

The economics of ecosystem services

Sigrid Stagl

Introduction

Given the importance and degree of menaces that biodiversity faces nowadays: fast declining, and changes in ecosystem services provision. Valuation of ecosystem services emerges as a valuable coping option.

Pointed out the challenges that the valuation of ecosystem services would demand into the academic-policy frame, there is a need of an interdisciplinary (natural and social) approach for understanding of systems as complex ones, and to increase its explanatory capacity through the compatibilisation of social and behavioural models.

I. Ecological economics

Etymologically (Eco = house; Logic = Wisdom, Nomics = management).

Initially applying a conventional approach: linking firms and households through market relationships, has evolved later on suggesting a wider model, which includes a larger environmental frame: the biosphere and its flows inputs and outputs in it.

Being economy function of the environment, it is essential to consider such a **frame in related decisions**, taking care of the intersection economy, society, environment, lifestyle, production and policy chances, what in-group define sustainable development.

Conventionally were evaluated inflows and outflows only, but now become important the **stocks assessment**, in various terms: natural, social and as capital; popping up then, their measure as a problem.

In case of socio-ecological systems it is advised to apply various level approaches: 1. The system approach: involving components, boundaries, output and inputs, 2. Complex systems approach: with a large number of components and high level of interaction, and 3. Complex and adaptive systems, including adapting agents on the encouragement of learning processes. And finally the evolutionary complex systems approach, linking ecological, physical and socioeconomic factors: supporting institutions to address their economy efficiency, ecological resilience and social justice.

II. Environmental valuation and appraisal

The overall aim is to influence actors to enable their preferences. It is done through value articulating institutions and their abilities to influence on individual, group, and/or social preferences. They specially remark on valuation methods and its implications, but lastly hybrid methods outstretched.

Value articulating institutions (VAI), are the executive tools of those evaluation processes, which define: who participate, what data counts, what aggregation process is used, etc. Main VAI's are: cost-benefit analysis (CBA), multicriteria appraisal (MCA), deliberative institutions (DI), citizen juries, consensus conferences etc.

Institutionally, this perspective should include both rationalities -individual and social-: reciprocity, regulatory, communication and cooperation; as well as preferences, culture, etc.

Challenges environmental valuation, mainly: a) social incommensurability - derived from the concepts of reflexive complexity and post-normal science; refers to the existence of a multiplicity of legitimate perspectives in society, and b) technical incommensurability

- evolving complex systems, multidimensional nature of complexity; uncertainty, ambiguity and ignorance; refers to the issue of representation of multiple identities in descriptive models.

Aims and quality of deliberative processes, it is clear the final aim is to make 'better' decisions, what would mean: to focus on the decision process, and stressing on quality criteria for deliberative processes: competence in the process, fairness and social learning.

Cost-benefit analysis (CBA), lays on decisions based on individual preferences that determine instrumental and strategic actions. Its basic assumptions: a) Its rationality pursues the maximization of the individual utility -one-dimensionality-, b) Assumes stable preferences, and c) Unlimited calculative capacity.

Multicriteria appraisal (MCA), allows taking into account in decisions: a) a large number of data, b) multiple criteria measured on different scales, c) requires only weak comparability between actions, and d) scientific data from various disciplines and different value judgements and interests.

MCA enables us to rank a finite number of alternatives, while considering several, in part conflicting criteria, then there is no solution optimising all criteria, a compromise solution has to be found.

Hybrid value articulating institutions, Compiles methodologies which systematically judge different courses of action, compared against a set of economic, social, environmental and ethical criteria. Considers quantitative and qualitative information and supporting decision-making when deals with complex scientific and technological issues.

...

Daniel Callo-Concha