SUSTAINABLE DEVELOPMENT IN AN ARCHIPELAGO WITH EXTENSIVE PRESENCE OF VALUABLE NATURAL LANDSCAPES

HADJIBIROS K.[1] and PAVLOGEORGATOS G.[2]

[1] Department of Water Resources and Environmental Engineering, NTUA, 5, Iroon Polytechniou, 15780, Zografou, Greece, [2] Department of Cultural Technology and Communication, University ofthe Aegean, University Hill, Geography Building, Mytilene, 81100, Greece
E-mail: k.hadjibiros@hydro.ntua.gr

Sustainable development is, in essence, a rational approach to the management of natural resources. Greece is a relatively small European country with an important landscape and seascape diversity. A large part of its area is mountainous, 35% is covered by agricultural land, 60% is covered by forests and/or shrub vegetation. Sea surrounds the country and the length of the coastline reaches 18,000 km. There are thousands of islands, 140 of which are inhabited. The land's geological structure is relatively young; the great geomorphological fragmentation, the uneven distribution of the spatial mean rainfall and the generally small catchment areas form a diverse landscape dominated by small valleys (a phenomenon very characteristic in Crete). The number of natural sites having significant aesthetic value reaches several thousands and includes sea coasts, rocky islands, wetlands, forests, alpine zones, rivers, lakes, ravines, springs, caves etc. Valuable characteristics are being represented by different landscape types. Traditional human activities have been developed since thousands of years. In the Aegean Archipelago, natural and cultural factors created a great biological, landscape and seascape diversity. Natural and cultural features, often interconnected, are found in a high number of environmentally important sites, most of them small in scale and vulnerable. Consequently, most modern human activities are bound to negatively influence landscape quality. Rapid economic development in recent decades has generated pressures, which have led to many sites being degraded. Ecological values as well as development and social processes involve complex parameters that cannot be easily foreseen. Negative impacts of new activities can generally be minimized depending on the choice of appropriate alternative solutions and protection measures. Impacts on landscape quality mainly depend on the following environmental parameters: landscape scenery, biodiversity, soil, water, the acoustic environment, agricultural activity, the cultural environment. The choices of appropriate restoration measures must fulfill various criteria (in some cases partially contradictory). They need to be: economically feasible, appropriate for impact elimination, technically correct and applicable based on available means and experience, aesthetically acceptable, easily maintained, without serious side effects.

Records of Greek biotopes were undertaken in the context of the CORINE-biotopes European network, the NATURA 2000 network and a few programs of education or research institutions. The list of Sites of Outstanding Natural Beauty (SONB) includes ecologically or geomorphologically valuable landscapes as well as archaeological sites and traditional settlements. In many cases, different features may occur at the same site. Environmental information and digital mapping of all important sites are available in the "FILOTIS" database (codes A0, GR, AT, AT99 and AB for CORINE biotopes, NATURA sites, SONB, Other landscapes and Other biotopes, respectively). Reliable and organized information on valuable areas contributes to landscape conservation, as it helps improving environmental impact assessment of projects taking place in these areas. Nevertheless, this information can contribute in mitigating the most significant negative effects on the protected landscape and in avoiding non acceptable environmental impacts; the conservation of sensitive parts of the everyday landscape outside protected areas could also be achieved.

During last years, European initiatives on Integrated Coastal Zone Management and Integrated Maritime Policy have supported long term procedures, combining good structure and functioning of the ecosystems with sustainable management of the resources of marine areas, islands and coastal regions, early warning of threats, reliable protection measures and regulation of the local society activities. Maritime Spatial Planning is a key cross-cutting tool for sustainability. In the frame of the European research project “Cross-border Cooperation for Maritime Spatial Planning Development”, 195 valuable sites of Crete and of a part of the Aegean Archipelago (Dodecanese and Greek North Aegean islands) have been identified (it must be noticed that many of them overlap). They include 88 CORINE biotopes, 59 SONB, 10 Other landscapes and 38 Other biotopes. Moreover, 14 NATURA sites of Lesvos and Rhodes islands have been assessed together with the rest of valuable sites in the context of an entire island development spatial planning.

An interesting conclusion of our approach is that environmental degradation of valuable sites is much more related to popular uncontrolled activities than to well-organized development. When conservation measures and technology are appropriately used, environmental values are generally protected. According to our assessment, natural and cultural landscape is the most threatened environmental value in the Archipelago. Threats are mainly related to vulgar constructions, houses without a building permit, uncontrolled grazing, fishing, hunting or tourist activities, wild fires etc. Pressures on small, usually seasonal wetlands, are particularly important.

Therefore we suggest that production activities in valuable landscapes should not be excluded, except in a few places with very high archaeological interest or landscape value or ecological vulnerability (some threatened animal species). Well-organized production activities, including land or offshore wind parks, tourist facilities, sea farms etc. should be allowed to develop even in environment conservation areas if appropriate rules and technology are applied. Generally, conservation measures should not be horizontal; measures to protect different environmental values (aesthetics, migrating birds, rare flora etc.) have to be appropriately selected according to real environmental needs. Projects or activities have to fulfill strict environmental requirements, through careful procedures of environmental impact assessment. Defining future priorities and objectives and performing future environmental state analysis for both continuation of existing and development of new activities will greatly contribute in ensuring good environmental status.

ACKNOWLEDGEMENTS

This work is supported by the Action entitled: “Cross-Border Cooperation for the development of Marine Spatial Planning” referred as THAL-CHOR (in Greek ΘΑΛ-ΧΩΡ) and is co-funded by the European Regional Development Fund (ERDF) by 80% and by national funds of Greece and Cyprus by 20%, under the Cross-Border Cooperation Programme “Greece-Cyprus 2007-2013”.

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