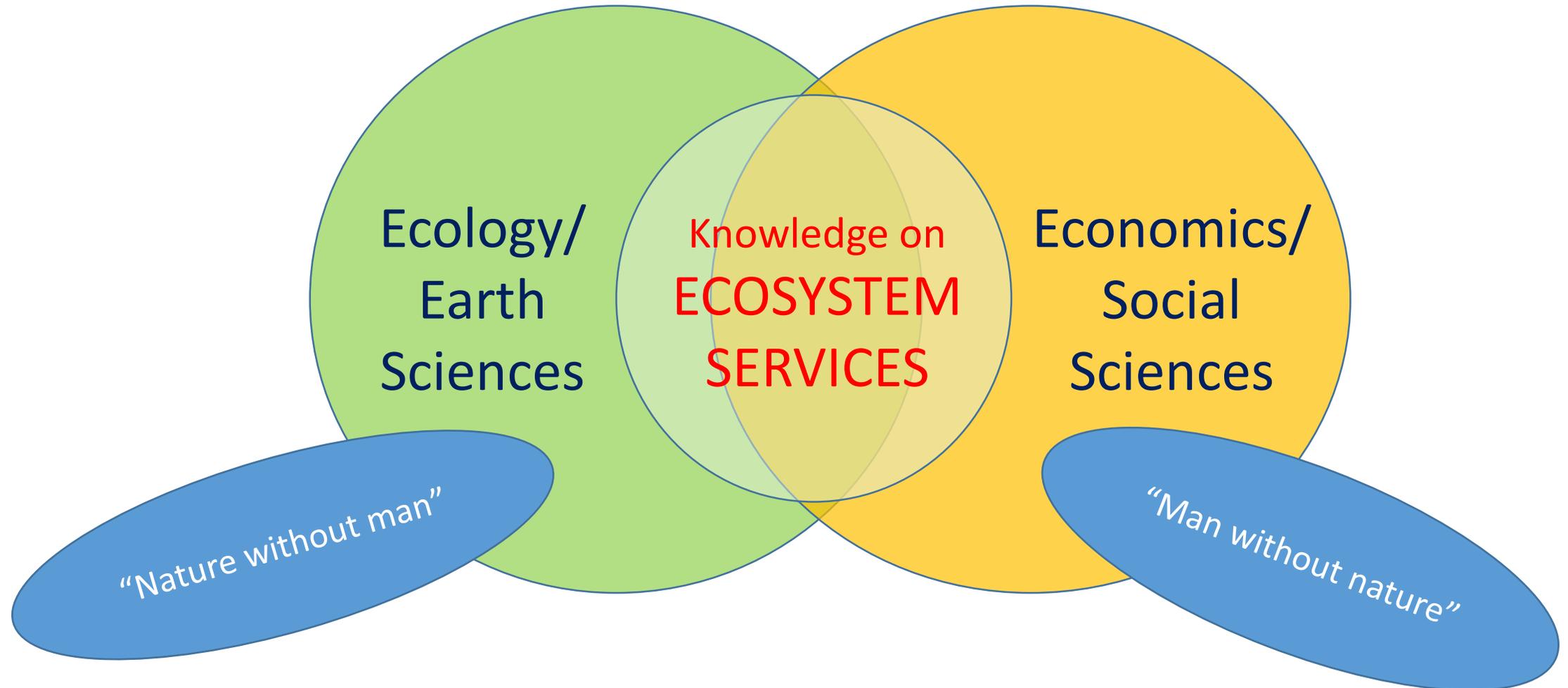
Emphasis on

- Complexity
- Focus on the society/ecosystem interface
- Supradisciplinarity

Risks

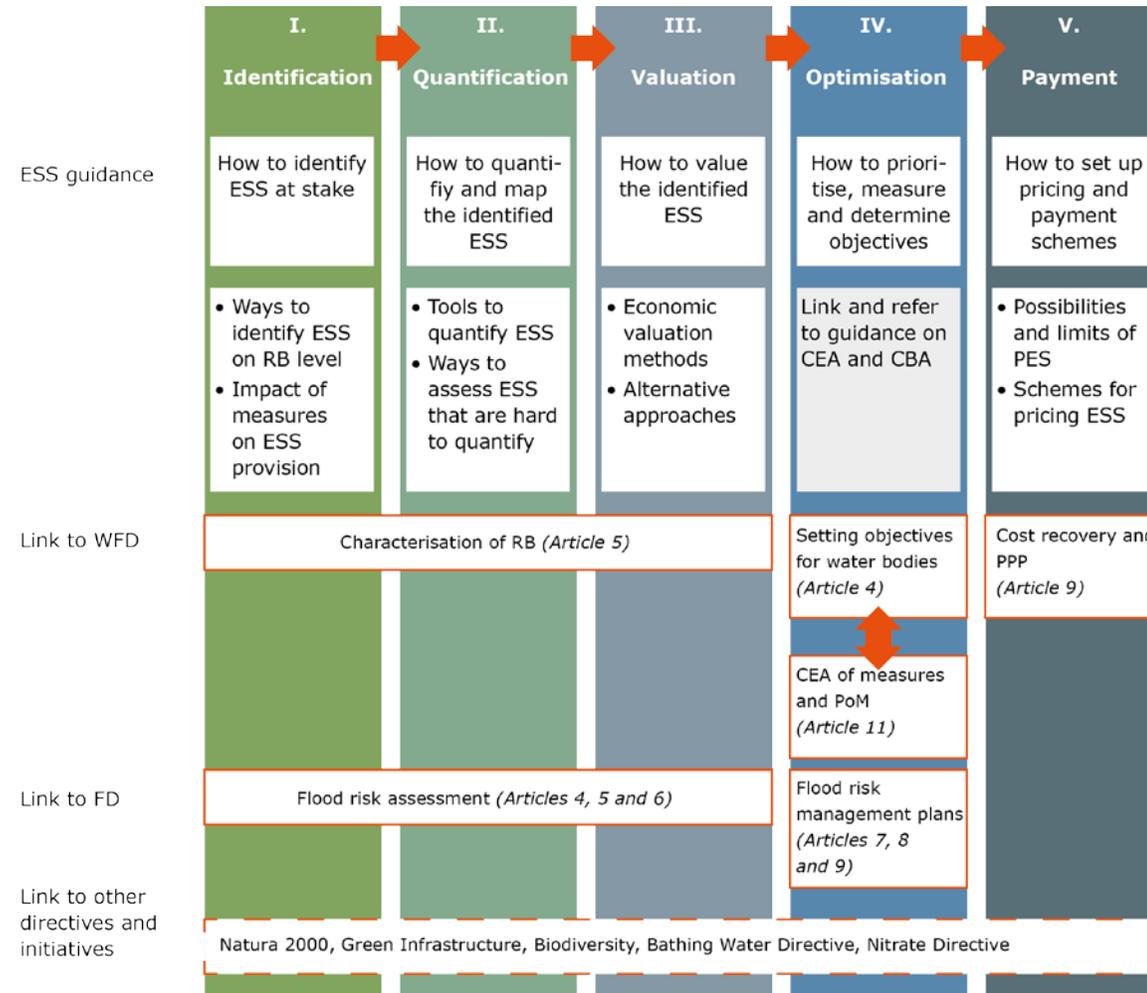
- Reductionism
- Disciplinary bias

Transcending disciplinary barriers and biases



Ecosystem services and policy making

A stepwise Ecosystem Services Approach (ESA) for Water Management

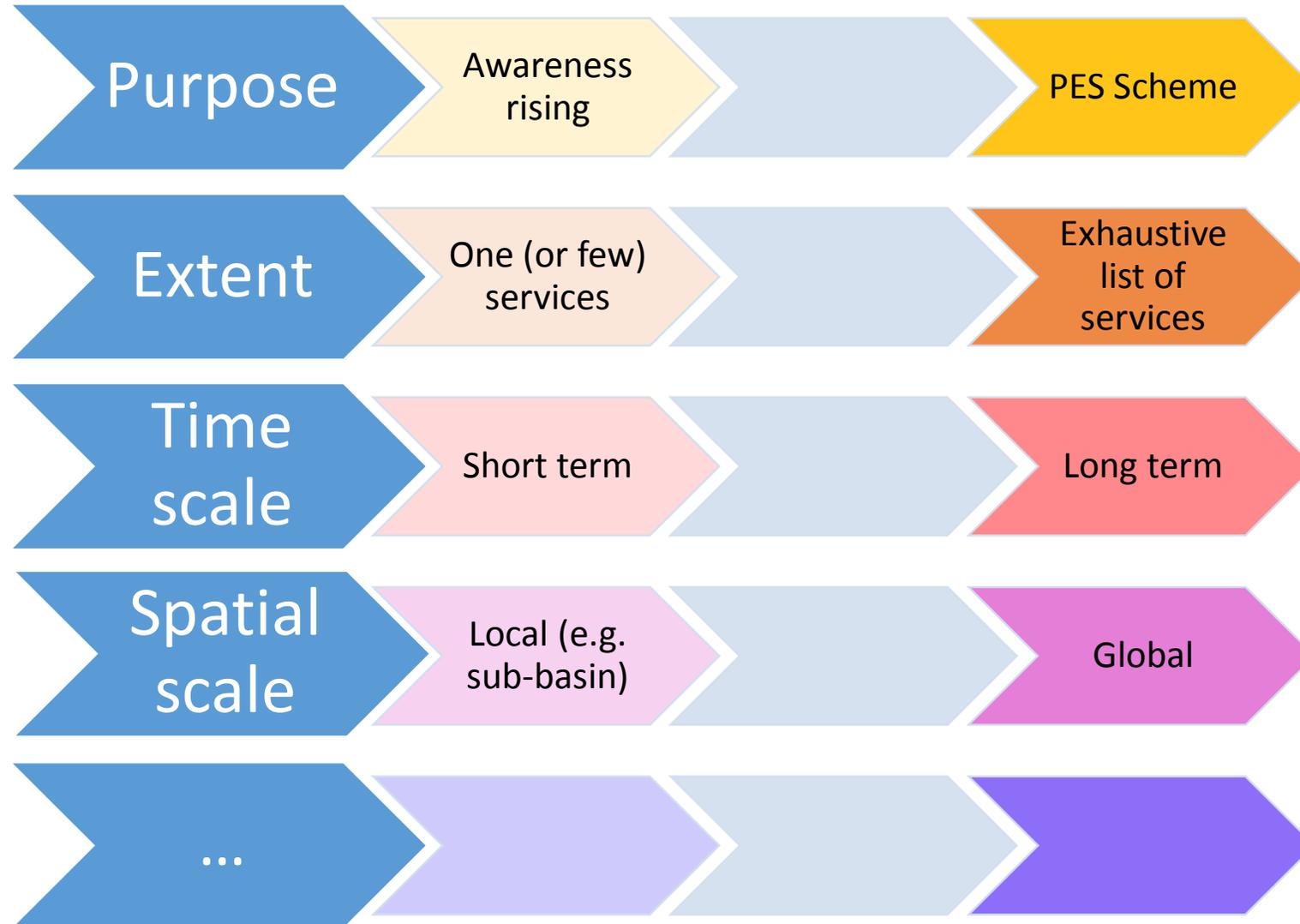


A stepwise Ecosystem Services Approach (ESA) for Water Management

	Identification	Quantification	Valuation	Optimisation	Payment (PES)*
Framing Purpose / Scales	Identification and mapping	Understanding processes and functions	Synergies / Conflicts / Trade- offs	Participative decision making	Management Institutions / Instruments

* COWI Support Policy Development for Integration of Ecosystem Services Approach with WFD and FD Implementation
Towards practical guidelines to support RB Managers
Background document for expert workshop on 3-4 June 2013

Framing



Identification and mapping

List of ES (MEA; TEEB; CICES; ...)

Still under discussion (e.g.: abiotic elements)

Scale issues

Time (long term scale & future generations; market myopia)

Space (definition of limits; overlapping of different biophysical and administrative units; services exchange between spaces)

Use of local knowledge

Risks

Scale bias

MV: missing ES (bias to selected -easy to monetise- ES)

DS: missing actors (e.g. non resident beneficiaries)

Understanding processes and functions Quantification

Lack of knowledge

Causal chains: process-function-service-wellbeing

Uncertainty & complexity (open/non linear processes)

Definition of indicators, metrics and need of information

Scale issues

Time

Space

Risks

MV: **need** of ES quantification for valuation / numbers' false perception of accuracy / joint produced services (non-separability)

DS: vagueness

Synergies/ Trade-offs/ Conflicts

Valuing

Value diversity, conflicts of interests, power imbalance

Lack of valuing institutions

Non marketed services/ diverse property and access rights/ social taboos and norms

Lack of valid universal metrics

Incommensurability issues/ values of change vs values of use/ intrinsic values/ substitutability hypothesis

Risks

MV: adaptation of the questions to available instruments/ abuse of transfer strategies (methods and values) disregarding the context

DS: power imbalance/ abuse of dominant position

Management Institutions / Instruments

Need for new institutions for managing commons

Market is not the only institution

PES is not a panacea

There is a wide space for institutional adaptation & innovation

Risks

MV: Commodification

PES: enlargement of land property rights to ES/ No payment-No care

DS: Stagnation (lack of sustained political commitment)

Concluding remarks

Concluding remarks

1. There are lots of open research questions, but...
2. ...there is also enough knowledge (and an urgent need) to act.
3. In general, methodologies adapted to use available knowledge and information are better suited to democratic decision making.
4. The attempt to apply concepts (demand, market, WTP...) and techniques (CBA, CV...) which have been developed in other contexts and for different purposes, compels the (re)shaping of problems in order to fit the questions to the analytical instruments. This can lead to perverse decisions.
5. Soft methods can yield good results if –among others- sustained political commitment and professional facilitation are provided.



Благодаря!

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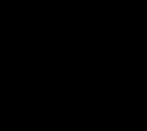
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By focusing on the stock-flow framework, the valuation of ecosystem services and implementation of PES and related projects will have unintended consequences that could have been better foreseen and avoided or adapted to by using additional patterns of thinking. The ecosystem service metaphor now blinds us to the complexity of natural systems, the ecological knowledge available to work with that complexity, and the amount of effort, or transactions costs, necessary to seriously and effectively engage with ecosystem management. (Norgaard, 2010; 1219/20)



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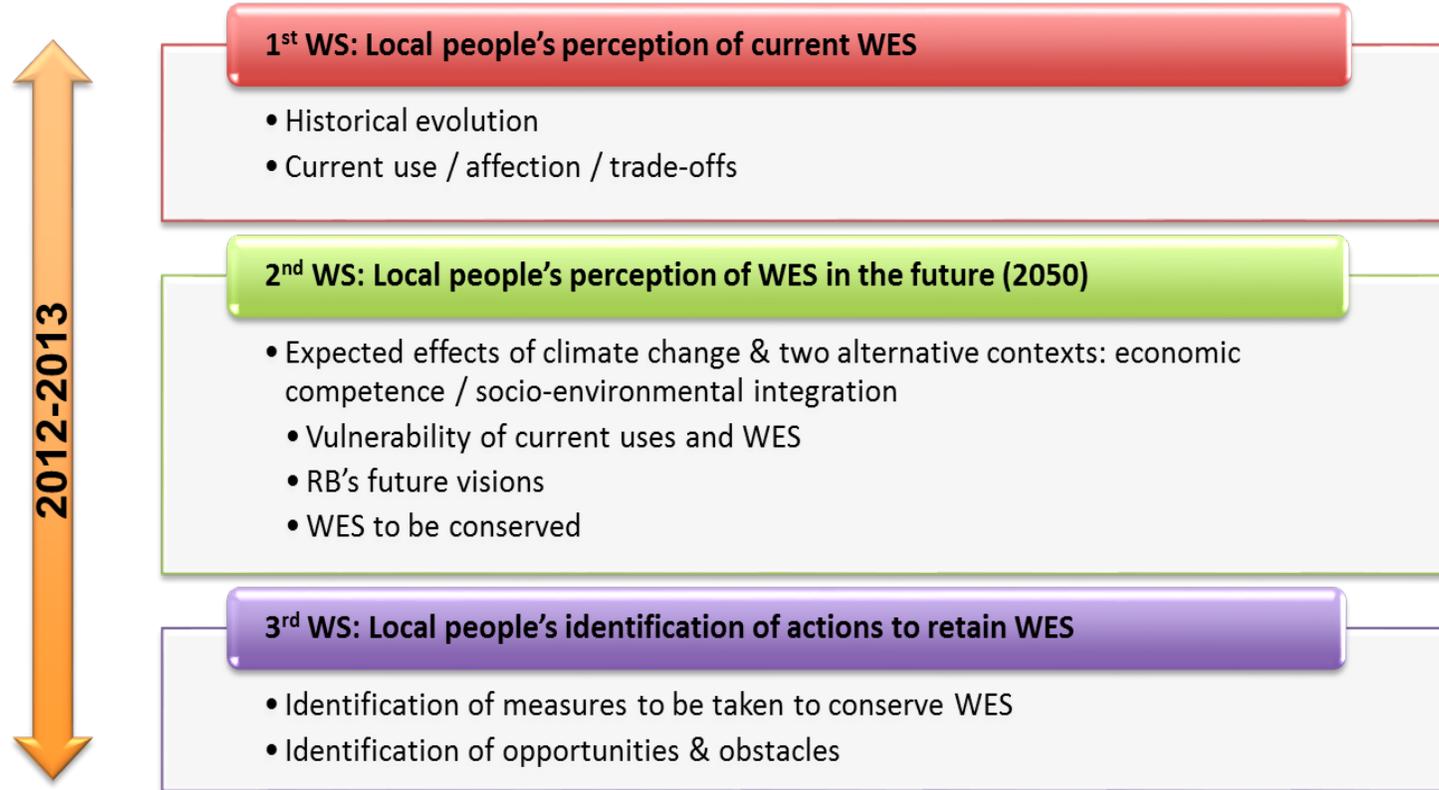


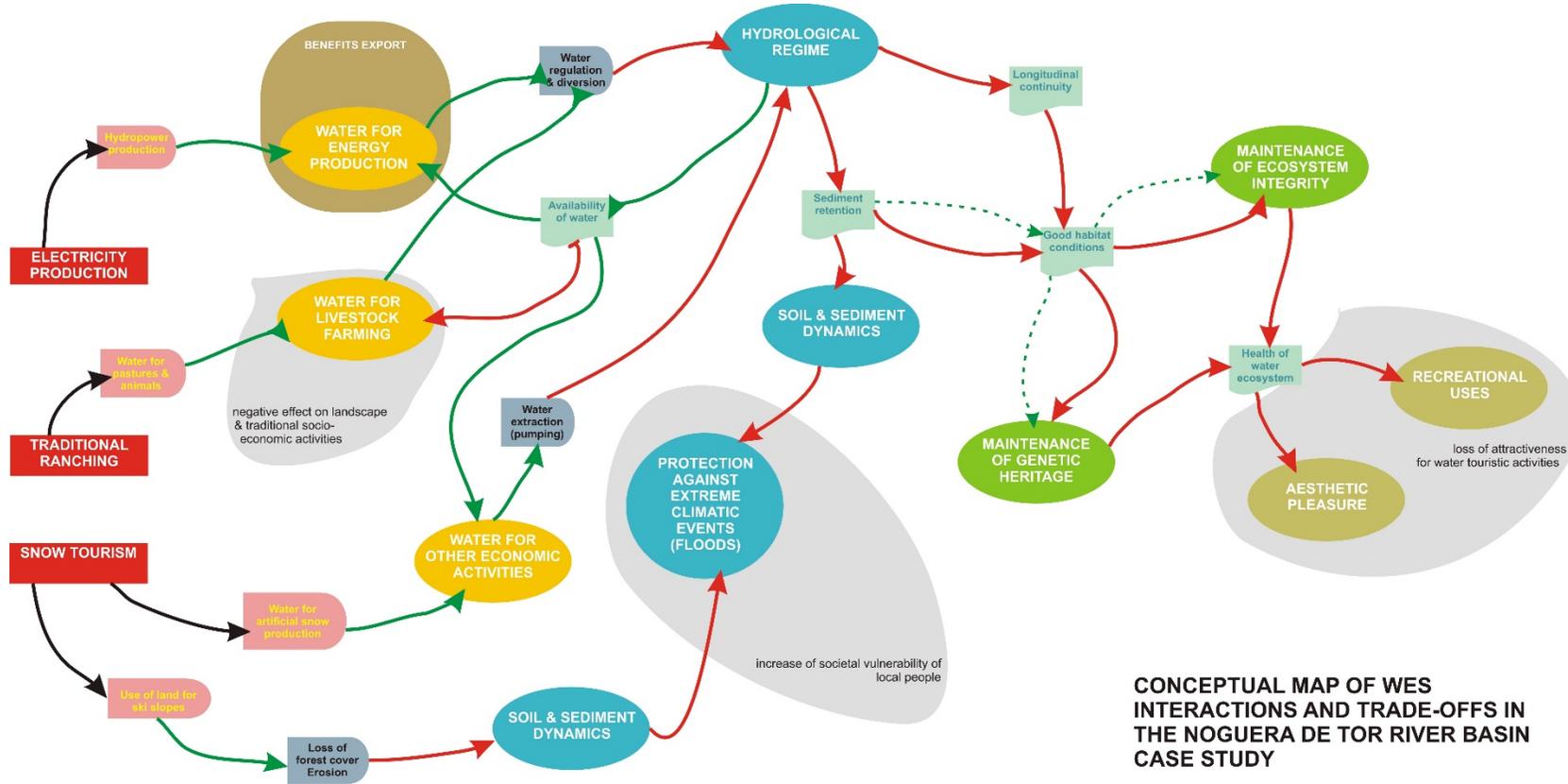


Provisioning	Water for food crops
	Livestock farming
	Water for energy
	Fisheries
	Water for transportation
	Drinking and domestic uses
	Water for wood & fuel
	Water for industrial crops
	Water for other economic activities (Industry, Tourism, ...)
Regulating	Climate regulation
	Hydrological regimes
	Depuration
	Soil & sediment dynamics
	Extreme climatic events protection
Habitat	Maintenance of ecosystems integrity
	Maintenance of genetic heritage
Cultural / Amenities	Aesthetics
	Recreational
	Spiritual and inspirational
	Psychological benefit
	Educational & scientific



Deliberative scenarios workshops







Noguera de Tor: participant's proposed measures

Measures	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Voluntary agreement for WES protection	-	+	+	+	+	+	+
Land use limitations	-	-	-	+	+	+	+
Ecosystems connectivity	-		-	+	+	+	+
Review of water use rights	-	+	+			+	+
Ecological flows	-	-	-	+	+	+	+
Payment for water provision for hydropower generation	-			+		+	+
Payment for self-purification and provision of good quality water						+	+
Payment for recreational uses of protected areas				-		+	+
Research on impacts of global change on biodiversity				+	+	+	+
Knowledge transfer		+	+	+	+	+	+
Environmental education				+	+		

(1) Water for hydropower generation; (2) Water for livestock farming; (3) Water for other economic activities (tourism); (4) Recreational services; (5) Educational and scientific services; (6) Hydrological regime; (7) Maintenance of ecosystem integrity.

Anoia: participant's proposed measures

Measures	(1)	(2)	(3)	(4)	(5)	(6)
Use of regenerated wastewater	+	+		+	+	
Implementation of ecological flows	-	-	+	+	+	+
Use of regenerated wastewater for ecological flows				+	+	+
Water saving	+	+		+	+	+
Water imports	+	+				
Water efficient buildings	+			+	+	+
Protection of groundwater recharge zones	+	+		+	+	+
Stricter regulation of pollutants releases	+	+	+	+		+
Repercussion of water provision full cost to users	+	+				
Payment for protecting water sources	+	+		+	+	
Transparency and knowledge			+	+	+	+
Ecological restoration			+	+		+

(1) Water for drinking & domestic purposes; (2) Water for industrial uses; (3) Recreational services; (4) Self-purification; (5) Hydrological regime; (6) Maintenance of ecosystem integrity.





Perception of WrES importance for local wellbeing

