

10 Years after the Rio Summit the Assessment of Portuguese Coastal Zone Planning System

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ABSTRACT

LOPES-ALVES, M. F. and FERREIRA, J.C., 2006. 10 Years after the Rio Summit the assessment of portuguese coastal zone planning system. Journal of Coastal Research, SI 39 (Proceedings of the 8th International Coastal Symposium), 935 - 940. Itajaí, SC, Brazil, ISSN 0749-0208.

According to the European Strategy for Integrated Coastal Zone Management (ICZM), approved in May 2002, each state-member needs to define and implement a national strategy for ICZM for the next years. In order to define this strategy it is necessary to evaluate the last 10 years of national policies in the management of the Portuguese coast. The aim of this paper is to provide an assessment of the territorial planning system in Portugal according to the present situation of national policies and the local results of their implementation. The approach is illustrated with the use of the Portuguese Proposal System of Indicators of Sustainable Development from national Directorate-General of the Environment. The paper concludes with a discussion of the application of the indicators and shows the next steps for the Coastal Zones Strategies.

ADDITIONAL INDEX WORDS: *Territorial planning, indicators, implementations, sustainable development.*

INTRODUCTION

The Portuguese coastal zone, similarly to what is happening all over the world, has been suffering in an accentuated way a transformation and degradation process that is, in many cases, irreversible (GOMES and TAVEIRA-PINTO, 1997; ALVES, 1998).

Such a world phenomenon is not, according to MUÑOZ (1996), by no means difficult to explain, since this is one of the ecosystems that registers a larger number of human interventions, with a high degree of economic development where it is located a good part of the population, of the economic activities and of the infrastructures.

It is also in this geographical area that the market concentrates spatially the business opportunities, above all when the surplus value is directly proportional to the attraction that the human being feels for the sea and for the facilities that it provides while natural resource. The consequences are immediate: proliferation of urban agglomerations, tourist initiatives, real estate promotion for second residence, industrial areas, road, railway and port infrastructures, etc. (MUÑOZ, 1996).

To identify the beginning of the rupture of a territorial intervention model in a specific area as the coastal zone it is not an easy task, because it depends on several factors, namely the degree of sensitivity, the respect for the environment that is shown by our society together with the Central Administration (MUÑOZ, 1996).

THE CONCEPTUAL CONTEXT

Nowadays, the assessment of the territorial intervention models is in free development in order to comply with the presuppositions of the sustainable development strategies. The technical and scientific community commonly accepts the indicators as fundamental elements of that same assessment (EEA, 2001).

The development of methodologies for assessing the planning and management options, defined in the different plans, it is one of the possibilities in order to assess the implementation of the concepts and practices of the Integrated Coastal Zone Management (ICZM).

The existing literature on sustainable development indicators is abundant. Of all the definitions found it was chosen

one of the most general, but comprehensive enough for concrete application to the space unit *coastal zone*.

Thus, according to UNESCO (2003) we can define sustainability indicators as being parameters of analysis that measure the development sustainability, constituting a precious instrument to inform the decision making processes and to monitor evolutive paths of the societies. These parameters allow differentiating the sustainable development practices from the unsustainable ones.

This method rests on the possibility of resorting to analysis and assessment indicators that allow to determine or to analyze the effects of the defined interventions, or of the strategies chosen in the different moments of the process of decision making and/or implementation, of planning and even of management of the several thematic areas.

The measurement and quantification of the impacts, damages and/or benefits done to the biotic community, it is a urgent need not only as a way of sensitizing but also as valuable instruments of regulation and as support elements to the decision making process too.

METHODS

International organisations such as UNEP (United Nations Environment Programme), OECD (Organisation for Economic Cooperation and Development) and in particular EEA (European Environment Agency), have been developing a set of orientations for an Integrated Coastal Zone Management, underlining the importance of utilizing indicators to monitor the alterations of the sea and coastal environment. Further, they establish strategic orientations concerning the socioeconomic pressures and the conditions of the coastal zones in order to assess the effectiveness of the efforts of an integrated management.

The vast technical and scientific literature allied to the practical experience led the several governmental organisms to recognize the need of developing indicators to assess the performance of the numerous and long efforts developed at many levels. This subject assumes great importance all the more since there has been a high investment level in ICZM initiatives either from national funds or from international funds.

In 1995, the United Nations developed a set of guidelines for the Mediterranean where the indicators were part of the

Database for the integrated coastal zone management. The guiding lines also mentioned the use of environmental and socioeconomic indicators for the environmental development of scenarios for the Coastal Area Management Programme.

In 1998, FAO indicated the urgent need to monitor ICZM indicators, including the physical, biological and chemical parameters, besides the economic and social parameters. This organism also emphasized the need to assess the performances of ICZM programmes, focussing that assessment on the initially proposed objectives and on the reached ones.

More recently UNEP developed a set of orientations for an Integrated Coastal and River Area Management (ICRAM), where are reported recommendations on the use of indicators for an integrated coastal management. To point out: i) alterations in the state indicators are considered as reference for ii) the effects that they can produce in several functions of uses, including the value of the "use" and of the "non-use", while iii) the answer and the control by individuals, public and private are appraised in terms of the effects of their interventions.

In 1999, a document emanated from the European Union, points out those ICZM indicators should be used to lead an investigation in indicators and the Decision Support System (DSS). These indicators should be clearer in their connections to the users' needs and the results tested through their application to real/concretes cases. This can be obtained involving the different actors from the beginning of the process, in order to decide which result/objective/parameter to monitor and to establish the indicators for assessing and monitoring the effectiveness of the actions taken from the beginning of the project, in terms of policies and of management.

As it was already aforementioned many are the international documents that suggest the creation of a system of specific indicators for the Integrated Coastal Zone Management, with the purpose of monitoring and assessing the performance of the efforts accomplished to verify the state of the coast.

Recently, UNESCO (2003) refers that the indicators of the proposals of coastal management can be separated in three different typologies: Environmental Indicators; Socioeconomics Indicators and Governance Indicators.

At national level, Portugal chose the methodology that has been developed with success by OECD, applied to several study cases, known as PSR Model (Pressure State Response). Its conceptual structure is well-known and in a very simple way it can be exemplified in the following way: human activities produce pressures (P) (e.g. pronounced urban and tourist growth) that can affect the state (S) of the environment, and that induces society (e.g. central administration) to present responses (R) to those problems.

The choice of the indicators assumes some complexity since there are several factors that can influence that same choice. In the specific case of the coastal zone, geographical entity with very peculiar characteristics, there are countless factors that interact and influence it coming from several study areas. The interdisciplinary approach to this area is recognized, resulting in the need of conjugating several indicators.

THE PORTUGUESE ASSESSMENT

Before 1992, the existing data relative to the coastal zone and in legislative terms are scarce. It is fundamentally since 1993, with the publication of the Regional Development Plan (RDP), that the word coastal zone begins to emerge in the legislative texts or even strategic national ones as consequence of the commitment assumed by Portugal in the Rio Summit in 1992. It is also in 1993, that appears the main legislation on Spatial Planning in the Coastal Zone (Coastal Zone Master Plans).

The indicators become of extreme importance since they define "limits" and relations in a concise way. They inform about the meaning that is underlying the attributes directly associated with them. In this sense, they are different from the primary data or even the statistics, supplying a bridge amid the detailed data, allowing simultaneously interpreting the gathered information.

This type of approach to the implementation process and the consequent monitoring of the spatial planning and management process becomes imperative insofar as it is necessary to make an assessment of the Plans' proposals after a first phase of their implementation.

The Portuguese case is precisely in this stage, that is, in 2000 the Directorate-General of the Environment in Portugal presented a Proposal for a System of Sustainable Development Indicators (DGA/MAOT, 2000), in order to answer the present challenges of the Environment and Development, as regards the assessment of the national sustainable development.

On the other hand, and relatively to the land use planning in the Portuguese coastal zone, Portugal is at an important stage once concluded the Coastal Zone Master Plans, privileged instruments for planning the uses and functions of the territory. All the Municipal Master Plans for the municipalities of the coast are also ratified. Now it begins a phase of implementing strategies and proposals of planning and development defined in these Master Plans that must be assessed, according to the international and national parameters, in order to define a concrete and effective methodology of coastal planning and management.

The presentation, in 2002, of the National Strategy of Sustainable Development (NSSD) it was the answer to the international commitment assumed by Portugal in the ambit of Agenda 21, agreed in the Rio Summit, in 1992, and that prepared the World Summit on Environment and Sustainable Development that took place in Johannesburg (Rio +10) (MCOTA, 2002).

The existence of these strategic documents of assessment and the recent publication of the Implementation Plan of NSSD (GPM, 2003), with particular relevance the document relative to the Environment and Planning Sectorial Institutional Panel, constitute opportunities for analysing and assessing what has been done in Portugal, heading for the sustainability of the coastal zone.

GENERAL CHARACTERISTICS OF THE PORTUGUESE COAST

Portugal presents a coast line about 1,846 km long, shared

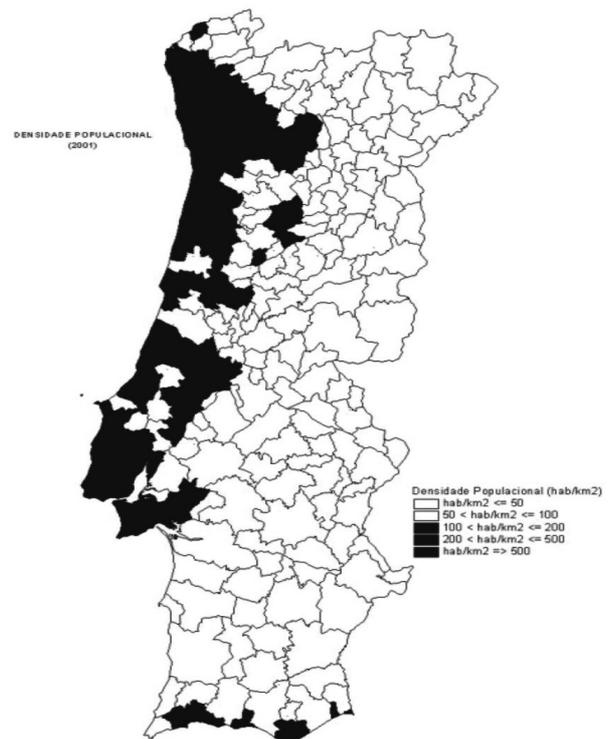


Figure 1. Concentration of the population in 2001, in continental Portugal. (adapted from Ia 2002).

Table 1. *Proposal of Portuguese Coastal Zone Indicators (based in Dga, 2000).*

Indicador	Sector	Nome	PSR
Environmental	Marine and Coastal Environments	Population Growth	P
		Evolution of the Coastline	S
		Built Area	P
		Contamination of Diffuse Origin	S
		Casual Discharges of Effluents without Treatment	P
		Accidental Discharges of Hydrocarbons	P
		Quality of Bathing Water	S
		Bathing Areas with Blue Flag	S
		Quality of the Aquatic System in Coastal Strips, Estuaries, Lagoons and Rias	S
		Fishing Stocks	S
		Fishing Stocks Below Safety's Biological Limits	S
		Catches	P
		Investments and Expense in the Environmental Preservation and Defense of Coastal zones	R
		Solis	Land Use
	National Ecological Reserve		S
	Investments and Expense in Soil's Environmental Preservation		R
	Nature Conservation	Protected Areas	S
		Protected Marine Areas	S
		Protected Areas Included in Planning Schemes	R
		Endangered Species of Fauna and Flora	S
		Protected Species of Fauna and Flora	R
Investment and Public and Private Expenses in Nature's Conservation		R	
Economic	Economy	Investment and National Expense with Environment Protection and Management	R
	Transportation	Traffic Intensity	P
		Structure of the Road network	S
	Agriculture	Removal of Areas Classified as National Agricultural Reserve	P
	Tourism	Tourist Intensity	P
		Tourist Seasonality	P
Accommodation Capacity		S	
Social	Population	Population Density	S
	Justice	Complaints or Claims Presented for Environment Reasons	R
Governance	Institutions	Environment Accounting of the Administration	R
		National Implementation of Global Strategies, Legislation and Agreements	R
		Local Agendas 21	R

Legend: P – Pressure; S – State; R – Response

among the continent (943 km), Azores archipelago (691 km) and Madeira archipelago (212 km) (ANDRADE and FREITAS, 2002, citing DIAS (2000)) and more than half of the Portuguese population lives in the municipalities of the coast. In 1991, 80% of the Portuguese population lived less than 50 km away from the coast (MARN, 1991). In 1995, about 30% of the Portuguese coast was occupied with constructions (port areas, housing, tourism and industry). The Report on the State of the Environment of 1999 (DGA, 2000) refers that 52% of the Portuguese population concentrates on the municipalities of the coast (99 in 305 municipalities). Figure 1 displays the territorial

occupation in Portugal, enhancing the unequal way from north to south, between the interior and the coast. According to the Report on the State of the Environment of 2001 (IA, 2002), in the decade of 1991-2001 the tendencies of "littoralization" of the territory increased.

The excessive occupation of the territory has sometimes led to situations where the load capacity of the environment is exceeded, with the consequent negative impacts that can be observed along the Portuguese coast. The erosion associated with an inadequate urbanization, the discharges of untreated waste water, the overexploitation of the live resources that

sometimes places at risk the survival of the fishing stocks, the degradation of the water's quality, these are some of the phenomena that contribute to the degradation of the sea and coastal environment.

THE METHODOLOGICAL APPROACH

The approach accomplished in this study is based fundamentally on the Proposal for a System of Sustainable Development Indicators presented by DGA/MAOT, in 2000, which includes 132 indicators, being 72 environmental, 29 economic, 22 social and 9 institutional (DGA/MAOT, 2000).

Taking into account the universe of the proposed indicators conjugated with the particularities of the coastal zone, it was chosen a set of indicators that should be present in the assessment of the territorial model of the Portuguese coastal zone.

Table 1 presents the proposed set of indicators, which includes 22 environmental indicators, 7 economic indicators, 2 social ones and 3 institutional ones.

ANALYSIS AND DISCUSSIONS

Governance Indicators

According to UNESCO (2003), the governance or institutional indicators are assessment indicators of the performance of the institutions, relatively to the Integrated Coastal Zone Management.

The chosen governance indicators (Environmental Accounting of the Administration, National Implementation of Global Strategies, Legislation and Agreements, and Local Agendas 21) represent significant responses from the Central and Local Administration, regarding the existing problems in the coastal zone.

In 1998, ALVES mentions MARTINS (1997), referring the problem of the proliferation of institutions with legal competencies of intervention and management in the Portuguese coastal zone. Considering the regional level, for instance, in the center zone of Portugal besides ten City Councils there are more five institutions of the regional administration. Such a situation has been deserving a particular attention on the part of the Central Administration, since the previous system has proved ineffective in the resolution of the problems that emerge nowadays in the coast and that is not favorable to a process of integrated coastal zone management. The recent decision to agglutinate at the regional level the former Regional Coordination Commissions with the Regional Directorates of Environment and Planning in only one institution Coordination Commissions of Regional Development allied to the fact that the coastal management has been transferred from the Water Institute to the Nature Conservation Institute, it predicts the congregation of interests and means in order to solve a complex administrative problem.

The conclusion of the Coastal Zone Master Plans, created in 1993 (Decree-Law n.º 309/93, of September 2) and that begin to be implemented now, are already showing a substantial improvement at the level of land use planning and of the coastal zones qualification.

Figure 2 (a and b) presents a response of the central administration, whose actuation at the local level presents qualitative improvement through the implementation of these Plans. The photographs refer to the coastal zone of Costa da Caparica, a coastal area to the south of the Portuguese capital, Lisbon, that due to its proximity represents an important leisure area for the inhabitants of the whole Metropolitan Area.

According to FERREIRA and LARANJEIRA (2002), this area constitutes a particularly representative example of the problems and conflicts resulting from the anthropic pressure on a coastal area rich in natural values, in the absence of an effective land use planning. It was verified that the vulnerability to sea erosion in the study area is strongly related, among other factors, with the state of degradation of the dunar system due to



Figure 2a. Condition in 2002 São João Beach (Costa da Caparica) after a storm episode in February.

the inadequate use, namely as result of opening accesses to the beach and the lack of any type of path planning (messy rampling), location of the beach supports (of permanent construction) in the high beach and front dune (FERREIRA, 1999).

According to FERREIRA (1999), it is a zone of high erosion risk, dominated by dynamic and vulnerable ecosystems that due to an intense pressure have seen its load capacity surpassed what has been originating a smaller resistance to the winter storms, as demonstrated in Figure 2a.

Figure 2b presents already a different model of land use in accordance with the erosion risk, sensitivity and load capacity. The beach supports are non-permanent, raised facilities, and they are moved backwards. The accesses to the beach are ordered and they are done through raised crossings.

The recently created Finisterra Programme (RCM n.º 22/2003, of February 18) has opened the doors to the creation of an exception regimen for the next four years. Although with some temporary delay it comes to communicate a new impulse to the materialization of the actions and interventions foreseen in the Coastal Zone Master Plans, as well as of other actions already foreseen for the Portuguese coast. The main intervention guidelines are: the coastal defense / risk zones, the requalification of beaches and dunar systems, the urban and environmental requalification, the estuaries and coastal lagoons, environmental sensitization, and studies and monitoring.

Finally, the creation of the Strategic Oceans Commission (RCM n.º 81/2003, of June 17), with the purpose of defining a Strategic Plan on the exploration of the ocean based on the development and sustainable use of the ocean and its resources, and that raises the management and exploration of the marine areas under national jurisdiction.

Environmental Indicators

UNESCO (2003) declares that the environmental indicators can be considered as the most visible consequence of Agenda 21, stating that they "reflect trends in the state of the environment, help the identification of priority policy needs and formulation of policy measures, and monitor the progress made by policy



Figure 2b. Actual condition São João Beach (Costa da Caparica) after intervention in accordance with CZMP.

measures in achieving environmental goals”

It was selected 22 environmental indicators considered significant for assessing the state of the coastal zone. Particularly inserted in the sector of the Sea and Coastal Environments, of the Soils, and of Nature Conservation, in their majority considered of State, they represent, in a quantitative way, the situation of the Portuguese coast.

The sector defined by DGA/MAOT (2000) as Marine and Coastal Environments is undoubtedly the most representative sector in this typology of indicators, although it is not exclusive. In Portugal, the Protected Areas assume a particular prominence in the coast, representing 20% of the coastal zone: This is one of the most significant arguments for the organizational change of the central administration, in giving the coastal management to the Nature Conservation Institute, national organ responsible nowadays for the planning and management of the areas with protection status.

Another important environmental indicator, in view of the growing urban pressure that has been occurring in the Portuguese municipalities, it concerns the lands classified as National Ecological Reserve. Although the objectives of ecological protection prevail, they are slowly being removed from this status in order to be reconverted in urban soils fit for urbanization.

Economic Indicators

The sectors of the Economy, Transportation, Agriculture and Tourism are chosen to integrate the typology of economic indicator, for its direct implications in the local, regional or national economic fabric. The Traffic Intensity indicator assumes particular relevance, with its high values in the coast particularly during the summer in the tourist areas, allied to Seasonality, Tourist Intensity and Accommodation Capacity. The existing data by National Statistic Institute (DGA/MAOT, 2000) indicate an increment of the values of these indicators, but no goals to reach have been defined yet.

The Removal of Areas Classified as National Agricultural Reserve assumes also a special prominence since this status that privileges the use and capacity of the soils in agricultural terms is being altered for urban uses. This situation happens a little all over the country, and it is expected nowadays a strategy for the reclassification of the agricultural soils in view of the real urban needs of the country.

Social Indicators

Of the twenty-two social indicators proposed by DGA/MAOT, only two were chosen, one relative to the Population sector (population density) and one from the Justice sector named: complaints or claims presented for environmental reasons.

Relatively to the population density, expressed in number of inhabitants for square kilometer of the national territory, it shows clearly (Figure 1) the existing dichotomy between the coast and the interior of the country. This asymmetry has been counteracted with several sectorial policies, which have not shown significant results. The coast still constitutes a huge attractiveness for the population in general, for in it are located a great part of the equipment and services.

The growing increase of the environmental awareness in the population can be verified by the increment of participations/suggestions in the land use planning processes. The Portuguese planning process foresees the participation of the populations, in the beginning and at the end of the process, i.e., the populations can state what they intend for a certain place that will be the object of an intervention and they are also invited to give their opinions when the intervention proposals are defined, but before they are approved. This situation tries to meet the aspirations of the populations when the proposals of territorial intervention are presented. In this indicator there are no goals to reach, however it is expected that year after year the exercise of citizenship will be awakened and that a participating culture of the populations is settled, regarding the environmental issues, in a general way.

CONCLUSIONS

In global terms we can affirm that there is a clear improvement of the Portuguese coastal zones. The analysis of the several indicators shows that at the government level there has been a significant legislative effort, aiming to introduce in the national sectorial policies the several objectives of the European Recommendation as regards the Integrated Coastal Zone Management (CE, 2002).

This conquest is supported by the strategic documents that have been elaborated by the Central Administration where it is made systematically reference to the need of an Integrated Coastal Planning and Management. Among them, the most relevant are, no doubt, the National Strategy of Sustainable Development (MCOTA, 2002) and consequently its Implementation Plan (GPM, 2003), and the Finisterra Programme.

On the other hand, the financial resources made available for concrete actions of coastal defense and of environmental preservation have been suffering a significant increase, what demonstrates clearly the importance that the coastal zone assumes in the national and local performing strategies.

The environmental indicators assessed are in its majority State indicators, whose importance and whose data demonstrate unequivocally that Portugal must invert clearly its coastal policy at the municipality level. Indeed, it became very clear that the existing pressures in the coastal strip have not been decreasing, since at the municipal level it is happening an increment of the built area, of the tourist intensity, of the removal of areas belonging to the National Ecological Reserve.

From the social point of view, the participation of the populations is increasing either in the processes of land use planning or at the level of participating in actions concerning the environment and nature's conservation. However, Portugal is still far from reaching the desirable level of a participating planning process.

In conclusion, it can be declared that Portugal keeps on developing efforts in order to comply with the goals enunciated at the Rio Summit and reaffirmed at the Johannesburg Summit, as regards the Integrated Coastal Zone Management. However, we must recognize that there is still a long way to go.

ACKNOWLEDGEMENTS

Part of this paper is based on the results obtained by the first author during the PhD research aims. The first author acknowledges the Fundação para a Ciência e Tecnologia (FCT-Portugal) for the financial support for the PhD investigation and also for the financial support to the participation at the International Coastal Symposium (ICS'04).

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