



From coastal management to environmental management: The sustainable eco-tourism program for the mid-western coast of Sardinia (Italy)

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ABSTRACT

The Integrated Coastal Zone Management (ICZM) principles in the Mediterranean represent a guideline identifying an appropriate way of linking environmental best practices to local development. The Province of Medio Campidano (Sardinia, Italy) has a unique coastline eco-system, with a high level of conservation policy (according to the Habitats Directive) with the presence of 5 Sites of Community Importance (SCIs). In this sense, a pro-active approach was encouraged by the local administration, gaining the participation of representative stakeholder groups in order to define a common local development strategy. This paper synthesizes the results of the Sustainable Development and Eco-tourism Program (PSSE in Italian), an economic–environmental planning tool completed in January 2012. The PSSE implemented a road map for sustainable actions; these are the results of negotiated decisions. Indeed, after a diagnosis of the territorial system, using a multicriteria approach, new forms of integrated territorial management were suggested, using the coastline resource to launch a new economy, linking together ecotourism and environmental protection.

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Introduction

The European Environment Agency's Report 4/2009, entitled "Progress towards the European 2010 biodiversity target" highlights how biodiversity has been halved over the last two centuries and how Europe now retains only 45% of its species, the others having become extinct, and human activity means that this trend is ongoing and indeed accelerating (EEA, 2009).

In annex III of Directive 92/43/EEC "Habitats", the European Union identified the selection criteria for sites of environmental importance, outlining the methodology to be followed in order to construct the European network called "Natura 2000" (EEC, 1992). The combined provisions of the "Habitats" and "Birds" Directives (EEC, 1979) impose on all EU Member States the duty to protect and recover natural areas with high value eco-systems and at high risk of biodiversity loss (Ledoux et al., 2000). Areas of particular interest have been divided into zones with the introduction of restrictions and actions aimed at maintaining and/or recovering natural habitats with the relevant species native to Europe, particularly threatened by phenomena of fragmentation and extinction. The Special Areas of Conservation (SACs) are thus a mosaic made up of Sites of Community Importance (SCIs) and Special Protection Areas (SPAs) for which detailed environmental planning is needed.

In line with the provisions of art. 6, paragraph 1, of the Habitats Directive for Special Areas of Conservation, the Member States decide the necessary conservation measures, which in certain cases implicate the introduction of a specific instrument known as a Management Plan (MP).

Moreover, the environmental management aspects are closely tied to the functionality of the habitat and to the presence of the species for which the site was proposed and, thus, need to be widened within a planning strategy capable of balancing the phenomena of both direct and indirect interference (human, economic, social), aiming at the creation of compatible development scenarios in the medium-term (Daily et al., 2000; Mörtberga et al., 2007).

Currently, there is an overlap of territorial instruments in use in Italy: for example, between the MP and instruments such as the Regional Landscape Plan, the Hydrographic District Management Plan, the Regional Forestry Plan, the Regional Game Fauna Plan, Provincial and Municipal Urbanization Plans and all other forms of planning that require regulation within the relevant protected areas. Thus, there seems to be a need to achieve an adequate level of integration, both vertical (national, regional, provincial and local instruments) and horizontal (planning and evaluation instruments on the same scale) in order to optimize the use of resources (including financial resources) (Zoppi and Lai, 2013). From this perspective, in accordance with Italian Presidential Decree no. 357/97, which enacts the Habitat Directive in Italian law, the Regional authorities are given legal and regulatory responsibility in this field. The Region can limit itself to performing the administrative

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functions assigned under regulations, or it can create its own legislation in this field. In the latter case, by adopting specific legislation, the Region can delegate particular planning powers to Provincial or other local authorities.

On this basis, the Province of Medio Campidano (Sardinia, Italy), which has a unique coastline ecosystem, 47 km in length, situated entirely in the municipality of Arbus, including 5 Special Areas of Conservation (SACs), which have been classified as Sites of Community Importance (SCIs) and Special Protection Areas (SPAs) in accordance with the Habitats Directive (92/43/EEC), decided to formulate its own strategic vision and adopt an ad hoc operational instrument: the *Programma di Sviluppo Sostenibile ed Eco-turistico* – PSSE (Sustainable Development and Eco-tourism Program).

This local economic–environmental planning tool is composed of three documents, results of three related phases:

- Report on the State of the Arbus coastal area (RSAC), which is the result of a diagnosis of the territorial system (Phase 1).
- Master Plan, which is a concerted document, on strategic choices, for the purpose of a benchmarking analysis (external competitiveness) and an analysis of the potential of the local system (evaluation of the internal system in relation to the load capacity and future prospects) (Phase 2).
- Concluding Report containing feasibility studies of the priority initiatives (Phase 3).

Finally, this instrument must necessarily be part of a process of Integrated Coastal Zone Management (ICZM), which is now considered “the most appropriate process for dealing with long-term challenges”, being a “proactive policy process aimed at addressing conflict, interests for coastal space and resources” (González-Riancho et al., 2009; Koutrakis et al., 2011).

This paper synthesizes the results of the PSSE, completed in January 2012; the general objective is to highlight new forms of integrated territorial management, using the coastline resource as a strongpoint for launching a new economy with an eye to ecotourism and environmental protection (Gössling, 1999).

The paper is structured in the following sections:

1. “Introduction” section, in which the general aim of the paper and its structure are presented.
2. “Theory and methods” section, in which the PSSE instrument is examined, analyzing both the relevant territorial-coastal scenario, and the connected eco-tourism processes.
3. “Results and discussion” section, in which we discuss the strong points emerging from the PSSE and translate them into a roadmap for the sustainable development of the Arbus coastline.
4. “Conclusions” section, in which it is shown how the regulations created by the Management Plans lead to the achievement of a unitary objective of territorial environmental development, which generates a program of compatible economic–social development around the coastal system.

Theory and methods

The PSSE: operating method and area of reference

The Province of Medio Campidano, following a preliminary SWOT analysis of its coastal system (see Table 1), adopted a PSSE in order to unify the various diagnostic–planning instruments already in place. In particular, the PSSE aims to monitor and manage the growth of human development in particularly fragile areas, both through integrated and interdisciplinary management of public areas with high numbers of tourists, and limiting human impact in order to favor eco-sustainable and eco-tourism development that enhances the local wealth of biodiversity (Lanza and Randazzo,

Table 1

Preliminary SWOT analysis of the Arbus area (Medio Campidano Province – Sardinia, Italy).

Strong points	Weak points
<ul style="list-style-type: none"> • High environmental value • High value of cultural heritage and local community identity • Peculiarity of the landscape • Historical and cultural attractions linked to mining activities (mining archeology) • High concentration of artisans' workshops • Existence of a significant food and wine heritage 	<ul style="list-style-type: none"> • Poor integration with surrounding territories (Guspinese and Villacidrese areas) • Poor conditions of roads within the coastal area (70 km of unsurfaced roads) • Inadequate public transport (both rail and road) • Lack of a tourist port • Inadequate primary infrastructure in coastal towns (e.g. inadequate integrated water cycle or internet connections)
Opportunities	Threats
<ul style="list-style-type: none"> • Incentives for coastal protection • Availability of national and European funding • Expansion of foreign tourism tied to ecotourism • Training opportunities directly linked to a process of enhancement of existing heritage through ecotourism • Incentives for the recovery of property linked to the mining industry 	<ul style="list-style-type: none"> • Deficit of the local socio-demographic system • Further reduction of the already very low level of entrepreneurship • Failure to intervene to improve local infrastructure • Direct competitors in the ecotourism market

2011; Pearce and Moran, 1994; Tintorè et al., 2009; Turner et al., 1999; Vallega, 1995a,b).

The PSSE applies to territory within the Province of Medio Campidano, specifically to the coastline in the municipality of Arbus (Sardinia, Italy), about 47 km in linear length, from the promontory of Capo Frasca to the north, as far as Capo Pecora to the south. This coastline is characterized by alternating rocky stretches and large dune systems which require adequate protection and management (Rhind and Jones, 2009). The whole area subject to the program covers about 320 km². This coastal area of the municipality of Arbus includes 5 of the 8 Sites of Community Importance to be found in the Province; the starting point for the program is the acquisition and integration of documents relating to the various Management Plans (see Fig. 1 and Table 2).

The PSSE, like the Local Action Plans, by interpreting the dynamics of compatible territorial development, is aimed at identifying an integrated system of actions that can be compared and measured and which guarantee sustainable territorial development from an ICZM perspective (Forst, 2009; Koutrakis et al., 2011).

The methodology of the PSSE consists in a series of activities divided into three phases (see Fig. 2):

- The first phase is diagnostic and is aimed at supplying the Provincial authorities with a clear overview of the State of the Coastal Environment, through a Report (RSAC) drawn up following a process of collecting and analyzing territorial, environmental and socio-economic data, as well as by comparing local requirements. The data was processed in a dynamic (geo-referenced) database (Douven et al., 2003), then weighted and put in order according to priority, as a result of participatory dialogue with the system of governance, including all stakeholders. On the basis of the “Methodology for the creation of the Map of Physiographic Units of Italian Landscapes”, using the modus operandi proposed by the Agency for Environmental and Territory Protection (APAT), now the *Istituto Superiore per la Protezione e la Ricerca Ambientale* (ISPRA, 2010), for the classification of types of landscape,

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