

Context

Originally, the group was engaged in the construction of a project (IBSA) aiming to apply the MA methodologies for the coastal zone of Brazil and comparing the results with similar initiatives agreed with South African and Indian groups. A failure in this strategy forced the Brazilian group to change the strategy and redirect its efforts to search for ongoing projects to associate with, proposing the MA and SGA approaches to other groups in order to collaborate in an initial small scale Proof of Concept coastal assessment, as the Biota Araça project presented here.

Introduction

Ecosystem services represent the benefits obtained by human populations, which derive from the ecosystem functions (Costanza *et al.*, 1997; MEA, 2003). In general, these services are being seriously harmed by a wide variety of human activities (Daily *et al.*, 1997). It is important to show how valuable these services are and formulate mechanisms to capture their values, which should be incorporated into everyday socioeconomic, especially in political activities and in their decision making (Turner *et al.*, 1998). This work presents partial results of a research that identified the ecosystem services provided by the Araça Bay (São Sebastião, SP, Brazil) and it is valuing these services using economic and sociocultural methods. The Araça Bay has a significant environmental importance and has been facing strong pressures from human activities over the years (Amaral *et al.*, 2010). The Bay is currently receiving public attention, since it would be impacted by the new São Sebastião Harbor expansion.

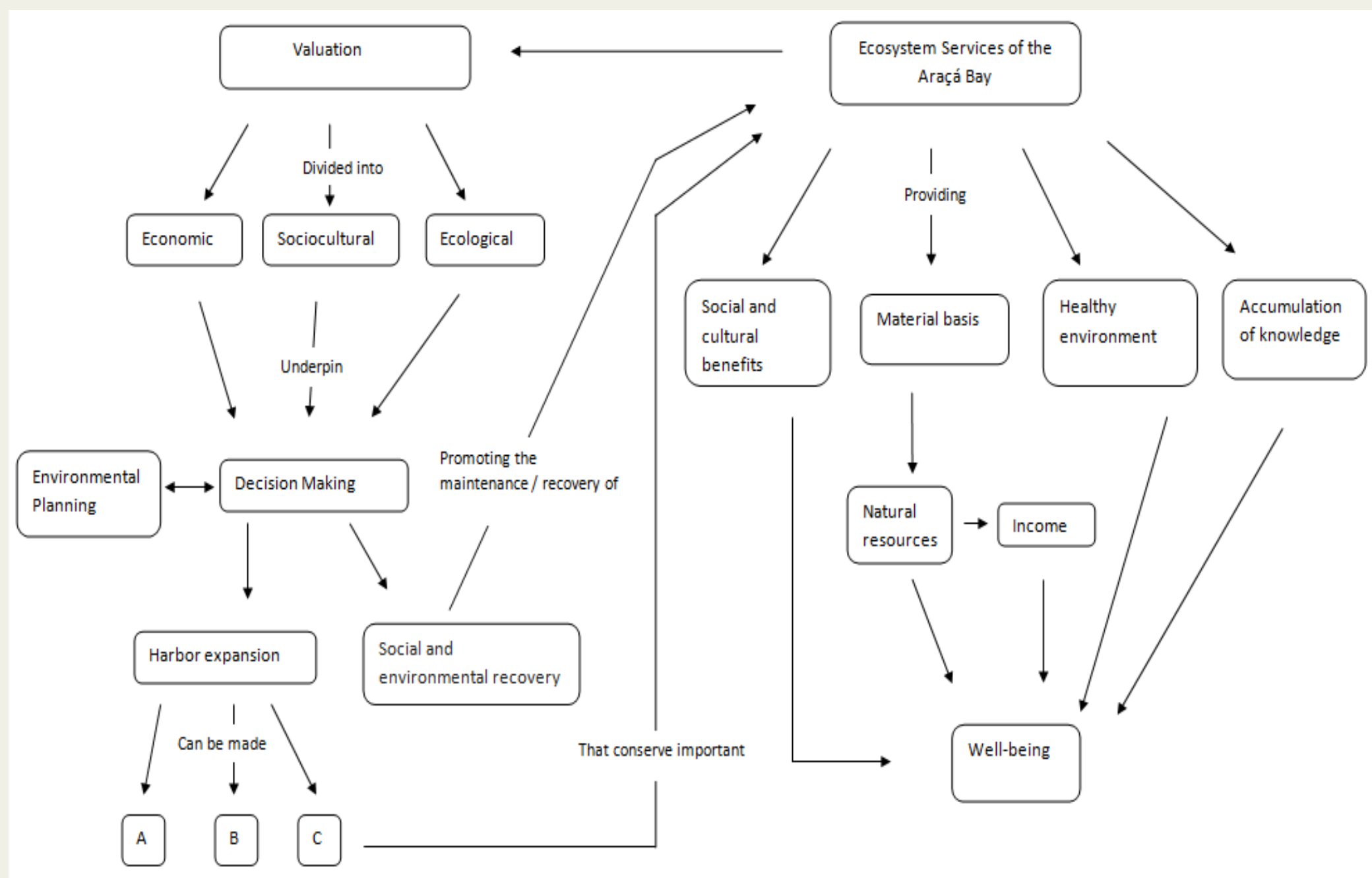


Figure 1 – Mental map.

Objectives:

The general objective of the research is to estimate the value of the ecosystem services provided by the Araça Bay (São Sebastião, SP, Brazil). The specific objectives are:

- Identify the ecosystem services provided by the Araça Bay;
- Identify the most significant ecosystem services for valuation;
- Define and apply the appropriate methodology for valuing the ecosystem services provided by the Araça Bay under the economic and sociocultural perspectives.

Methods:

Identification

The ecosystem services were identified in three steps: literature review, expert and community surveys. Services rated as "very important" and "important" by the groups were selected for the economic valuation.

Valuation

The choice of valuation methods occurred from literature review and from the availability and possibility of obtaining data for the valuation (Table 1). The support services (nutrient cycling, provision of habitat, primary production and maintenance of biodiversity and erosion control) were not considered for the economic valuation not to count as double counting.

The "ranking" method was adopted for the sociocultural valuation. Open questions were selected (Sinisgalli & Jericó-Daminello, 2013) and the ranking of the services will be done by analyzing the responses.

Results

Identification

The services identified and selected for the economic valuation are shown in Table 1.

Table 1 - Methods of economic valuation associated with the ecosystem services of the Araça Bay.

Ecosystem Service	Economic Method
Cultural Heritage	Contingent Valuation*
Provisioning of Food	Market Price
Scenic Beauty	Contingent Valuation*
Development of Scientific and Educational Activities	Project costs
Future Benefits	Contingent Valuation*
Leisure and Recreation	Contingent Valuation* or Replacement costs
Wastewater treatment	Cost of Mitigation
Carbon Sequestration	Carbon Market Value
Protection against rising sea level	Value Transfer
Vessels shelter	Market Price

*The Contingent Valuation was the only economic method identified as possible for the valuation of most of the identified services, but because of the various uncertainties associated with this method (Romeiro and Andrade, 2009), we chose not to use it. Thus, part of the services will not be covered by economic valuation.

Values

For the provision service of food, we interviewed 30 individuals who are dedicated to fishing and gathering at the Bay. The values obtained with the activity ranged from US\$ 195 up to 1,950 monthly per person. For the valuation of "support for the fishery", we are raising the costs of similar services provided by marinas in the region. A preliminary calculation resulted in a value of US\$ 608.400 annually to shelter vessels. So far, "Provisioning of Food" and "Leisure and Recreation" are the most cited services in the interviews for the sociocultural valuation.



Figure 2 – Fisherman collecting cockles (*Anomalocardia brasiliana*). Illustration of the "provision of food" service. Antonia Cecília Amara, 2013.



Figure 3 – Vessels sheltering in the Bay. Illustration of the "support for the fishery" service. Cauê Dias Carrilho, 2014.

Conclusions:

- The identification of the services was an important methodological step, since it is common to find works that does not describe the methodology to identify the services and also as for the participation of researchers with extensive experience in the Bay;
- It is considered important that this project have also incorporated the socio-cultural dimension, because existing approaches, in general, emphasize or questions related to the ecosystem or to economic (Winkler, 2006);
- It is important to show that the Bay Araça provides benefits to the population and highlight its associated values to assist good decision-making for the region.

Main Referencies:

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