

Coastal Area Management and Problems in Turkey

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ABSTRACT. Due to their rich potential coastal areas have been most preferred places from past to present. Therefore they are evaluated as a rent-seeking for tourism, industry, transportation and recreation. Thus irrevocable destructions take place such as biological, ecological, climatic, hydro biological, **PHYSIOLOGICAL** and aesthetic on the coastal areas. For this reason, coastal area management plans should be implemented to prevent problems/potential problems. Turkey has an 8333 km length coastal area. Barely despite of legal legislations with the political-rent oriented policies coastal areas of Turkey cannot be protected. In this paper, problems related with recreation, transportation and utilization are evaluated and these problems examined in the concept of legal legislations. According to evaluations precautions are emphasized.

KEYWORDS. Coast; Coastal Planning; Integrated Coastal Area Management; Turkey.

I. INTRODUCTION

Coastal areas are one of the most preferred areas with their natural, cultural and historical resource values throughout human history. These areas, which play an important role in the development of countries in terms of economy, are now regarded as rent-seeking for tourism, industry, transport and recreational activities. Economic rent could make irreversible destructions such as biological, ecological, climatic, hydro biological, physiological and aesthetic on these areas. The extent of the damage also increases with the addition of the unclear definitions of legal regulations to these damages.

According to legal regulations the coast is the place where the land and the water meet and the area between the shoreline and the shore edge line [1], [2]. In other words, it is a threshold and a boundary in the spatial sense that is discussed in terms of natural, economic, social and cultural aspects interacting with water ecosystems such as sea, lake and river [3], [4], [5]. The coast line is the line of where the sea, natural/artificial lake or rivers combining the points touching the land except flood situations [1]. The coast edge line refers to the natural line of beaches and other coast public areas like sand, gravel, rock, reed and marsh fields, that were created by landward water movements further the coast line in the low coast sections; and the upper line of the slopes and cliffs in the high coast sections of seas, natural and manmade lakes and rivers. In the relevant regulation, there is a provision that the coast edge line cannot be changed if the land is acquired by filling [6]. According to the Coastal Law No. 3621, coastal band is an area at least 100 meters wide horizontally in the direction of the land from the coast edge line [7]. The width of 100m is the minimum size and may vary according to the characteristics of the coastal area. According to the constitutional principles, the width of the coastal band is determined by the legislator, based on the purpose of intended use and the public interest [5] (Fig 1).

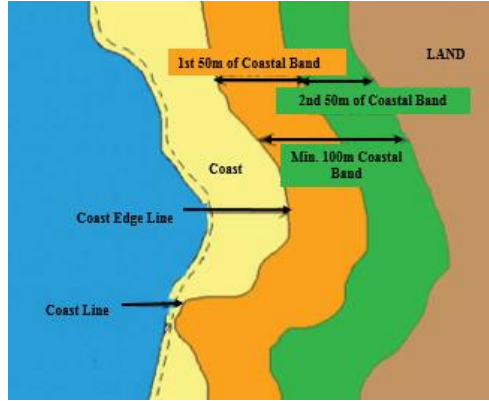


Fig. 1. Graphical explanation of definitions according to coastal law [8]

These ecologically sensitive areas have a relationship based on mutual interaction between microorganisms, land and sea plants, crustaceans, fish, coastal animals, insects and bird species [9]. On the other hand, it reduces the accumulation of solid, liquid and gas wastes by wind and wave movements and offers significant benefits at the point of diversity of energy flows, nutrients salts and ecological function [10].

The change and destruction on the coastal areas, which have such important functions, are in two forms. The first is the natural effects and the second is the human-induced effects. Natural effects oriented destructions are formed by changes in sea level, the effects of sediments carried by rivers, tectonic factors, coastal erosion and coastal currents [11]. The human-induced effects are unplanned structuring, construction of new/alternative transportation axes, establishing recreational areas by filling seas or concretizing beaches, evacuation of domestic and industrial wastes from the beginning of the sea line. Integrated coastal zone management plans are being implemented to solve such problems on coastal areas [12], [13], [14], [15], [16], [17].

Developed countries in terms of industrial and tourism are aware of this situation. However, developing countries are disrupting natural structure in order to get maximum benefit from the coast. For this reason, rapid construction of these areas, the establishment of recreational areas, the filling of the sea is seen frequently.

II. SITUATION AND PROBLEMS IN TURKEY

Coastal areas are vulnerable areas under development pressure due to their rich natural resource values. This provides important economic opportunities for society (Fig 2).



Fig. 2. Samples from natural coasts

In particular, the Aegean and Mediterranean coastal areas are mainly used for domestic and foreign tourists for marine tourism purposes (Fig 3).



Fig. 3. Samples from Aegean and Mediterranean coasts in Turkey

In other regions, it is planned especially for outdoor recreation (Fig. 4).



Fig. 4. Planned coastal area samples for outdoor recreational in Turkey

Two criteria are taken into consideration to determine the coastal area characteristics of the countries. First one is the ratio of the coastline length to the country surface area and the second is the ratio of the coastline length to the country boundary length [18]. Therefore, the width of the area defined as the coastal band varies from country to country (Table 1). This width is not the same everywhere, but the average width is 60 km. This area covers 15% of the world's land surface and 60% of the world's population lives on this area [19].

Table 1 shows coastal band widths in various countries.

Table 1

COASTAL BAND WIDTHS OF COUNTRIES [20]

Country	Coastal Band Width
Equator	8m
France	100m
Indonesia	50-400m
Mexico	20m
Brazil	33m
Costa Rica	50-200m
Chili	80m
Spain	100-200m
Greece	500m
Turkey	100m

The three sides of Turkey are surrounded by seas and have 8.333 km of shoreline. In this sense, it is one of the countries with the longest shoreline according to European countries [21]. The coast of Black Sea is 1695 km, the coast of Aegean is 2805 km, the coast of Mediterranean is 1577 km, the Islands have 1067 km, the Sea of Marmara and the Straits have a coastline of 1189 km (Fig 5).

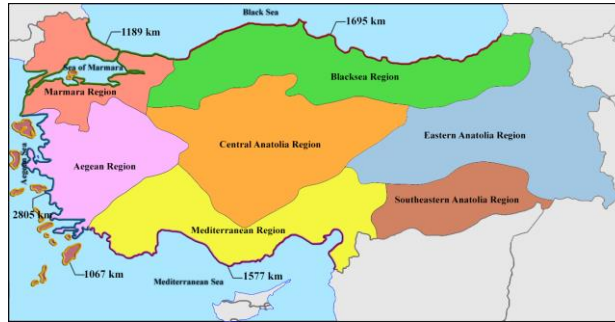


Fig. 5. Coastal lengths of Turkey

51% of Turkey's population lives in coastal provinces [21]. According to Socio-Economic Development Index of Provinces (2003), the first ten to eight coastal provinces with the highest socio-economic development level [22]. While the general population density is 73 people per km², this value is 127 people in coastal provinces [23].

When the legal regulations in Turkey are examined, it is seen that there is no clear definition about the coast. Therefore, coastal areas are not protected due to political and rent-oriented policies. In Turkey, especially when the Tourism Encouragement Law enters into force, an intensive installation process has begun by ignoring the protection-use balance. This has caused destruction on land and water ecosystems and restriction of the use of these areas by the public. The plant on the coastal strip of industrial facilities caused destruction of many agricultural areas, destruction on flora and fauna, and negative consequences on the marine ecosystem cycle (Fig 6).



Figure. 6. Samples of some destructions on coastal areas

III. INTEGRATED COASTAL ZONE MANAGEMENT

Integrated coastal zone management is a form that coordinates local expectations and demands, overlapping jurisdictions and accelerates investment processes, resolves conflicts among coastal stakeholders and tries to balance environmental health and economic development.

With the Integrated Coastal Zone Management, strategic decisions are taken to solve the problems and studies are being carried out to ensure the utilization of the coastal area by considering protection-use balance.

By year 2015, the Integrated Plan of the Iskenderun Bay Coastal Area (approved in 2009), Samsun Integrated Coastal Zone Strategy Document (approved as Strategy Document in 2011), Antalya Integrated Coastal Zone Strategy Document (approved as Strategy Document in 2011) and İzmit Gulf (Kocaeli-Yalova) Integrated Coastal Zone Plan (approved in 2014) have been made in Turkey [24].

Study areas of Integrated Coastal Zone Management are Preparation of Coastal Areas Inventory, Financing of Coastal Areas Management, Principles of Utilization from Coasts, Coastal Planning Principles, Coastal Ecosystem and Protection of Sensitive Areas, Prevention of Pollution in the Coasts, Disaster Management and Climate Change Impacts. The goals and objectives are;

- To take an integrated approach that considers the protection-use balance
- To remove conflicts in legislations
- To achieve effective results with appropriate methods
- To be sustainable
- To provide holistic policy and decision-making processes covering all sectors to promote harmonious and balanced use in coastal areas
- To identify the existing and planned uses of coastal areas and their mutual effects
- To develop a management model system for coastal management

To allow the relevant individuals, groups and organizations to access relevant information to the extent possible, and to give them the opportunity to participate in planning and decision-making processes at appropriate levels.

IV. RESULTS AND SUGGESTIONS

It is an indisputable fact that recreation and tourism are a driving force in the economic development of countries and regions [25]. At the same time, the role of the industrialization is quite large to increase the level of development of countries. Developments in the tourism sector, especially since 1982 in Turkey, have had negative consequences on coastal ecosystems such as water pollution, reduction of agricultural land and change of coast line [26], [27].

The importance given by the countries to the coast is determined by the point of view of the users along with the central government and local governments [28]. This can sometimes turn into an effort to create a rapid economic input with short-term policies. For these reasons integrated coastal zone management plans have a very important role to solve the negative impacts on it.

In this context, the suggestions developed for integrated coastal management are as follows;

- Coastal area management should be considered at local, regional, national and international scale.
- National coastal council should be established
- Monitoring and control mechanism should be established.
- A multi-disciplinary structure should be considered in the establishment of coastal area management plans. However, there must be an organic link between this

structure and legal regulations. Policies should have a long-term vision, not a short-term.

- The protection-utilization balance must be taken into account.
- The vertical dimension should also be defined in the coastal areas. This definition should include a certain distance down and up the sea surface.
- A common terminology should be established by establishing an organic link between the management and the team, which is formed of different disciplines, in order to remove the conflicts.
- Rent and political policies should be abolished.
- Coastal areas should be assessed holistically with marine and land ecosystems
- Ecological, physical and visual carrying capacity must be considered.
- Recreational/touristic activities and uncontrolled urbanization in the coastal areas must be controlled via monitoring systems.

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