Application of gis and remote sensing techniques for preventing the coastal erosion.

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Albania's coast is about 420 km long. Its exclusive economic zone covers about 12,000 km2. The coast can be divided into two parts: the northern, Adriatic coast, and the southern, Ionian coast. They have very different geomorphologic features. The Adriatic coast, with a total length of about 250 km, is a low-lying alluvial plain 4 to 50 km wide. It comprises a series of small deltas and lagoons, which are formed by nine rivers: Buna, Drini, Mati, Ishmi, Erzeni, Darçi, Shkumbini, Semani and Vjose. Some of the deltas are still active and their shoreline shows dynamic changes in the vicinity of the river mouths. The low coast is interrupted at a number of locations by hills at a right angle to the coast forming capes. These divide the coast into a number of closed physiographic units of varying sizes. This diverse and dynamic land-sea interface has been a corridor of intense interaction between natural systems and human activities for centuries. Albania's coastal area is the most important part of the country from the economic and human activity viewpoint. It generates a large number of services and goods that are valuable to the country. Damage of the natural and cultivated vegetation along the littoral sites and the utilization of the sand dunes and beaches have favored coastal erosion. During 1945- 1990 the deforestation of the littoral land is made by the state for the purpose for opening the news lands while. After democratic changes in 1990, the change of the political structure and the free movement of population brought a lot of changes to the socio-economic structure of the country. The free movement of population was not allowed before 1990 but since then migration became a new phenomenon bringing a lot of implications. The coastal area of Albania has been one of the most influenced by migration flows, while the main observed trends are: urbanization trend within the districts (the movement of rural population towards the major urban centers) and movement from other districts towards urban centers and coastal agricultural areas. In the period 1990-1998, the urban population number increased for 31% and, for the first time, the rural population number was reduced for 13%. In both cases the damage is not only the decrease of the forest area, but it has also favored the coast erosion and the advance of the sea toward the land. The soil degradation is a common phenomenon in coastal part of Albania. In Albania erosion seems to be greater than in the neighbor Mediterranean countries. Its value varies from 20 up to 80 ton/hectare per year or in some specific area up to 100 ton/hectare per year. This paper presents some results of the study on the impact of climate condition on soil erosion, taking into account the meteorological

elements: especially heavy rain, temperature, drought and strong winds, which are the main contributors in this phenomenon. Heavy rain (intensity and amount) is one of the most hazardous weather phenomena that cause the emergency situations as well as the potential erosion risk in this part of Albania. Climate change scenarios for Albania lead to an annual increase in temperature up to 1°C,1.8°C, 3.6°C respectively by 2025, 2050 and 2100 and a decrease in precipitation up to - 3.8%, -6.1%, -12.5% by the same time horizons. Sea level is expected to increase up to 20 - 24 cm by 2050 and 48-61 cm by 2100. The aim of the present study is to develop a Geographical Information System Database to facilitate a more integrated and better-informed approach for the environmental management of coastal Area, Albania. The system developed will seek to answer questions to support the decision making process by means of analysis functions. It will also provide the users with the monitoring of the implementation of master plans in the area, and of the urbanization process along the coast, the updating of the plans, and further development of the Coastal Geographical Information System Database. The use of remote sensing to monitor coastal features has become common practice both for scientific research and for the development of specific applications