Sustainable development in a country with extensive presence of valuable biotopes

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Summary

The Greek natural environment shows an extensive diversity of flora and fauna and a significantly high density of important biotopes. This notable ecological wealth is threatened with rapid degradation caused by human activities. Its protection through nature conservation measures and through the control of development projects and activities is obstructed by factors such as the existence of a large number of non-point sources of disturbance which are related to a large number of people, the inefficiencies of State mechanisms, the indifference of local societies with regards to planning procedures and long-term social benefits, and a traditionally indifferent or hostile attitude of countryside people towards nature. A study of the threats against the natural environment shows that the most important of these derive from activities that bring people closer to nature, but which follow a development model that is not sustainable. Such activities are: farming, animal grazing, fishing, tourism, vacation house-building, the opening up of roads, hunting, motorized recreation, etc. Contrary to this, the development of industry and the big enterprises of the tertiary sector appears more compatible with the preservation of a rich natural environment when certain conditions such as effective control, use of modern technology and convergence of business and environmental benefits occur. Consequently, this kind of development shows a better perspective as a sustainable development.

Introduction

The concept of sustainability constitutes a modern-day response to the problem of the necessary limitations of material development. These limitations seem inevitable and involve a significant decrease in the rate of economic growth. Running parallel to this are the necessary restrictions on the increase of the population and the level of per capita consumption.

Sustainable development is, in essence, a more rational approach to the management of each type of the Earth's natural resources, it has the aim of safeguarding and satisfactorily meeting human needs, not only in the present but also in the future (WCED, 1987). Nevertheless, sustainable development remains to a certain extent a contradictory term, since expansion of human activities will surely influence the environment, something that has been happening since pre-historic times. More specifically, as far as the natural environment is concerned, these impacts - decrease of biodiversity, reduction of natural ecosystems, decrease in the size of the fauna and flora populations - are most of the time irreversible and result in a gradual occupation of natural habitats by human civilizations (Ramade, 1974).

The diversity of the Greek natural environment

Greek natural environment is exceptionally rich, a fact which has resulted in Greece being the first among European Union member-states. The great variety of the Greek natural environment is due to a combination of many different factors, such as (Dafis, 1979; Kiortsis, 1979):

- the specific geographical position of the country,
- the complex geological base and geomorphologic fragmentation,
- the wide spectrum of climate types which range from subtropical to the central European temperate climate,
- the long and, until recently, turbulent history of the country.

These factors have created many types of ha-
Sustainable development in Greece

Fig. 1. Meteora’s famous ancient monasteries attract numerous tourists, placing this remarkable area in central Greece under severe environmental pressure (Photo courtesy: John F. Potter).

bitat, resulting in the existence of a great number of important biotopes and an exceptional diversity of flora and fauna. Nevertheless the ecosystems are characterized, for the most part, as being small in scale and vulnerable, a fact which increases their sensitivity to anthropogenic pressures.

A detailed study of Greek flora has not yet been completed but already 5,514 species and subspecies of plants have been identified, of which roughly 20 percent are endemic, while 31 percent belong to the categories of threatened species (endangered, vulnerable, rare), and only 48 percent are considered safe. The study, of the fauna is not so complete, especially with regards to invertebrates, which are estimated at between 20–30,000 species, of which 90 percent are unidentified or inadequately researched. The endangered species figure for invertebrates is estimated at 2–3,000. The knowledge regarding the vertebrates is more complete. The number of species and subspecies of mammals, birds, amphibians, reptiles and freshwater fish amounts to roughly 900, of which 18 percent are endemic, 62 percent belong to threatened species categories, and only 34 percent are safe (Research Group, 1993; Hadjibiros and Aravantinou, 1993).

The presence of numerous species of flora and fauna and especially of threatened ones, helps to make many sites in Greece characteristically important biotopes (Research Group, 1986). The first complete record of Greek biotopes – which was undertaken by the National Technical University of Athens (NTUA) in the context of the CORINE European network (CORINE, 1991; Research Group, 1993) - tracked 430 sites of international or national ecological importance. A study of habitats of endangered flora and fauna species leads to the designation of 800 more sites which also constitute important biotopes while a more detailed record would end up noting thousands of additional sites of local ecological importance (Hadjibiros and Aravantinou, 1993). These figures, combined with the relatively small area of the country (132,000 km²), prove that in Greece there is an impressive density of biotopes. An initial mapping of the 430 most important biotopes led to the significant observation that their area totals 32,000 km², or 24 percent of the country’s total surface area. This means that even without taking into account secondary biotopes, ecologically important areas account for a particularly high percentage of the country’s total area. Of course these biotopes are not uniformly distributed. They are located in all geographical areas of the country and they include a high percentage of mountainous areas, a large number of big and small islands and rocky islets, coastal areas and wetlands as well as certain geological formations such as canyons, caves, springs (Kyriou and Sfikas, 1994; Sfikas and Hatjirvassanis, 1994) etc.

The necessity for protection of natural environment

It is obvious that in a country which is not considered as being adequately developed and for which economic growth is the primary national goal, a rich natural environment is likely to become threatened with rapid degradation (OECD, 1983; HZS and HOS, 1992). Ever increasing infrastructure projects, and expansion and intensification of productive activities, shrink natural ecosystems in size and function. The very high biotope density, in particular, means that even small projects become a potential threat to spoil or sweep away a valuable biotope. It is true that the State has taken care to legislatively protect some, albeit very few, of the most important biotopes. Furthermore, legislation requests that each new important project or activity should respect the environmental law provisions which are decided upon by environmental impact assessment procedures. Strict law abidance is not, however, the common practice, and therefore, the real conser-