CHANGING MANAGEMENT PARADIGMS IN NATURE CONSERVATION

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Abstract
The crisis of biodiversity is one of the many crises that started at the turn of the millennia. The concrete form of manifestation is still debated, but there is a relatively great consensus on the extremely high decay rate as well as on the urgent need for action. The action strategy is outlined today with a strong economic component, after the recognition of market mechanisms as being the most effective tools in implementing biodiversity protection policies. This paper presents an analysis of successive changes occurred within management paradigms in nature conservation, starting with the identification of the theories underpinning the economic approach of ecosystems and continuing with the description of the mechanisms regarding the implementation process of the policies for nature conservation. Finally, based on the results of the analysis, the succession of management paradigms in nature conservation is emphasized.
Keywords
ecosystem services, nature conservation, management approach

Introduction

The history of paradigms for managing resources started with the agricultural vision that led to the restocking approach which was then supplemented by habitat and renewal management, coded in scientific management, reinvented as adaptive management and improved with business management, in order to create management by objectives and total quality management (Bottom, 1996). This evolution can be interpreted as the expression of the inability to provide sustainable solutions, as well as the expression of a continuous search for ensuring a balance between conservation and usage. The economic approach of nature has its origins in several theories developed since the eighteenth century. By contrast, the concept of ecosystem services is relatively recent, being close to the beginning of consistent environmental concerns, i.e. the 1970's.

A complete and detailed analysis of the conceptual evolution (fig.1) was carried out by Gomez-Baggethun et al. (2010), who proposed dividing the process into three stages: - origin and genesis; consolidation; building market instruments.

Nature conservation is subordinated, as a matter of public policy, to the environmental policy. Therefore, implementation of this policy will appeal to the same set of instruments (table 1).

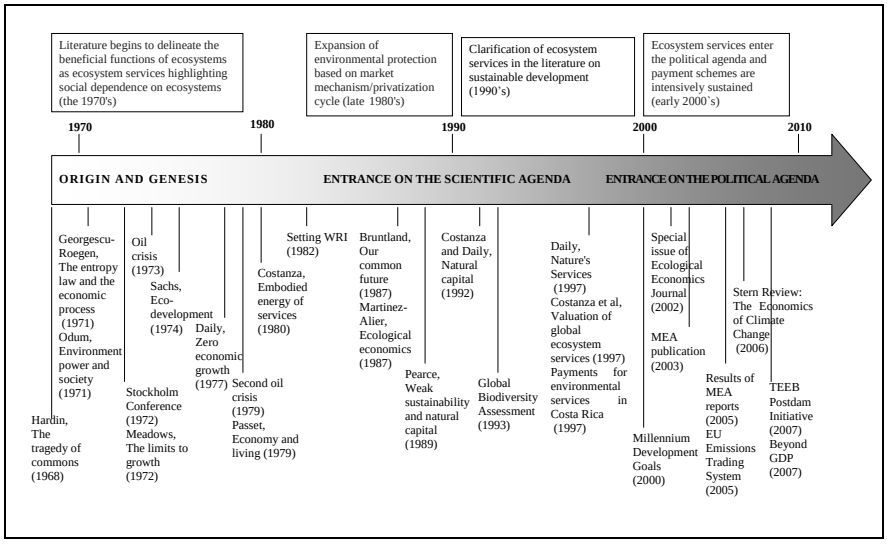
The way in which these tools are positioned towards several characteristics that relevant for the achievement of closely correlated tools combinations with political objectives (constraint, visibility, automaticity, direct action) is presented in table 2.

Implementation of environmental policy is a widely debated topic in the literature, so that we do not focus on a description or analysis of the tools used, but on highlighting specific aspects for a domain becoming more important for the international environmental agenda – the conservation of biological diversity.

The economic expression of ecosystem services value

Connection between economy and ecosystem services is intended to create a system in which the contributions of ecosystems to human well-being are assigned an economic expression of value, becoming the subject of market negotiations. This expression is justified on several considerations:

- decision making process;
- the relationship between biodiversity and poor population;
- compliance with economic principles;
- aligning incentives with the distribution of biodiversity and ecosystem services benefits;
- building a more efficient economy.



Source: Gomez-Baggethun, E., de Groot, R., Lomas, P.L., Montes, C. (2010), The history of ecosystem services in economic theory and practice: from early notions to markets and payment schemes, *Ecological Economics*, 69, pp.1213.

Fig.1 Stages of the concept of ecosystem services in modern historyNature conservation policy implementing

Table 1 Implementation Tools

Tool	**Mechanism**	**Public Law**	**Private Law**	**Participation**
Legislation	Constraint	Direct regulation	-	-
Market	Change	Taxes Subsidies	Contracts Liability Property	-
Communication and information	Persuasion	Evaluation of ecological impact Duty to inform Sponsorship of environmental NGOs Eco labels		Agreements Education Information campaigns

Source: Rojanschi, V., Bran, F. (2002), *Politici şi strategii de mediu,* Editura Economică, Bucureşti, pp.47.

Table 2 Characteristics of political tools

Political tool/dimension	Constraint	Visibility	Automaticity	Direct action
Prescribing				
Regulations	High	Low	Low	Medium
Penalties				
Taxes	Medium	Medium	High	Medium
Property rights				
Land use				
Moratorium	High	Low	Low	High
Tradable permits	Medium	Medium	Medium	Medium
Payments				
Taxes	Low	Medium	High	Medium
Expenditures	Medium	High	High	Low
Grants	Low	Medium	Low	Medium
Privileges	Low	High	Low	High
Direct payments				
Public information	Low	Medium	Low	Low - High

Source: Kemkes, R.J., Farley, J., Koliba, C.J. (2010), Determining when payments are an effective policy approach to ecosytem service provision, *Ecological Economics* no.69, pp.2069-2074.

The succession of management paradigms in nature conservation After Grumbine (1997), the factors that favored the integration of social dimension into the management paradigms of nature conservation are the following:
- the acceleration of biodiversity crisis;
- the fact that the implemented policy initiatives did not prove a real capacity to slow down the degradation process of biodiversity;
- the development of conservation science (the biology of conservation);
- poor security provided by law regarding the relationship between natural ecosystems and the pressure factors (industrialization, population growth, affluence);
- increasing of environmental activism and criticism of the policies used in the management of natural resources;
- the reduced public involvement in the decision making process;
- changing the social perception on the relationship between man and nature.

Nature conservation and the use of natural resources are processes that are facing each other under different management paradigms. Among the most common management paradigms we underline:
- dominant use;
- multiple use;
- environmentally sensitive multiple use;
- ecosystem approach to natural resource management;
- ecoregional management (table 3).

Table 3 Succession of management paradigms in nature conservation

	Dominant use	**Multiple use**	**Ecosystem management**		
			Environmentally sensitive multiple use	***Ecosystem approach to natural resource management***	***Ecoregional management***
Objectives	Promotion of singular human use	Promotion of multiple human use	Promotion of multiple human use in compliance with ecological constraints	Promotion of ecological integrity along with the sustainable human use	Ecoregional management, restoration and maintenance of ecosystem functions, together with the sustainable human use
Biological objectives	Species having economic value	Species and landscapes with economic value, composition	Multiple species, composition, structure	Species and ecosystems; composition, structure and functions	Landscape-level ecosystem functions (ecological processes)
Spatial demarcation	Management unit	Management unit	Management unit, specific to problems	Regional scale, specific to problems, ecological criteria	Landscape units, ecological delineated
Key principles	Maximum harvest; protection of production means	Maximum sustainable harvest, economic feasibility	Sustainable harvest, minimizing the environmental impact and cumulative effects, protection of species diversity, consideration of economic costs; public involvement	The ecosystem is a metaphor for holistic thinking; systemic perspective; spatial and temporal scales; complex and dynamic ecosystems; collaborative decision-making process; explicit approach to uncertainty; interorganizational cooperation	The ecosystem is an integrative spatial unit; complex and dynamic ecosystems; decentralized collaborative decision-making process at ecoregional level; explicit approach to uncertainty; reorganization of administration on ecological limits

	Dominant use	Multiple use	Ecosystem management		
			Environmentally sensitive multiple use	***Ecosystem approach to natural resource management***	***Ecoregional management***
Ecosystem concept	Industrial production platform	Industrial production platform	Limited production platform; landscape damaged by management actions, that affects management	Constructions that are specific to problems; focus on interactions dominated by biotic elements	Real geographical locations defined as bio or geo ecosystems
Ethical perception	Anthropocentric	Anthropocentric	Anthropocentric	Biocentric	Ecocentric

Source: Yafee, S.L. (1999), Three faces of ecosystem management, *Conservation Biology*, vol.13, no.4, pg.717.

The social dimension of nature conservation becomes important along with the expansion of the multiple use paradigm that captures the need to preserve the "production platform" ensuring human needs satisfaction. The following management paradigms pay more attention to this dimension by formulating objectives in relation to human activities and through encouraging public participation in the decision making process.

Thus, ecosystems management joins other environmental concepts within environmental protection which enjoy wide acceptability and good representation in policy development, without any consensus regarding their content. "Sustainable development" and "social responsibility" are concepts well known for the large number of definitions as well as for the fact that there are very few opponents. "Ecosystem management" has many definitions and there are opinions according to which the concept was easily accepted because it was interpreted differently, depending on the interests of the institutions involved (Yafee, 1999).

Conclusions

In this context, biodiversity and ecosystem services are natural assets which play a key role in the economic strategies to promote development and prosperity. The development and strengthening of policies for the transition to an economy based on efficient use of resources is the way forward. MEA (Millennium Ecosystem Assessment) demonstrated the importance of natural capital for the survival and the well-being of mankind. Other baseline studies - Global Environment Outlook (GEO-4 UNEP, 2007); The fourth report of the Intergovernmental Panel on Climate Change (IPCC) regarding climate change (IPCC, 2007); Environmental Outlook 2030 (OECD, 2008); International Assessment of Agricultural Knowledge science and technology for development (IAASTD, 2009); Millions submerged report (World Bank and FAO, 2008); World Water Development Report (UN WWAP, 2009), draw similar conclusions and highlight the threats to natural assets. From an economic perspective, all these degradation processes generate costs that should be compensated through the decisional alternatives considered in policy development.

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