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Integrative approaches combining with different methodologies in the BISCAY SUB-GLOBAL ASSESSMENT

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INTRODUCTION AND OBJECTIVE

The Millennium Ecosystem Assessment in Biscay (EEMBizkaia) local SGA was started in 2008 promoted by the local administration. From the outset it has been connected to the global MA process.

This assessments has a local and integrative approach to enhance the link between science, policy-making and society. It aims to provide tools and scientific knowledge to achieve landscape level sustainability.



Fig. 1- Study area. Biscay's assessment is being undertaken on two separated spatial scales, a general scale for Biscay and a more concrete scale for different types of ecosystems and landscapes of the territory, divided into four study cases.

Key characteristics:

- Continuous communication with national and international multidisciplinary teams
- A clear outreach and coordination strategy
- Participation and implication of local authorities and NGO's
- Ensuring stakeholder participation from the outset
- Availability of high resolution data at local scale
- Peer reviewed by international experts

METHODOLOGY

In this local assessment we apply a wide range of Ecosystem Service Methodologies in an integrative way, and emphasizing in participatory processes.

The applied methodologies include:

1. Studying the conditions and trends of different ecosystem services using biophysical, social and economic indicators
2. Mapping ecosystems functions and services (Data analysis in Geographic Information Systems -ArcMap 9.3.1)
3. Analyzing social preferences and users' perceptions carrying out face to face interviews and stakeholder workshops
4. Applying valuation methodologies such us contingent valuation (WTP)
5. Developing future scenarios and identifying response options



Fig. 2 & 3- Examples of applied participatory methodologies

SOME RESULTS

Mapping

Map of the ranges and hotspots of biodiversity in Urkiola Natural Park

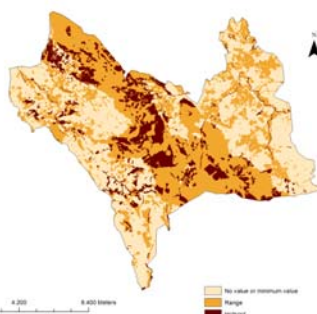


Fig. 4- Biodiversity map in Urkiola Natural Park

Indicators

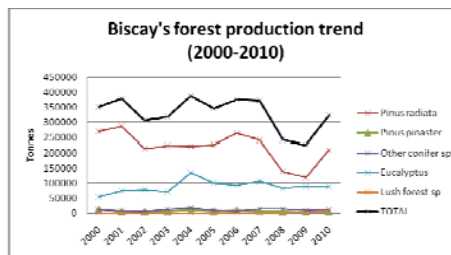


Fig. 5- Biscay's forest production trend as part of the results of the study on state and trends of Biscay's forest systems.

Valuation

Categories	n	Mean WTP(€/year)	Standard error
Groups of municipalities			
Non-residents in the study area	44	18,68	2,42
Urban municipalities	404	20,43	1,62
Rural municipalities	26	13,95	4,80
Language used to answer the survey			
Basque	28	25,38	3,02
Spanish	446	17,11	0,74

Fig. 6- Results of the contingent valuation. People from urban areas with a higher population density had a higher WTP than people from more rural areas

Scenarios

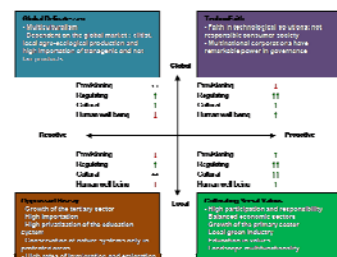


Fig. 7- Summary of the evolution of ecosystem services and human well-being under each of the four scenarios.

KEY FINDINGS

- Conserving biodiversity will also result in the protection of some ES
- A new rural-urban relationship is necessary to get a more sustainable development
- A core aspect of the target scenario is that a real change in social values is proposed
- Integrative approaches combining with different methodologies are needed to understand the existing trade-offs and deal with ES management in a proper and sustainable way

PUBLICATIONS

- Onaindia, M., Fernández de Manuel, B., Madariaga, I. & Rodríguez-Loiñaz, G. Co-benefits and trade-offs between biodiversity, carbon storage and water flow regulation. *Forest Ecol. Manage.* (2012), <http://dx.doi.org/10.1016/j.foreco.2012.10.010>
- Palacios-Agundez, I., Casado-Arzuaga, I., Madariaga, I. & Onaindia, M. Local participatory scenario planning and Millennium Ecosystem Assessment global scenarios; how can they be linked maintaining local policy relevance?. *Ecology & Society* (in review).
- Casado-Arzuaga, I., Madariaga, I. & Onaindia, M. Perception, demand, and user contribution to ecosystem services in the Bilbao Metropolitan Greenbelt. *Journal of Environmental Management* (in review).