Ecotechnologies and Desertification (*)

Bilateral Project (Turkey – Greece, TUBİTAK – The Scientific and Technological Research Council of Turkey – GSRT), 2006-2010

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There are different dune activities which can be considered as strange examples of wind erosion happening in Aegean Region where Mediterranean Climate is dominant and annual precipitation is approximately 600 mm and erosion and deposition again triggered by wind in Manisa Akselendi Plain. In addition to activities occurring in the South of Beyoba and Sazoba, sedimentation deposition areas in Eğri Göl on which no evaluation has been conducted and dune areas around Kumkuyucak, Tiyenli, Değnekler and Kayadibi were included to the project area.

Topographic maps (1956, 1976, 2000) aerial photos (1948, 1971, 1995) of the research area and satelite images after 1976 along with other thematic maps were studied with remote sensing (RS) and geographical information systems (GPS). In order to acquire wind speed and direction information, 5 DAVIS wireless automatic meteorology station were installed in the field. Detailed surface survey was performed with GPS readings. It was followed by soil samples. Soil analyses were run starting with dry aggregates related to wind erosion. According to the results dune movements were not only limited to the South of Beyoba and Sazoba but also spread to the East of Eğri Göl and the West, East and North of Kumyucan and Tiyenli. Additionally dunes spread around Deynekler Köyü also to the West and North of Kayadibi.. According to the results of analyses more than half of surface samples were classified under great danger in Wind Erodibility Groups (WEG).

Again more than half of all samples were in the first group which is considered as the most endangered group. When soil loss tolerance taken into account, according to the acquired soil erodibility “I” values, 85,7% of all aggregate analyzed samples are extremely sensitive to wind erosion. This revealed us that it is significant to take wind erosion control measures in plains, especially in Kum Çayı bed and its South. Also a WEG map with the help of jeostatistics, potential soil loss map via wind erosion and distribution map of aggregates bigger than 0,84 mm were prepared.

Within this project an extremely morphologically important phenomenon what we call “Small Desert” was also presented to the World of Science . Small Desert is a small dune formed on the uvala surface, where there is 40 meters height difference between uvala on the above and doline down below, 6.5km away from areas on which intense dune activities occur.

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