



## Visitors' awareness of ICZM and WTP for beach preservation in four European Mediterranean regions

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### ABSTRACT

This paper discusses the results of a multi-country survey about private stakeholders' contribution to coastal preservation. It was conducted in four coastal sites of Greece, Italy and France, in order to collect information about beach visitors' perception of Integrated Coastal Zone Management (ICZM) and their willingness to pay (WTP) for beach preservation, intended here as defence from erosion. In order to find out whether ICZM perception is a determinant of WTP, regression analysis is applied. Results show that in these sites respondents have a low level of information about the nature of ICZM, despite local authorities having implemented some ICZM strategies for preserving the coast. Nevertheless, those who are informed about ICZM have a higher probability of paying for beach preservation. This suggests to policy-makers that promoting public awareness about ICZM may increase the probability of paying. Finally, some categories of visitors, such as women and young and middle-aged people, have a higher probability of paying than men and older people, thus suggesting a more sensitive attitude to beach preservation. Therefore, policy-makers should also pay attention to the categories of visitors less likely to pay.

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### 1. Introduction: background and aims of the study

Integrated Coastal Zone Management (ICZM) is a key paradigm for the sustainable development of coastal zones. It may be defined as 'a strategy for an integrated approach to planning and management, in which all policies, sectors and, to the highest possible extent, individual interests are properly taken into account, with proper consideration given to the full range of temporal and spatial scales, and involving all coastal stakeholders in a participative way' [17, p. 6]. In terms of the System of Environmental-Economic Accounting (SEEA), Central Framework, which is a 'multi-purpose conceptual framework that describes the interaction between the economy and the environment', ICZM has the

task of 'preserving and maintaining' the stock of coastal resources [12, p.88]. In order to pursue this task, ICZM acknowledges that a policy-maker should ask private stakeholders to contribute in monetary terms to coastal preservation not only for the satisfaction of their own needs but also for those of future generations [5].

ICZM is 'essentially a local activity implemented by public and private stakeholders on the ground'. Nevertheless, it has a 'transnational dimension' since 'looking at the interactions between ecosystems, regional production systems, as well as social structures and cultural patterns, typically requires taking into account larger geographical areas that cut across (national) boundaries while also linking land and sea development' [17, p. 223]. At the European level, ICZM is considered a very suitable tool for simultaneously pursuing sustainable coastal management and sustainable tourism [11]. The Recommendation 2002/413/EC asks European Union (EU) Member States to elaborate national strategies for coastal management according to ICZM principles. In particular, as regards the regional strategies for ICZM, the Mediterranean area plays a pivotal role. Therefore, this issue has been addressed in the framework of the Mediterranean Action Plan

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(MAP) which represents a cooperative effort between the EU and the countries with a Mediterranean shoreline for pursuing the objectives of the Barcelona Convention, the major legal framework for the protection of the Mediterranean environment ([www.unepmap.org](http://www.unepmap.org)) (UNEP/MAP/PAP, 2002).

This research was funded by the EU research project Regional Framework Operation BEACHMED-e (Strategic management of beach protection measures for the sustainable development of Mediterranean coastal areas, cod. 3S0155R, <http://www.beachmed.eu>), subproject ICZM-MED (Concerted actions, tools and criteria for the implementation of the Integrated Coastal Zone Management in the Mediterranean), 2006–2009. With the trans-national dimension of ICZM in mind, in cooperation with the Priority Action Program/Regional Activity Centre (PAP/RAC), one aim of this subproject was to collect information about how ICZM is perceived by beach visitors in five regions of three Mediterranean European countries – Macedonia and Thrace in Greece; the regions of Emilia-Romagna, Lazio, and Liguria in Italy; and the Languedoc-Roussillon region in France – and about how much they are willing to pay for beach preservation, intended here as beach defence from erosion.

Beach visitors are private stakeholders, whose contribution may be essential in order to identify sound practices for pursuing sustainable coastal development [9]. In particular, their participation in ICZM may reduce local conflicts and make decision-making about coastal management more appropriate in order to provide sustainable beach services. Surveying visitors' preferences and opinions provides important information for policy-makers involved in coastal management. Therefore, in pilot sites of the regions chosen within the ICZM-MED sub-project, a survey by questionnaire was carried out in 2007, in order to obtain information about beach visitors' ICZM perception and preferences, and their willingness to pay (WTP) for beach preservation by applying the contingent valuation method (CVM).

Descriptive statistics about the data obtained through this EU research have mainly been published in [21]. All the results (descriptive statistics and regression analysis) about the Emilia-Romagna region have been published in [26]. This paper completes the analysis of the data of the other BEACHMED-e regions (Macedonia and Thrace, Lazio, Liguria and the Languedoc-Roussillon) by applying regression analysis. Though the survey was carried out in 2007, this analysis maintains its validity because beach services, and the characteristics of beaches and of their visitors, have not undergone substantial change in the sites considered. After 2009 the number of beach visitors fell only in Macedonia and Thrace (due to the Greek economic crisis), but today their number is about that of 2007.

Therefore, after a brief description of the previous literature and of the main characteristics of the study areas, the CVM survey design is presented. The summary of descriptive statistics is presented about the variables used for regression analysis. The theoretical regression model used is described and justified, and the results of its estimate are analyzed. They show that policy-makers should promote information campaigns about ICZM in order to increase visitors' probability of paying, and should pay attention to the categories of visitors less likely to pay.

## 2. Previous literature

### 2.1. Willingness to pay for beach preservation from erosion

From the economic point of view, coastal areas are public goods, which everyone enjoys in common, and the preservation of coastal areas is an essential task of public authorities. Public investments in these areas may provide significant economic benefits or values [25], but public funds are limited. Since ICZM acknowledges that stakeholders should be asked by policy-makers

to contribute in monetary terms to the implementation of coastal preservation, the estimate of the mean of their contribution – which depends on the value of preservation benefits – is needed.

The total economic value (TEV) ascribed to a beach is measurable in monetary terms since it depends on human preferences [37].<sup>1</sup> It is the sum of different economic values, such as present use value, option value, bequest value and existence value. Present use value is the monetary amount ascribed to the use of a beach by whoever makes the valuation, and is direct and indirect; in particular, beach recreational use is a direct use, while beach flood control is an indirect use. Option value is recognized when a stakeholder wants to have the option to use the beach in the future. Bequest value measures the importance of preserving the beach for future generations, while existence value represents the subjective intrinsic value recognized to it, and its loss may be considered a loss of welfare only because it no longer exists. Not all these values are established by the market, and thus their estimate requires the use of non-market valuation techniques.

Benefit transfer (BT) and CVM are economic methods suitable for estimating beach benefits from a conservation project when they are not established by a market. The evaluation of these non-marketable benefits is justified by the belief that, unless they are expressed in monetary units, they will be assigned a zero value. The practical difficulty in estimating these benefits lies in obtaining their rational and consistent expressions from people – interested in beach preservation (relevant population) – by means of a survey by questionnaire. However, a valuation survey is time-consuming and very expensive, therefore the procedure of the BT is also recommended.<sup>2</sup>

#### 2.1.1. The benefit transfer procedure

The BT procedure establishes whether and how the value of coastal benefits known from existing studies (study sites) can be used to infer the coastal value of a new site (policy site). It can be applied in different ways, such as the transfer of mean values and the estimate of a BT function. Nevertheless, for a BT application some basic criteria should be respected: (i) site characteristics should be the same; and (ii) population characteristics should be similar for both policy and study sites [10]. At the time of the ICZM-MED survey, values for transfer from coastal sites in the Northern Mediterranean Sea were not found, therefore it was impossible to infer the value of preservation benefits of the study sites considered here.

#### 2.1.2. The contingent valuation method

CVM was considered suitable for this multi-country research. The focus was on ICZM perception and WTP for a beach quality change (preservation from erosion). More specifically, no specific common project was evaluated in the survey, because the attributes of a defence project depend on the site characteristics, which change site by site, but it was considered that each quality change should be obtained implementing a project conceived according to ICZM dictates.<sup>3</sup>

CVM philosophy claims that individuals have well-defined preferences for beach preservation. Therefore, their demands for preservation benefits can be measured by the amount of other

<sup>1</sup> A primary value (PV) is also recognized to a beach. PV means that an intrinsic objective value independent of the individual's preferences is recognized to the coastal system considered as a whole since the functioning of a beach ecosystem is more than the sum of its individual components. PV is recognized by intuition, and since it cannot be measured in economic terms, it cannot be added to TEV. PV and TEV make up the total value (TV) ascribed to a beach [37].

<sup>2</sup> The BT procedure is predominantly suggested about the recreational use of US and UK beaches [30] (Penning-Rowsell et al., 1992).

<sup>3</sup> The choice experiment procedure [7] was considered unsuitable since, by focusing on the attributes involved in a choice, it asks respondents to choose between alternative projects in terms of their attributes and computes the WTP of a change in the attributes.

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