

North Coastal Zone Management of the Adriatic Sea and the Measures Taken To Protect the Coast from Sea Erosion

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Abstract: *The North Coast lies from the jaws of Buna to cape Rodon. This area includes 66.4km or 1/4 of the Adriatic coastline. The coastal zone management study provides recognition and protection of the environment from the negative phenomena that appear under the influence of natural and anthropogenic factors on the land and assessment of coastal phenomena in the service of society at both national, regional and local levels. It should be emphasized that the ocean level rise due to global climate warming is also reflected in the sea. But what may become offensive in terms of land and in a not too distant future, may include an important area which is favored by nearly flat surfaces sloping quite gradually. Also problematic are the seismic shifts in the slow tectonic Velipoje area which is in the northern part of the field of Lezha, and less Mates coast. One of the most serious shortcomings of the North Coast area is the environmental management or rather the lack of it. In this paper we will try to address the problems of this area in the context of tourism and relevant measures for better management and to protect it from the erosion phenomenon.*

Keywords: *management, environmental, coast, protection.*

I. Introduction

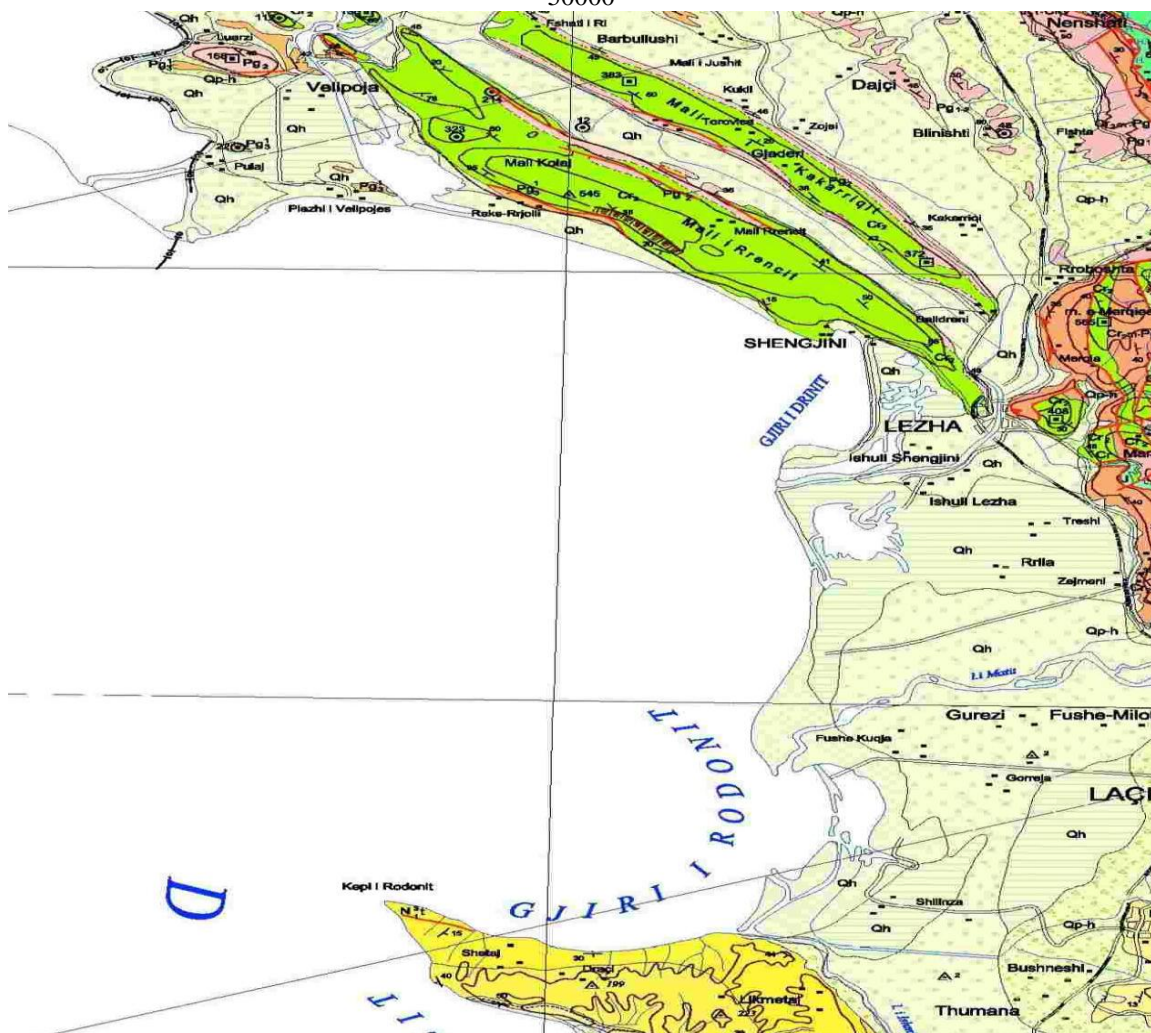
The territory in the study washed by the Adriatic throughout a coastline of 66.4 km (1 / 4 length of the coastline of the Adriatic sea bordering our country) starts from the cape of Mendre about 4.5 km west of Ulcinj up to the cape of Rodon. The distance as the crow flies (marine) between the cape of Rodon and cape Mendre is estimated at 23.5 miles (43.5 km). One of the largest bays of southeastern Adriatic makes it possible to sail and anchor position while shipping at small (depth at the entrance of the bay is estimated 70m and it is gradually reduced up to the coast). The geographical location of the study area is considered very favorable for economic development. It is especially good for different types of tourism (like medical tourism, eco-tourism, scientific, historical, etc.).

Of particular importance is the terrestrial coastal belt with concentrations of coastal lagoons and wet lands, rivers Drini -Mati- Ishëm. These natural areas can attract visitors who are interested in combining their holiday with studying and gaining an experience of nature, ecological tourist but also a greater number of tourists connected and interested in the environment. These tourists are seeking a diversification of environmental characteristics and a high environmental quality. Natural routes and areas with high biodiversity can be separated and managed with care for such purposes

The coastal belt is also available for the development opportunities related to tourism and leisure. Having the status of natural diversity of lagoons and wetlands of the tourism based-area on the environment is not only sensitive to these habitats but also increases more compact development options for the area. However, the sensitivity of wetlands and associated coastal systems from people's input, tourism in this area should be allowed in specific areas in smaller numbers in groups rather than spread along the coast, and to be closely associated with the creation of a zone of defense system for all northern coastal region. Protected areas such should include a set of interventions from strict nature reserves to those inputs directed and administered in reserves with interpretive facilities.

The coastal narrow ecology cannot afford "mass tourism" (beaches and ecological barriers) to a high degree. Promotion of this area as an example of the mixture of ecotourism environmental protection can be a model for others. Mediterranean countries have an awakening of a sense of pride to the local community. But compared to the southern coastal region, beaches and sea water are less attractive, but they are not far from the local towns (Scodra). In addition, in some areas as Velipoja, conditions are as attractive to the local and regional perspective

Map. 1. Geological maps of the coastal zone between the mouth of the river Buna and cape of Rodon, scale 1:50000



Management of the coast in the study area provides recognition and protection of the environment from the negative phenomena that appear under the influence of natural and anthropogenic factors on the one hand and evaluation of coastal phenomena in the service of society at both national, regional and local levels. The main rivers flowing into the northern coastal area stand for a strong rigid flow which has favored coastal footwear, creating various forms of accumulation as delta, scythes, littoral cordons beaches etc.

One of the most serious shortcomings of the northern coastal area is environmental management or rather lack of it, which in view of the prospects of these sectors or others associated with giving its encroachment towards development perspective that is exactly the basis of economic recovery and resources. The issues involved are as until they affect the social and economic, physical / function. Such considerations although in the past were seen as implications of the economic developments in the 90s, today seen as prerequisites for growth. Maintaining tools and the natural of resources is essential. This at first glance gives the impression of a modern tendency to destroy the control of the state, but from all final analysis it is clear that this region needs better administration. Better management is essential for a sustainable growth. Rational management does not depend exclusively on its financial resources. The main obstacle is usually the institutional establishment, lack of direction, the control and effective propulsion mechanisms.

II. The Plan Coastal Zone Management

Preliminary Areas Planned and Investment Opportunities

Analysis of problems, characteristics, possibilities and constraints suggests that the existence and the future of the region in the study area depends on joint actions to cope with changes and to meet future needs. Such actions should take into account the social ecological characteristics of the geographical area along the coast and develop a coherent framework for its rational management, a northern coastal management plan.

Such a plan would provide spatial organization of people, infrastructure and activities. This plan should be based on the principles of sustainable development which means that priority should be given to both ecological sustainability of economic development.

III. Planned Areas North Coastal Region

Relying on the coastline can be identified in two geographic areas,

- The area that stretches from the river Buna to Shengjin (northern area)
- The area that stretches from Shengjin to Ishmi river (southern area)

By analyzing the characteristics and dynamics of the coastal zone, we have identified three areas coupling:

- The strip of land near the sea that is a 300-400m wide area on both sides of the coast including beaches, lagoons and coastal wetlands.
- The intermediate zone of several kilometers, which includes farmland, hills, plains and transport axes setting.
- The deep area which includes parts of mountainous areas surrounding mountain ranges different

3.1 For each area have three different levels of intensity of management:

- The focus of management in the coastal belt is the preservation of ecological zones with high sensitivity, lagoons and coastal wetlands and support human activities in harmony with the natural ecosystem functions. Implementation of regulations and powerful control of land development are essential in this context.
- The focus of the administration in the intermediate zone includes water management and land. Water is the main factor connector (outputs / inputs residues and neighboring areas) between the coastal strip and the buffer zone. The quality and quantity of it is of utmost importance to support natural ecosystems in the coastal belt. Therefore water resource management (including wastewater and water in general) is the backbone of the actions in this area. Given that initially between rivers flowing water and irrigation systems prevalent is clear that irrigation needs a strong monitoring and control in this area. Along with irrigation comes the need for agricultural activities and natural resources. Land arrangements are thus an integral part of the plan administrator for this area. Transitional urban planning mechanisms such as land development control can serve as a key tool for this purpose
- The focus of deep zone management and coastal management perspective, are underground streams which flow between fields. Its monitoring is essential in relation to problems of quantity and quality, but also the remaining sediments. At this point it is essential to increase to coastal management, which should include all three areas in a system of actions. Each planning area can be subdivided into planning areas in order to specify the coastal management strategy with the peculiarities of geographic spaces (features and issues).
- There are identified two broad axes of interventions in the management of the area under study.
- The Restoration and preservation of biodiversity
- The developing tourism

3.1. a. Restoration and preservation of biodiversity

The important role of coastal habitats in the narrow northern shore considerations on biodiversity and ecology should be the first and here should determine the level of development that the area has to face. It is essential that the effects of activities in the region if in an opposite directions and close, are important to be considered. Establishing criteria and the creation of "sensitive areas ecological" (Z) should be done first, and from this point of view there should be a determination of their various fields and protected areas. This should be done in the form of a general strategy for all coastal biodiversity, taking into account various sources of pollution. Therefore a parallel strategy on pollution parameters should be based on known criteria European and Mediterranean necessary

3.1. b. Tourist developments

Tourism is already being increasingly recognized as an important source of exchange with the outside world. However the construction of other facilities may have direct consequences on the environment where you cannot set properly, cleaning of vegetation in areas with erosion properties, filling of wetlands, causing increased construction of sewage systems and solid waste, inadequate construction barriers and thus contributing to the degradation and alternations shoreline processes. There may be significant loss of natural capital as a result of inadequate planning along with the destruction of the coastline and aesthetic image decrease towards tourists.

Tourism activity can have a negative impact on ecosystems, for instance, they can cause pollution. Boats and anchors can destroy sensitive habitats under water, such as sea. Degraded tourist areas can give a negative image of an area which could current investments and future. Therefore it is important to link tourism

with natural conservation through the establishment of standards not only environmental but also ensuring that large areas are stored

To protected areas(which means natural reserves, national parks and scenic landscapes) are important points that can attract people and are a source of income for local communities and for the national one. In this way the creation of tourism that is focused on protected areas can help to diversify the economic underpinnings of the agricultural economy. Protected areas are an indication that the esthetic and ecological criteria for sustainable tourism should be taken into account. This helps to promote scientific exchanges between different cultures and between people.

Since a tourist area have potential tourists should consider the following criteria:

- acceptance naturally from the environment (s) and market (found)
- circumstances satisfactory
- interesting species
- variety of activities
- different standard accommodation and convenience.

So attention must be paid to the potential negative impacts that parks and protected areas can cause when not adjusted properly and become more populated. This may include invasions, pollution, recreation based habitat destruction

It is important to consider the carrying capacity. It is commonly used given the level of tourists. Criterion weight carrying capacity also puts pressure on ecological capacity, fragility, lifestyle of wild animals of different species behavior, perception of visitors etc.

The growth of the world ocean level due to climate warming is also reflected in the sea offensive in terms of land and in a not too distant perspective may involve significant area which is favored by almost flat surfaces with very little slope, as and tectonic highs as Velipoje area and in the northern part of the field of Lezha.

“Beaches crisis” has become very sensitive in our area of study. To reduce the erosive effect on the beaches of the area under study, it is recommended to take such measures

Build structures located at an angle under the direction of currents predominantly formed by the action of winds in the area, which inhibit the transport of solid materials by depositing them currents.

- Another measure is the establishment of structures perpendicular to the first construction.
- Filling the coast is another measure to protect beaches from erosion. Areas for making feeders should be in place to allow direct filling of sand shore and distribution through sediment transport to feed the critical areas of erosion along the coast from north to south.

Construction of protective structures, should be planned and built after a very detailed study of all the elements that affect the erosion of the banks of the beach. In the terms of raising the level of the world ocean. Coastal protection in the study area takes a particular specific and therefore to protecting a large area field will take us work experience Dutch coast storage dam parallel to the sea.

It is important for wetlands protection process in terms of closing the channels of circulation to the sea. For this it is necessary to take measures after the engineering character in the lagoons of Lezha and that of Viluni, regardless of the current situation of the closing of their risk by depositing exists especially in the lagoons.

We believe that the most effective is the use of Danish experience which betony structure near the canal sets which do not allow depositions brought about by currents so that their materials might penetrate toward the canal.

IV. Conclusions

- The coastal zone between the mouth of the river Buna and cape of Rodon (North Coastal region), occupies an important area of the Adriatic and owns 25% of the Adriatic coastline in the country.
- The zone is by a great value natural coastal landscape (lagoon, delta, beaches, dunes, arrows) and great natural value as fertile lands, dense vegetation varied, appropriate climatic conditions, a dense network of river, large quantities of groundwater.

V. Recommendations

- First we must take measures to protect the beaches engineering using French and Italian experience. Through barriers cement located opposite the currents that transport alluvium and to prevent them from destroying then we must recreational areas.
- Second we must create legislation for the protection of beaches and dunes and across the coast as a whole.
- To preserve ecological conditions, especially in lagoons and delta in order to preserve biodiversity of flora and fauna which is necessary for ecological tourism.

- Do not develop mass tourism which enables the preservation of the environment of two protected areas that exist in them.
- Develop medical tourism in isolated areas such as the Rana.
- Do not allow the construction of housing in the area beaches and protected areas. The minimum distance should be no closer than (100- 150 meters).
- To provide for the protection of lowland and coastal area in cases of advancing sea due to climate warming, regardless by its high cost for construction of dams (as in the Netherlands).

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