

Multi-criteria Analysis as a potential tool for evaluating nature conservation policy

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Multi-criteria Analysis as a potential tool for evaluating nature conservation policy

Aim:

- Look at **features** of the **Multi-criteria Analysis** method for evaluating nature conservation policy.
- Explore the **potential application** of MCA for evaluating nature conservation policy in the Basque Country.

Multi-criteria Analysis as a potential tool for evaluating nature conservation policy

Outline:

- Cost-Benefit Analysis
- Is the CBA suitable for evaluating nature conservation policy?
- Multi-criteria Analysis: a potential tool for evaluating sustainability issues
- The use of MCA for evaluating nature conservation policy in the Basque Country
- Concluding remarks

CBA - rationale

- All benefits and costs into monetary terms
- Decision rule:

$$NPV = \sum_{t=1}^T \frac{(B_t - C_t)}{(1+r)^t} > 0$$

- Discounting the future
- Kaldor-Hicks compensation principle
- Distributional issue
- It supports weak sustainability
- Widely applied within nature conservation policy arena
- Methodological constraints when valuing environment

Is the CBA suitable for evaluating nature conservation policy?

CBA - advantages

- It is a **well-established** method in decision-making context.
- It relies on a **well-defined** economic theoretical framework.
- Environmental values are explicitly incorporated into decision-making. So benefit-cost **trade-offs** are **explicit**.
- Economic valuation:
 - Powerful for calculating **compensation** schemes once environmental **damage** has occurred.
 - Valid for calculating **compensation schemes/payments for environmental services** within **NPA context**.

Is the CBA suitable for evaluating nature conservation policy?

CBA - disadvantages

- Problems with aggregating **individual preferences** into a social welfare function.
- It neglects **equity** concerns.
- **Uncertainty** is implicit.
- Critique of **discounting**.
- It has clear **environmental limits**.
- Estimates of biodiversity conservation benefits and costs are **too imprecise** and **incomplete** to be useful.
- It assumes **cardinality** rather than ordinality.

Is the CBA suitable for evaluating nature conservation policy?

CBA - disadvantages

- ...There are a few more reasons which discourages the extensive use of CBA – regards the sustainability approach faced, which is on the basis of our position in favour of MCA.
- The basic inherent problem: employment of a monetary **uni-dimensional criterion**.
 - It seems **reductionist** converting all attributes of NPA into one single monetary dimension.
 - Associated with compensation principle, i.e. it is **not compatible** with **strong sustainability**.
 - But the economic criterion *per se* must be useful.
 - Context: integrated assessment of a NPA where more criteria are used to evaluate it.

MCA - rationale

- Designed to address **multi-objective problems** as well as multidimensional issues.
- It helps decision-making in a **complex** policy-making **context**.
- Main aim: provide information on the nature of **social conflicts**.
- No optimal solution exists, but the final result must be a '**compromise solution**'.
- Greater **flexibility** than CBA – wider range of criteria; possibility of including intangible and incommensurable effects.

MCA: a potential tool for evaluating nature conservation policy

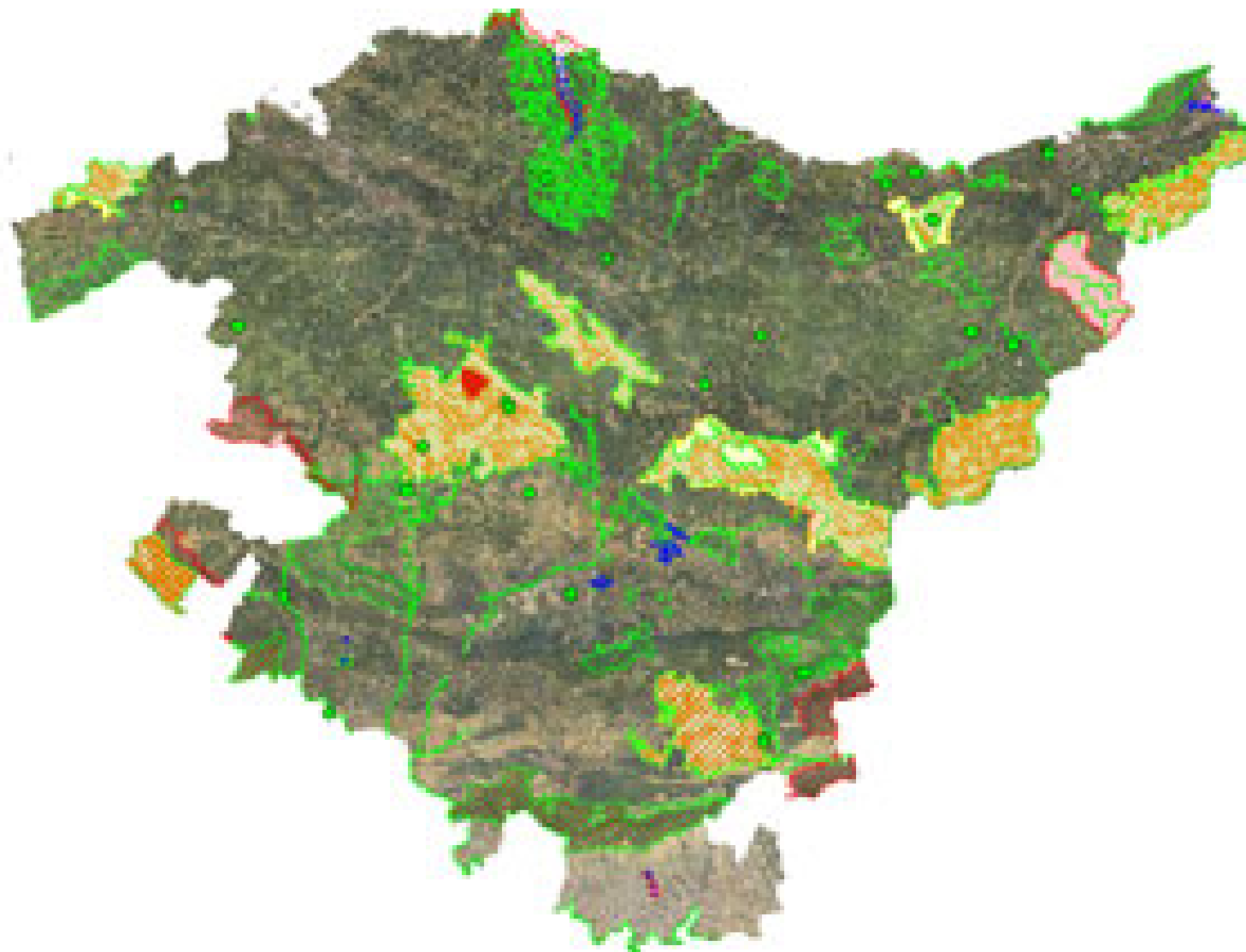
MCA – sustainability and nature conservation policy

- Multi-criteria methods are generally a valuable tool to address sustainability issues:
 - Sustainability implies **multidimensionality**
 - MCA does **not** consider **just only one** evaluation **criterion** but several according to goals set
 - **Non-compensability** makes it strong sustainability can be operative
- MCA is more attractive in comparison to CBA:
 - MCA allows an **explicit treatment** of sustainability and is **adaptable** to different conditions
 - Most **methodological constraints** that CBA often encounters are **avoided** by MCA
- MCA features are well-fitted to **biodiversity issues**
- **Applications** of MCA regarding nature conservation policy have been undertaken:
 - Ciani *et al.* (1993); Munda (1995); Walker (1996); Strijker *et al.* (2000); Nunes *et al.* (2003); Hajkowicz (2007).

Background

- Natura 2000 Network in the Basque Country:
 - 147.000 ha (20% of the surface).
 - 52 Community Sites of Interest (CSI)
 - 6 Special Protection Zones for Birds (SPZB)
 - How is designation process?
 - CSI → **Special Conservation Zones (SCZ)** →
 - SPZB →
- } **Natura 2000**
- Principal task: definitive implementation of Natura 2000 in the near future
 - Commitment of designating by 2010:
 - As SCZ the 100% of the sites across Atlantic Biogeographical Region;
 - and the 30% of those included in the Mediterranean Region.

Natura 2000 Network in the Basque Country



Source: Dept. Of Environment
and Regional Planning of the
Basque Government, 2008.

Authors: Díez & Etxano

Social Multi-criteria Evaluation (SMCE)

- Basis established by Munda (2004)
- **Multi/inter-disciplinary** approach is adequately implemented
- Main feature: take into account the **social dimension of the problem** at hand
- Different types of **knowledge** (derived from experts, policy-makers and social actors)
- **Involvement of social** actors enriches the evaluation and decision-making process
- **Transparency** is promoted: transparency on assumptions is essential.

SMCE – pilot case

- Pilot case: a CSI of Natura 2000 in the Basque Country
 - An **ex ante evaluation** would be applied
 - Different **policy options** when declaring from CSI to SCZ
 - Each SCZ needs a Management Plan.
 - A particular CSI will be selected.
 - All **social actors involved** in the site will be asked to participate in the evaluation process.
 - Government, regional agencies, ecologist groups, Local Authority, local associations, etc.
- Objective: **employment of this methodology** for any other case in the Basque Country.

SMCE – evaluation process

1. Definition of the problem
2. Institutional analysis
3. Generation of the policy options
4. Construction of the Multi-criteria Impact Matrix
5. Application of the mathematical procedure and Sensitivity analysis

Example of Multi-criteria Impact Matrix

Dimensions	Criteria	Units of measurements	Policy options of the selected Natura 2000 site			
			A_1	...	...	A_n
ECONOMIC	Ecn_1	...	$Ecn_1(A_1)$	...	...	$Ecn_1(A_n)$

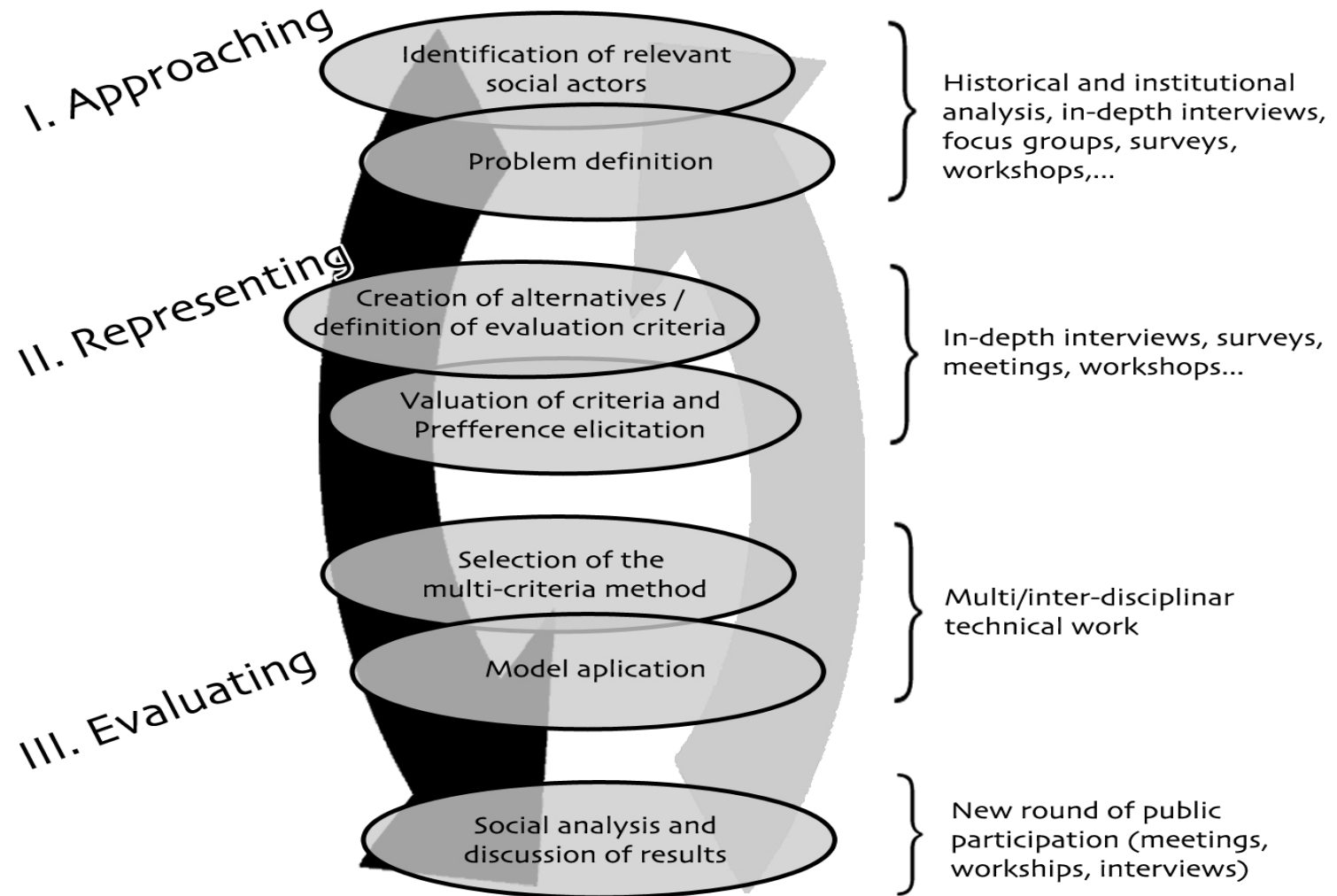
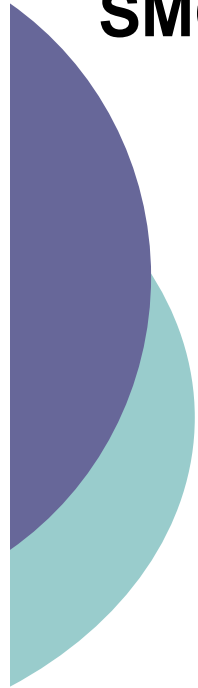
	Ecn_m	...	$Ecn_m(A_1)$	...	...	$Ecn_m(A_n)$
ECOLOGICAL	Ecl_1	...	$Ecl_1(A_1)$	...	...	$Ecl_1(A_n)$

	Ecl_p	...	$Ecl_p(A_1)$	...	...	$Ecl_p(A_n)$
SOCIAL	Soc_1	...	$Soc_1(A_1)$	...	...	$Soc_1(A_n)$

	Soc_q	...	$Soc_q(A_1)$	...	...	$Soc_q(A_n)$

Source: authors drawing on Martínez-Alier et al. (1998) and Russi (2007).

SMCE process



Source: Gamboa (2008)

Authors: Díez & Etxano

Concluding remarks:

- It is believed that MCA is very suitable against CBA due to both **methodological and ideological** reasons.
- **AMC** in general, and SMCE particularly, has been thought as a **suitable** tool for evaluating nature conservation policy in the Basque Country.
- Future research must be addressed in two directions:
 - In addition to SMCE other multi-criteria methods should be carefully checked and contrasted.
 - Once the pilot case has been assessed, the elaboration of a common methodological framework to evaluate any of the sites including Natura 2000 in the Basque Country should be addressed.

Danke!
Thank you!
Gracias!
Eskerrik asko!

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