

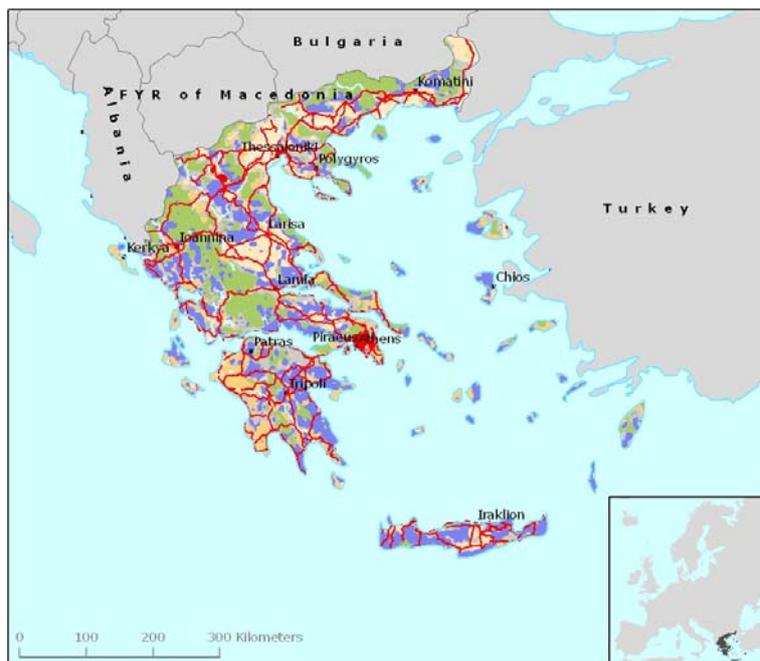
CHAPTER III: Land – Physical Planning

■ Status

General

The geography of Greece consists of a very large number of small islands and a hilly or mountainous terrain with steep slopes. More than 40% of the land is over 500 metres in altitude, with several peaks reaching an elevation of more than 2,000 metres. Greece's extensive coastline -the longest in Europe with its nearly 14,000 km length is equally distributed between the mainland and some 3,000 islands which cover approximately 20% of the territory. These physical characteristics have economic repercussions in terms of transport infrastructure and represent a significant challenge regarding sustainable land use.

Figure 3.1: Land uses in Greece



Source: YPEHODE, 2006

Urbanisation

Since the beginning of the 1970s, the country's urban system has transformed into a highly concentrative one, with the cities of Athens and Thessaloniki holding the primary role at the functional and economic levels. Nearly 50% of the urban population in the country live in these two metropolitan areas, while around 80% of the urban population live in the 11 largest cities and 20% in the 72 cities with a population of between 10,000 and 50,000 inhabitants. Two-thirds of the largest urban centres are located in coastal areas, and most of them host important harbours.

The growth of urban areas can be attributed to the urban sprawl and the development of services in existing urban centres, as well as the development of tourist destinations and related infrastructure, including summer houses, and the modernisation and extension of transport infrastructures (roads, ports, airports). The rate of urban growth has slowed significantly in recent years, however, the urbanisation trend has led to significant land use changes during the last decades and has often produced incompatible

land uses, the extension of urban activities beyond designated urban zones, traffic congestion, a lack of communal and green space, and even put pressure to sensitive natural areas. These changes have also mostly occurred at the expense of agricultural and pasture lands close to urban centres and coastal areas.

Countryside

In the countryside, about half of Greece's territory is not or only very limited exploited (mountain areas, grasslands and areas with infertile soils). Agricultural regions cover about 40.2% of the country's total surface area, forest regions about 17.9%, natural regions occupy about 38.5%, artificial regions around 2.2% and inland waters account for the remaining 1.2%. The majority of

forests is managed for production purposes, while other uses include hunting, grazing and tourism or recreation. Almost one-fifth of the country's land area (predominantly land covered in forest and garrigue) has been incorporated in the NATURA 2000 Network.

In the period 1990-2000, the increase of artificial surfaces was the most relevant land cover change in Greece, corresponding to an increase of urban areas of nearly 14%. In the same period, agriculture in Greece was characterised by a great modernisation effort, in the framework of the Common Agricultural Policy (CAP), involving irrigation projects, changes in practices on agricultural land and decrease in employment in the sector. Land use changes involved vineyards, olive groves and wetlands. A decrease of the vineyard area may be attributed to their conversion in built-up areas as many of the vineyards have historically been located close to urban centres. The growth in the area of olive groves may be a consequence of the related subsidies, while the conversion of wetlands into agricultural land may be attributed to large-scale agricultural developments occurring in the period 1990-1993. The total forest area slightly increased, as fellings were compensated by forest creation (European Environment Agency, 2007).

Soil Resources

In general, in Greece, soils are characterised by low organic matter content. About two thirds of the cultivated soils contain only 1% of organic matter (very low content), whereas only less than 14% of the soils contain more than 3% of organic matter (medium content). The decrease of the organic matter content causes structural degradation and soil erosion as well as nitrogen deficits, which characterize the soil in 87% of the cultivated areas. Many soils in Greece, both in the uplands and the lowlands, originate from calcareous deposits and are rich in calcium carbonate (CaCO_3). About 70% of the soils have an alkaline or very alkaline reaction, 12% have neutral reaction and 18% have acid reaction. Fixation of phosphorous as well as zinc, boron and other elements is common in alkaline soils.

The steep slopes, combined with the loss of natural vegetation (due to forest fire, cultivation and overgrazing), have facilitated severe soil erosion processes in the uplands — and the formation of cambisols, luvisols and regosols— to an extent that the parent rock is often exposed at the surface— as in the case of lithosols. Erosion and salinisation are the two most important threats to soil resources in Greece. The progressive degradation of the soil has led, among other consequences, to the reduction of the soil productive capacity and to more visible impacts on water resources (both in terms of quantity and quality). In the most severe cases, soil degradation has given way to desertification.

In Greece, soil degradation is brought about by a combination of natural causes (steep relief, vulnerable soils and harsh climate), unsuccessful land management and high pressures from human and animal population. Degradation is favoured by the frequent climate extremes such as droughts, aridity and irregular precipitations. The natural erosion processes have been accelerated in the past decades by the large-scale deforestation of hilly areas accompanied by intensive cultivation and overgrazing.

The country's geological formation also plays a role, especially in areas with landforms on limestone. These areas are the most sensitive to desertification due to the shallow soils and the slow rates of recovery of the vegetative cover, which may be destroyed by fires or droughts. Sloping land on schists, gneiss or granites - which can be found mainly in the southeastern part of the mainland, in areas of lower relief - is also vulnerable to degradation due to the high soil erodibility. Similarly, in a significant part of the country covered by soil on tertiary marly deposits, severe geological erosion processes have locally led to desertification (Kosmas et al., 2006).

Soil contamination is not a major problem in Greece as compared to other European countries. It mainly originates from local sources associated with waste disposal, industrial activities and mining operations. Contamination from diffuse sources is less extended. It is observed in the largest urban areas, due to the atmospheric deposition of pollutants from traffic and industry. Diffuse contamination is also observed around power stations, which use lignite combustion (Western Macedonia and Western Peloponnesus). Soil contamination, associated with agricultural practices, especially overuse of nitrogen fertilizers, mainly affects water quality. This process is primarily observed in the Thessaly plain (UN, 2005).

Soil sealing is reported to be a threat, especially around major urban centres and along the coasts. The portion of urban areas is relatively low, also due to the country's geo-morphological conditions

and the limited space available. Urban centres and economic activities are mainly localised along the coasts. In the past decades, the rate of growth of built-up areas has been high as a consequence of the rapid economic development and, in particular, the rapid expansion of the tourist sector and transport infrastructures.

Greece is also characterised by the presence of zones of high seismic risk. In the past 40 years, nine major earthquakes occurred, causing over 250 deaths, several hundreds people injured and extensive damages to buildings and infrastructures.

Protected Areas

Since 1999, additional areas of 105,000 hectares (ha) and 1,075,000 ha have been designated as Sites of Community Importance (SCIs) and Special Protection Areas (SPAs), respectively. As of 2008, the Greek list includes 239 SCIs and 163 SPAs. When overlapping is excluded, the NATURA 2000 Network of Protected Areas covers 21% of the Greek land surface and 5.5% of the territorial waters.

In order to award legal status for the designation of Protected Areas, 87 Special Environmental Studies were drafted or under preparation, covering 53% of the area of the NATURA 2000 Network. The country plans to designate 24 new protected areas in the 2008-2013 period, representing an additional 20% of NATURA 2000 areas and to implement conservation measures in all SPAs.

Table 3.1: Protected areas, 1998-2008

	Year ^a	Competent Authority	1999			2008		
			Sites	Surface area		Sites	Surface area	
				(ha)	(%)		(ha)	(%)
National forest parks (inland)	1938	Ministry of Rural Development and Food (MRDF)	10	68,900 ^c	0.6	10	68,900 ^c	0.6
Aesthetic forests	1973	MRDF	19	32,500	0.2	19	32,500	0.2
Protected forests	2006	Regional Authorities	-	-	-	1	41,742	0.4
Natural monuments	1975	MRDF	51 ^d	16,700	0.1	51 ^d	16,700	0.1
Landscapes of natural beauty	1950	YPEHODE & Min. of Culture	264	507
Controlled hunting areas	1975	MRDF	7	107,090	8.2	7	102,812	0.8
Game reserves ^e	1979	MRDF	584	964,400	7.4	-	-	-
Game breeding stations	1976	MRDF	20	3,160	0.2	21	3,603	..
Zones of urban control ^f	1989	YPEHODE	10	14,700	0.1	12	6,382	..
Nature reserves ^g	2006	YPEHODE	-	-	-	1	163	-
National marine parks ^g	1992	YPEHODE	2	254,100	0.1	2	225,946 ^h	0.1
National parks ^g	2004	YPEHODE	-	-	-	9	754,280	5.6
Eco-development areas ^g	2003	YPEHODE	-	-	-	1	41,829	0.3
Wildlife refugees	1998	Regional Authorities	-	-	-	606	1,028,057	7.79

a) Year of establishment of the first area in the category.

b) % of total land area; some protected areas overlap.

c) Including 34,300 hectares of peripheral zones.

d) 15 areas and 36 historic trees or coppices.

e) The category "game reserves" has been replaced by the category "wildlife refuges"

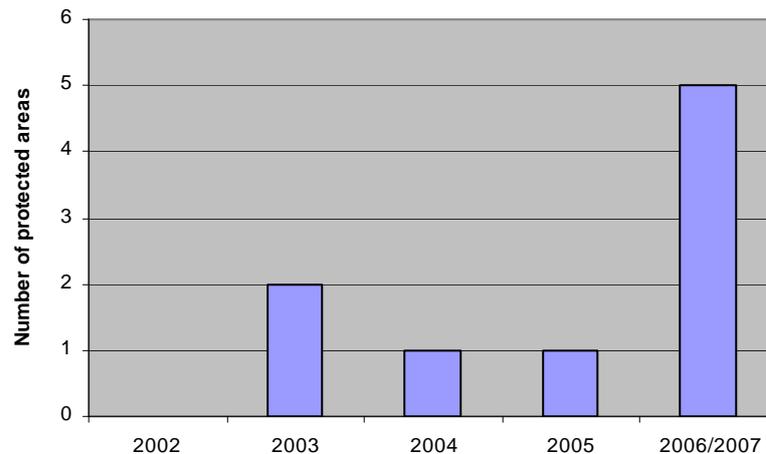
f) Including areas designated as Strict Nature Reserves and Nature Reserves.

g) Including peripheral zones.

h) The boundaries of the marine parks were redefined in 2003.

Source: YPEHODE

Figure 3.2: Evolution of Designation of Protected Areas



Source: YPEHODE, 2007

■ Decision-Making, Legal and Regulatory Framework

Spatial Planning and the Environment

The link between environment and spatial planning was explicitly established in 1976 in the country's first dedicated planning Law entitled "Regarding Spatial Planning and Environment". Structural spatial plans were drawn up for all prefectures in the mid-1980s, and even though they never acquired legal status, these plans served for more than a decade as a coherent spatial reference for investment and project decisions at prefecture level, as well as for lower level spatial or environmental studies, e.g. Environmental Impact Assessments (EIAs).

In Greece, the Ministry for the Environment, Physical Planning and Public Works (YPEHODE) is responsible for spatial planning at the national and regional level. In 2002 the National Coordination Committee of the Government Policy in the field of Spatial Planning and Sustainable Development was established, with representation from the Secretary-Generals from all relevant Ministries. An advisory council, the National Council for Spatial Planning and Sustainable Development was also created as a statutory stakeholder forum with the role of advising the Government on spatial planning issues. In line with the concept of the "Europe of Regions", the country consists of 13 regions (decentralised administrative units of the state), which have decisive authority on the exercise of the executive responsibilities of the estate; they contribute to national planning and within this framework, design, programme and implement policies for their financial, social and cultural development. In particular, the regions are responsible for vetting the General Town Plans of the municipalities, approving development proposals (with associated EIAs), and the supervision of municipal and prefectural planning authorities.

Concerning strategic sectoral plans and programmes, the 2006 Joint Ministerial Decision (JMD) on Strategic Environmental Assessment (SEA) transposed the European Union's (EU) Directive 2001/42. Through SEA, the qualitative and quantitative assessment of environmental impacts from large area projects is ensured and the cumulative assessment of a project, in conjunction of other ones, as well as the examination of alternatives, is fulfilled. Concerning projects, the Law on Environmental Impact Assessment amended the previous 1986 Law on Environmental Protection and integrated the EU Directive 97/11.

In 2002, the Hellenic National Strategy for Sustainable Development (NSSD) was approved by the Council of Ministers, aiming at promoting economic growth in Greece, while safeguarding social cohesion and environmental quality. It articulated a set of principles for the formulation of an action plan in line with international challenges and commitments, including EU policy and legislation. The NSSD set three basic principles for environmental policy – the precautionary principle; the polluter pays principle; and the equity and shared responsibility principle – and identifies the main sector for action for each environmental issue. It further addressed the integration of sustainable development

into sectoral policies, such as spatial planning (regional development, physical planning and urban planning), energy, transport, agriculture, fisheries, industry, tourism and employment policies.

In 2007, the National Strategy was revised, based on proposals from Ministries and extensive consultations with regional and local officials, and with a broad range of private stakeholders. The revision encompasses the priorities of the 2006 Renewed EU Sustainable Development Strategy, as well as four additional chapters on issues of national priority: physical planning, culture, tourism and agriculture.

Legal and Regulatory Framework

Law 2508/1997 on the Sustainable Development of Towns is the key law for the organisation of built-up areas, provides for public participation, and promotes the reuse of the built space to prevent urban sprawl. The law specifies the following two types of plans:

- i. Plans with a broader character that include:
 - The Master Plans, i.e. "Structure Plans and Programmes for the Environmental Protection" for major cities like Patra, Larissa, Volos, Ioannina
 - The Municipal Spatial Plans, which are named, depending on the size of the settlement, as "General Town Plans" (for a main town above 2,000 inhabitants) or "Plans of Spatial and Settlement Organization for Open Towns" (for a main town under 2,000 inhabitants).
- ii. Plans that are the equivalent of the conventional municipal land use plans found in most countries; all urban areas operate this type of plan.

Until the approval of (new) town plans, construction is allowed within the borders of villages and in non-urban areas, provided there are no restrictions to building rights by an Urban Control Zone. YPEHODE was until recently engaged in approving Urban Control Zones in crucial areas, as in the case of islands (e.g. Myconos in 2005) and mountains (e.g. Parnitha in 2008). From now on the prospect is that, through the General Town Plans, land uses and environmental protection zones will be specified for the whole of Greek territory. Therefore, the direction is towards the organisation of land uses and the planned regulation of urban development.

Law 2508/1997 further provides for subsidies to local authorities to enable them to rehabilitate neglected urban areas, upgrade buildings, protect the environment and conserve energy and natural resources. In addition, the Building Permits Law 3212/2003 and the General Building Construction Code, on quality and safety of construction and allowable building surface on pieces of land (Presidential Decree 14.07/1999), define building permitting procedures and building construction standards.

The key feature of Law 2742/1999 is the creation of the National Framework for Spatial Planning and Sustainable Development consisting of: i) a General Framework Plan (the "National Plan"), ii) Specific Framework Plans, and iii) Regional Framework Plans for each of the regions, except Attica (Athens region) which has its own structural plan. The planning horizon for all these plans is 15 years. Local master and land use plans under Law 2508/1997 must be consistent with the Framework Plans.

Table 3.2: System of spatial and urban planning

Law 2742/1999 on Spatial Planning and Sustainable Development National Framework for Spatial Planning and Sustainable Development	
General Framework Plan (National Plan)	<i>National plan sets out policy regarding competitive land uses, requirements for EIA, national transport links, etc.</i>
Regional Framework Plans	<i>Regional elaboration of national plan</i>
Specific Framework Plans	<i>Sets out development goals for special areas of the country (e.g. coastal areas and islands, mountainous and lagging zones), sectors of activities (e.g. industry) of national importance or networks and technical social and administrative services of national interest</i>
Law 2508/1997 on the Sustainable Development of Towns	
Master Plans (for large areas around a major urban centre) and General Town Plans (for the entire municipality territory)	<i>Policy on land uses, population forecasts & housing needs, transport & other infrastructure, environmental protection, etc.</i>
Land use plans for built-up areas	<i>Plans with more details, designation of sites for specific uses, building regulations, etc.</i>

Law 2742/1999 on Spatial Planning and Sustainable Development deals with strategic spatial planning of the entire territory at a national and regional level. The law is consistent with the European Union's European Spatial Design Perspective adopted earlier in the same year. Its three main goals are: i) promotion of economic and social cohesion; ii) rational management and protection of natural resources and cultural heritage; and iii) promotion of an integrated and competitive regional development.

Objectives regarding spatial planning can also be found in the 2002 NSSD, which recommends a poly-centric urban structure. For urban areas the NSSD advocates adoption of a "solid city" approach adapted to Greek particularities, and reduction of urban sprawl by means of low-density peri-urban settlements. Regarding rural areas, the key NSSD objectives include the suppression of uncontrolled urban sprawl outside existing towns, the creation of dedicated zones for specific purposes such as commerce, industry or animal husbandry, and the reduction of dispersed tourism facilities.

Concerning Law 2508/1997, about 30% of the country's municipalities had elaborated General Town Plans, in the early 2008, although few have been so far approved by the regions, as required. In 2007, the studies for four Master Plans for the major cities of Ioannina, Patra, Larissa and Volos, went on tender and are currently in their final stage of elaboration, according to the provisions of Law 2508/1997. Consequently they will be accordingly enacted in the form of Presidential Decrees. In addition, Presidential Decrees for the establishment of four respective Organisations for the implementation of these Master Plans have been prepared and are currently in the final phase of their legal elaboration. Concerning Law 2742/1999, all Regional Framework Plans had been adopted by 2003 and are now operational. The first General Framework Plan (the National Spatial Plan) and the Specific Framework Plan for Renewable Energy Resources were enacted in 2008. The Specific Framework Plan for Industry is in phase of approval by the Government Committee. The Specific Framework Plan for Tourism will be approved and published in 2009.

Two other Specific Framework Plans (i.e. for Coastal Zones and Islands and for Mountain Areas) are expected to be finalised in 2009. The implementation of these plans will be closely monitored, in line with Article 13 of the General Framework Plan, using, where available, qualitative or quantitative indicators.

i. National Spatial Plan

The General Framework Plan aims at the formation of a spatial development pattern, promoting the social and economic cohesion, competitiveness, and administration, the maintenance of biodiversity the physical and cultural environment in the direction of sustainable development. The National Spatial Plan was adopted and put into force in 2008 (OJG 128A/2008).

ii. Specific Framework Plan for Renewable Energy Sources

The regulatory framework concerning the Renewable Energy Resources (RES) aims, first of all, at increasing the country's electricity generating capacity from RES, so as to meet its indicative target of 20.1% by 2010, and promoting investment in the energy sector, including through simplification of permitting procedures for RES projects. Within the overall regulatory framework for RES, the Specific Framework Plan for Renewable Energy Sources deals specifically with issues surrounding the location of RES installations. Approved in 2008 (OJG 2464B/2008), it establishes location rules and criteria that aim to balance the need for viable RES facilities and the protection of the natural and cultural environment.

The guidelines of the Specific Framework for Spatial Planning of the RES are distinguished with respect to the RES category and the specific location. Exclusion areas and incompatibility zones are determined, excluding the planning of wind energy facilities. More specifically, as exclusion zones are defined those with listed (classified) buildings, with priority habitats, nature areas with a status of full protection, the core of the national forests, areas within the limits of city plans and settlements prior to the year 1923 or settlements with a population of less than 2,000 inhabitants, the Areas for the Development of Integrated Productive Activities of the third sector, tourism and housing areas, swimming beaches etc.

The Framework will serve as guide to licensing authorities as well as investors, so that the latter will be oriented to locations they know to be suitable from a spatial planning perspective. It is considered to be a coherent decision-making process for the development of RES that will allow all

economic, social and environmental considerations to be evaluated together and submitted to public scrutiny, and for decisions to be taken without avoidable conflicts and undue delays.

iii. Specific Framework Plan for Industry

Greece has a relatively small industrial sector, consisting primarily of small and medium-sized enterprises (SMEs). In 2006, the manufacturing sector employed 11.6% of the labour force, whereas construction accounted for 7.3% and mining 0.4%. Industry is highly concentrated in certain areas with around half of the value added located in the wider Attica area and Central Macedonia. On the other hand, a close-up view of the location of industrial plants shows that as many as 90% of sites are highly scattered throughout urban and peri-urban areas, giving rise to nuisances and incompatible land uses.

The Specific Framework for Industry incorporates guidelines referring to the macro-spatial organization of the industry, as well as to its location on a local level, in connection to land uses. Namely, it provides guidelines for the spatial organization of industry: a) at national level by defining the main poles and development axes, the areas where specific policies should be applied and by including provisions for the development of industries in specific types of areas (coastal, island and mountain areas), b) at regional and sub-regional level. The Framework Plan also provides sectoral guidelines for industries with specific needs as regards spatial location (e.g. firms engaged in processing, storing and trading of sensible agricultural produce or in need of coastal location).

A major part of the Framework's provisions concerns Industrial Parks. During the last years, 48 industrial parks of different types have been established most of them often complete with shared environmental infrastructure. For the moment, few enterprises have settled in these areas, but the intention is that, in the long term, many of the industries now located at inappropriate locations, would move to these parks. The Framework Plan also sets directions for local and urban plans and provides an Action Programme.

Concerning industrial risks, lists of all "Seveso" installations across the country have been compiled and hazard maps of three extensive industrial areas (two in Attica and one in Thessaloniki) and some smaller ones are available and are used in land use planning. They are part of the emergency planning to protect the population against large-scale technological accidents.

iv. Specific framework plan for tourism

The tourist sector constitutes for Greece one of the main sources of national wealth, contributing directly and indirectly about 18% of GDP, generating approximately 850,000 jobs and contributing significantly to regional development. The tourist infrastructure in Greece is broadening its base to such areas as cultural, eco- and agro-tourism. Also, the sector is highly concentrated geographically, with 65% of hotel beds and 70% of independent rooms located in the South Aegean, Ionian, Crete, Attica and Central Macedonian districts. Efforts to achieve a more even geographic spread of tourist areas date from at least 1994 (Development Law 2234/1994).

Tourist activities are putting pressure on coastal resources. To address this challenge, an important spatial planning measure is the designation of Areas of Integrated Tourism Development (POTA). This tool aims at creating from the outset a small number of areas of integrated tourist development oriented from their initial stages of planning towards a high level demand, and this in areas endowed with rich natural resources but not having a satisfactory tourist infrastructure so far. The approval of such areas is granted as part of the implementation of the national or regional spatial plans, after a global and coherent assessment of the social, economic and environmental parameters. The Specific Spatial Framework Plan for Tourism represents a right step in this direction, for it explicitly brings the environment into the equation.

The aim of this Specific Plan is to offer guidelines, rules and criteria for the spatial articulation, organisation and development of tourism in Greece and for the respective infrastructure, as well as the setting out of a realistic action programme for the next 15 years (2008-2023). This Specific Plan aims additionally at improving the competitiveness of the tourist product, ensuring protection and sustainability of the natural resources related to tourism, enforcing the policies of regional development and cohesion, as well as at putting in place a clearer framework of guidance to the lower level planning, the competent authorities for permits and the interested companies. As the vehicle dealing with the spatial dimension of the sector's development, it will allow the balancing of the associated economic, social and environmental aspects.

v. Coastal zones and islands

The coastal and marine environment of Greece, with its landscapes and ecosystems hosting numerous rare species, is one of the country's major economic and environmental assets. Greece has therefore been an active participant in the EU's activities to implement Integrated Coastal Zone Management (ICZM) in accordance with EU Recommendation 2002/413, as well as in various projects through the Mediterranean Action Plan of the United Nations' Environment Programme (UNEP/MAP). Also, during its latest presidency of the EU in 2003, Greece convened an International High Level Conference on "Coastal Areas and Cities in Europe".

Greece's coastal zones are subject to development pressures (e.g. pollution, exploitation of natural resources, urbanisation for tourism and holiday homes) as well as natural hazards (e.g. erosion). An estimated 85% of the Greek population lives less than a 45-minute drive away from the seashore and one-third live in a 2 km-wide coastal strip. Also, an estimated 80% of industrial activities, 90% of tourism and recreation, most of fisheries and aquaculture, 35% of agricultural land (often of high productivity), and a significant part of infrastructure (e.g. harbours, airports, roads, the electricity network, telecommunications) are situated in the coastal zone. Islands are however often presenting indicators of development under national average, as they often suffer from geographic isolation and lack of economic opportunities (besides tourism).

To deal with this concentration of uses, the Specific Framework for Spatial Planning of Coastal Zones and Islands is under preparation, which includes an action programme and incorporates the principles of the EU recommendation on ICZM, as the fulcrum of coastal zone management.

vi. Mountain areas

Mountain regions cover 70% of mainland Greece and flat land is restricted to many small coastal plains. The mountains, which form part of the Alpine system, generally stretch from northwest to southeast. They are highest and most rugged in the northwest, where the Grammos Mountains rise to 2,519 m and the Pindos mountains to over 2,285 m, although the highest mountain in the country, Olympus at 2,917 m, is in east central Greece.

Greek mountain regions are amongst the poorest areas in the country and suffer from geographic isolation and lack of economic opportunity. To promote the future development of these areas, the Specific Framework for Spatial Planning of Mountainous Areas is currently under preparation and expected to be concluded by the end of 2009. Its purpose is the definition of guidelines for the sustainable, balanced and competitive development of the mountainous area, spatial integration into the national network and development centres, the strengthening of demographic and production base and the protection, and enhancement of natural and cultural assets and natural resources with a view to sustainability. The country's development efforts focus on improving accessibility (e.g. construction of the north-south Ionian highway in the West of the country and east-west Egnatia Highway in northern Greece) and extending water and electricity supply. In all mountain areas, measures have been taken for the conservation, regeneration, and expansion of forests. Measures have also been taken to induce the local population, especially the young, to remain in mountain areas by promoting alternative livelihood opportunities through the development of eco- and agro-tourism, as well as mountain and cultural tourism, and the promotion of the use of local resources, for example mineral resources.

Mountain areas are also prone to a variety of natural hazards, such as erosion and landslides. Law 3013/2003 for Civil Protection has charged the General Secretariat for Civil Protection (under the Ministry of Interior) with the formulation of prevention plans and programmes for all kinds of natural and technological risks, taking appropriate preparedness measures and undertaking prevention, preparedness, response and recovery actions. Hazard maps based on geological, slope gradient, rainfall and seismic hazard data (identifying 3-4 levels of hazard) have been prepared for the whole territory of Greece (1:100,000). The entire country has also been mapped (1:200,000) in terms of the risk from forest fires. The Ministry of the Interior is funding a programme to assess earthquake risks at the local authority level. Beyond these efforts, the Specific Planning Frame work for Mountainous Areas is a high priority, since its adoption and implementation should contribute to the economic, social and environmental development of mountainous areas.

vii. Biodiversity

The main piece of forest legislation is the 2003 Forest Law, which adopts the principles of sustainable forest management, biodiversity conservation and multiple uses of forest lands. A Forest Functional Plan is in place, including measures for burnt land restoration, fire protection, improvement of degraded forests, designation of protected forests, and completion of the National Forest Registry (by 2012). A Thematic Strategy for Forests and Mountainous Ecosystems is currently being developed to improve the integration of biodiversity issues in forest management.

Regional Forest Services are in charge of managing forested areas, including ranger services, and of developing ad hoc management plans. These plans regulate tree cutting, grazing, hunting (on the basis of annual ministerial decisions), use of chemicals, collection of herbs and other plant species. Forest management plans do not always fully integrate biodiversity conservation objectives. One productive forest is eco-certified (by the Forest Stewardship Council), covering about 31,500 ha, but there are plans to implement a national certification system.

The 1999 Law on Spatial Planning and Sustainable Development marked a turning point in the management of protected areas, providing for the establishment of independent and multi-stakeholder Management Bodies. Forest Services are responsible for the management of forests according to forest legislation, but Management Bodies have an overall responsibility for the conservation of nature. In the Advisory Boards of the Management Bodies representatives of Forest Services participate, achieving thus integration of management policies. The Management Bodies are responsible for a wide range of activities, and primarily for drafting and implementing five-year management plans (prioritising activities and specifying conservation measures. They contribute to wardening and executive control, although the Forest Services remain the primary enforcement authorities. By 2008, 27 Management Bodies were established, covering about 1.7 million ha of protected areas.

The NATURA 2000 Committee (established in 2002) is an inter-ministerial advisory body to coordinate and evaluate activities of Management Bodies. With a chair appointed by YPEHODE, the Committee also includes representatives of university and research centres and environmental NGOs.

■ Strategies, Programmes and Projects

The basic rules and priorities of the spatial planning are the following:

- Reassurance of equal conditions of existence and chances for work for all the citizens in all the entire territory, in connection with the aim of population arrangement and demographical renewal.
- Maintenance, amplification and emergence of housing and productive polymorphism, and the natural diversity in the urban and interurban areas, seaside, mountainous, islands and areas with increased industrial and tourist development.
- Complete protection, development, and emergence of the islands, mountainous and remote areas, maintenance and encouragement of the traditional productive branches and also the protection of their natural and cultural sources.

Cadastre and National Forest Registry

For more effective control of land development, Greece is now accelerating the completion of its National Cadastre which constitutes a strategic tool, together with spatial planning, for integrated planning and development. As of 2008, the system had been established and was operational in 6% of the total area of the country and incorporated approximately 6.3 million property rights, or about 17% of the expected total number. Of the 340 municipalities that had been included in the initial cadastral survey projects, 326 now have an operational cadastre and are served by the 95 cadastral offices that cover their jurisdiction.

In 2008, a new set of cadastral survey projects was launched, covering 107 municipalities with an area of 3,100 km² and a total number of 7.3 million rights. So far 5.8 million rights have been declared within the scope of those projects. These projects are expected to finish by 2011 and cover the metropolitan areas of Athens and Thessaloniki (the two largest metropolitan areas of Greece), as well as, the 22 remaining prefecture capitals that had not been surveyed in the first series of cadastral survey projects.

In 2009 another set of cadastral survey projects will be launched that will cover 11 more municipalities having area of 485 km² and a total number of 103,000 rights. Those municipalities cover the mount "Parnitha", which was damaged by fire in 2007. Completion of the cadastre had initially been anticipated for 2010, but due to the fact that the process of validating ownership claims and subsequently, processing appeals takes longer than originally anticipated, the whole project is expected to be completed by 2018. By that time the system will cover 132,000 km² and about 35 million property rights, covering the entire country.

The National Forest Registry is also underway and its completion is expected by 2012. The Hellenic Constitution prohibits the conversion of forestland to other uses, but there still is no official record of what land is considered forestland and what is not. Forested areas, notably those close to Athens and in coastal areas, are receiving pressure from building activities. Through the completion of the National Forest Registry (i.e. the identification of all forest areas), it is expected that public property will be safeguarded and forest fires by arson will be limited.

Within the scope of developing the Hellenic National Cadastre, Greece is currently carrying out a cartographic project that aims at mapping forests and forestland for the whole country at a scale of 1:5,000. This on-going mapping project would be complete within 2009 and its outcome could be used as a first approximation to adjudicate property rights in forest areas.

Also, within the scope of developing the Hellenic National Cadastre, Greece, carries out a extensive cartographic project that aims at mapping all the coastal zone (as well as the rivers and lake banks zone) of the country, including the coastal zone of the islands. The mapping project would be complete within 2009 and could be used, in addition to adjudicating property rights along the coast, to support coastal zone management.

Soil Protection programmes

In order to control non-point source pollution, an increasing number of areas of agricultural land are included in nitrate pollution reduction programmes. Greece has declared seven vulnerable zones (corresponding to the main country's fertile plains under intensive agriculture) under the EU Nitrates Directive 91/676 and has formally adopted the Action Plans required for each area: the Thessaly Plain, the Kopaida Plain, the Argolic Plain, the basin of Pinios river in Ilia, the Thessaloniki-Kilkis-Pella-Imathia Prefectures plain, the Strimonas river basin and Arta-Preveza plain. The Actions Plans require farmers to, among other things, respect maximum rates and timing of fertiliser application, depending on local conditions (such as crop type, soil type, ground slope, and irrigation system). There are also rules about the management of farm waste, erosion prevention, winter soil cover, and the transport and storage of fertilisers. Also, farmers in vulnerable zones must follow the official Code of Good Agricultural Practices (CoGAP). These programmes are expected to continue during the 4th Programming Period 2007-2013, with an expansion to new areas.

Urban Interventions for the Environment

In the framework of the EU urban policy, via Integrated Urban Interventions, programmes were carried out in areas in need of regeneration, through the EU Initiatives URBAN I (1994-1999) and II (2000-2006) as well as the 2nd and 3rd Community Support Frameworks (CSF) for the same periods respectively. The largest and most important part of all the programmes of Integrated Urban Interventions deals with the improvement of the urban environment, with particularly positive results.

The objectives of the URBAN Initiative are:

- To help seek integrated, sustainable interventions to address the particularly acute social problem of the many urban centres in crisis, through actions to restore their social and economic health, renew infrastructures and equipment and improve the environment;
- To promote the creation and implementation of particularly innovative strategies for sustainable economic and social regeneration of small and medium-sized towns and cities or of distressed urban neighbourhoods in larger cities; and
- To develop knowledge and exchange experience and good practice in the urban space, in relation to economic, social, environmental and administrative issues, for sustainable urban regeneration and development in the European Union.

Through the URBAN II Initiative, a new approach to urban development is being promoted. While retaining an integrated approach to social, economic and environmental problems, the basic

objective of URBAN II is innovation. Accurate selection of problem neighbourhoods is one of the essential conditions for an effective development policy.

An indicative example is the programme of integrated intervention at the North east part of the urban space of Heraklion, in the island of Crete, which was financed partly by Community Initiative URBAN II (budget of EURO 12 millions) and partly by the Community Support Framework (budget of EURO 8 million). The area was characterized by a particularly degraded environment; lack of public spaces; presence of abandoned industrial sites; and the coastal zone was taken up by illegal constructions. With the interventions that took place, illegal constructions were taken down and the freed area was transformed into a green space for entertainment purposes. Public spaces were organized, landscaped and upgraded while existing buildings were restored and reused as part of the programme (e.g. Museum of Natural History) and, separately, by the private sector (e.g. cinema multiplex, gathering places, cultural buildings).

Similar results came out of the implementation of the URBAN programme in the city of Volos, at the area of Palies, where the "Tsalapata Brick and Pottery" Industry and several smaller ones were restored and given for cultural, entertainment and social uses, being today a centre for cultural activities in the area.

Desertification programmes

Since 2003, a wide array of desertification-specific projects have been carried out to assess better the extent and impacts of desertification within the country; to estimate the effectiveness of policies and measures already undertaken; and to propose new remedial and preventative steps.

In addition, substantial levels of funding are being allocated to other projects that contribute to the anti-desertification fight, but which are not designated as desertification-related activities in the budgets of implementing ministries and institutes. For example, EURO 650 million have been allocated by the Government for re-establishment of lands impacted by forest fires over the 2007-10 period; EURO 236 million in 2006 to support early retirement of aged farmers; EURO 19 million in 2006 for afforestation of agricultural land (plus EURO 10 million from the EU). Regarding agri-environmental measures in which organic farming is included, EURO 870 million have been allocated for the years 2007-2013, while EURO 122 million were spent between 2000 and 2006.

Soil-Resources Protection Programmes

The basic measures to combat intensive use and degradation of soil resources include the expansion of organic agriculture and livestock farming, extensification of livestock farming, maintenance and restoration of hedgerows, conservation and repair of terraces in sloping areas as well as adoption of the Codes of Good Agricultural Practice (CoGAPs 568/125347/2004). In particular, there has been substantial development of organic agriculture in recent years. Indicatively, it's worth mentioning that in 2004 it slightly exceeded 1.5% of the total farmland, rising to 4% in 2007.

It is also worth mentioning that the promotion of organic agriculture, in conjunction with the restrictions in nitrogen fertiliser use and the establishment of systems for the wet treatment of waste, are all included in the basic measures taken for the reduction of GHG emissions from agriculture, taking into account the fact that agriculture accounts for 8.7% of the total GHG emissions.

Biodiversity Conservation and Management

Greek objectives on nature conservation encompass the international commitments to 2010 set by the United Nations' Convention of Biological Diversity (UNCBD) and the EU Biodiversity Action Plan. Protecting biodiversity and ecosystems is one of the main objectives of the 2002 NSSD. The relative objectives and action lines in NSSD have been integrated into the various national Operational Programmes (OPs) financed by EU and national Funds, including the Operational "Environment" Programme (OEP) 2000-2006, the OP on "Environment and Sustainable Development" (OPESD) 2007-2013, the OP "Agricultural Development and Reform of the Country-side" (OPADRC, 2000-2006), the "National Strategic Plan for Agricultural Development" (NSPAD, 2007-2013) as well as the various Regional OPs.

Other actions that have been developed for the protection of biodiversity deal with specific flora and fauna species, ecosystems, as well as the organisation and operation of a National System for the

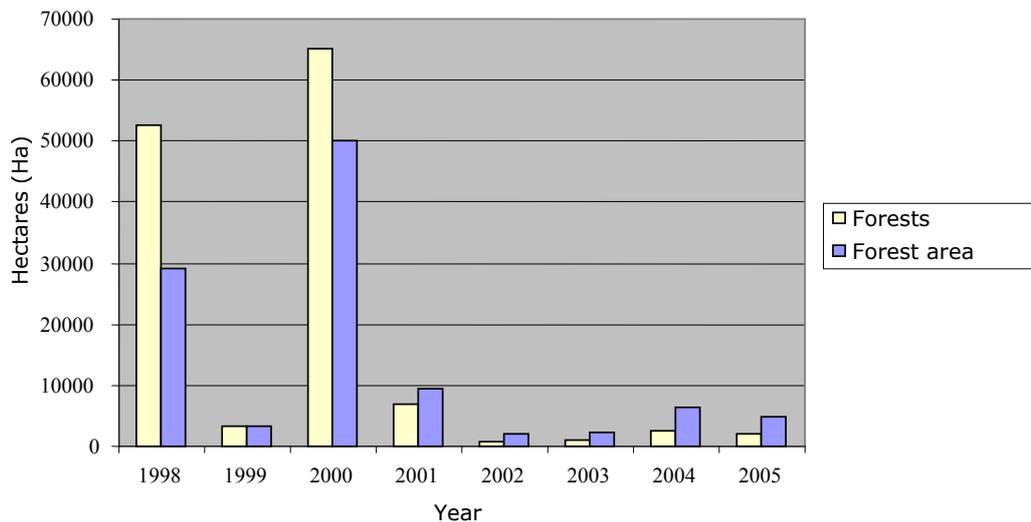
Management of Protected Areas. Greece ratified the Cartagena Protocol on Biosafety in 2004. Greece has transposed all Community Directives for the Environment Sector except for one (2004/035 on Environmental Liability, the transposition of which is under way). Actions to protect species and habitats included in integrated Management Plans are being implemented in various regions of the country. A National Strategy for Biodiversity is being drawn up by YPEHODE, in order to support an integrated approach for biodiversity conservation, and an Internet portal is under construction for the dissemination of information on biodiversity, so that the public can have access to credible data. An assessment of the conservation status of the habitat types and of species of Community Interest has already been launched an action that will determine the directions for further studied actions and conservation measures. Moreover, the specification of the Thematic Strategies for coastal and rural areas, the drafting of an Action Plan for Biodiversity, the setting-up of a national framework for biodiversity monitoring, as well as specific actions for threatened species and habitats, have been scheduled within the framework of the OPESD 2007-2013.

Conservation and management of forests

Forests and forest areas cover 58% of the area of the NATURA 2000 Network, a fact that depicts their importance for Greek biodiversity. During the 2002-2005 period, the area of forests and forest areas burned by fires were cut down by 90% in comparison with the previous four-year period. However, the country was ravaged by extensive wildfires in the summer of 2007, mainly due to prolonged water scarcity, drought and arson, which resulted in the loss of 2,700 Km² of forest land and estimated to be responsible for the emission of 4.5 million tones of CO₂ in the atmosphere (European Forest Fire Information System - EFFIS, 2007).

Procedures for the identification of the basic criteria and indicators for sustainable forest management have already started. Moreover, actions being taken for the development of a certification of products from sustainable forestry constitute a major challenge. The development of a Thematic Strategy for Forests and Mountainous Ecosystems has also been scheduled within the framework of the Operational Programme on Environment and Sustainable Development, 2007-2013, in order to support an integrated approach in the conservation of biodiversity and the services provided by Greek forests. Yet, the completion of the National Forest Registry remains a challenge.

Figure 3.4: Forests and forest areas burned by fires



Source: Ministry of Rural Development & Food, 2007

■ Information, Capacity-Building, Education, Training and Awareness-Raising

The URBACT Programme is implemented as part of the URBAN EU Initiative. URBACT (www.gqea.gr/nea/URBACT_180107.pdf) involves joint actions to create networks, exchange experiences and create good practice guidelines for the "integrated upgrading of the urban space"

through the experience gained from implementing the URBAN I and URBAN II Programmes and the URBAN PILOT PROJECT.

■ Financing

Greece is a beneficiary of EU funding and with respect to the environment, Greece has benefited in particular from Cohesion and Structure Funds, Rural Development Aid and the LIFE programme. Environmental objectives have been largely integrated into development programmes promoting economic and social cohesion. In 2006, EU funds for about EURO 2.7 billion were allocated to environmental infrastructure and nature protection (EURO 3.6 billion including national co-funding), representing about 10% of the total EU support available for Greece and averaging at 0.23% of GDP (or 0.30% of GDP in national co-financing is included).

In the OEP of YPEHODE, in the context of the 3rd CSF 2000-2006, the proposed objectives included in the priority sector "Physical and Urban Planning and Regeneration Actions" for the period 2000-2006, were as follows:

- Promotion of strategic physical planning.
- Completion of urban planning in the new spatial units.
- Improvement of the efficiency of the physical and urban planning.
- Implementation of the national policy for sustainable urban development of the cities and settlements, in the framework of the country's fulfilment of relevant EU and national obligations (implementation of Habitat II Agenda).

Under the JMD 69269/5387/1990 ("Classification of activities into categories, content of Environmental Impact Studies etc."), the responsible authorities, that is the YPEHODE and other Ministries, the Regions and the Prefectures (depending on the capacity and the kind of activity), examine for every activity all information related to physical and urban planning and land use in the proposed (for a new activity) area of the activity. This examination occurs at the stage of the decision making for the location of the activity and if contaminated land is a factor, it is then taken into account.

The URBAN II Community Initiative is financed exclusively by the European Regional Development Fund (ERDF), one of the European Structural Funds. URBAN is one of four Community Initiatives within the EU Structural Funds. Recognising that more attention must be paid at Community level to the problems of cities, the Commission of the EU (CEU) has taken up the URBAN Community initiative with regard to the economic and social revitalisation of towns and settlements in crisis, so as to promote sustainable urban development.

More specifically, URBAN II finances programmes for the renovation of building stock, creates jobs (mainly via information technology), combats social exclusion, reinforces democratic processes and improves transport and communications. Environmental concerns are also a top priority for the URBAN II Programme, with measures such as reduction and better management of waste and restriction of noise pollution and consumption of hydrocarbons. Following a public invitation, Perama and parts of Komotini and Heraklio, Crete were selected for Urban II.

The management of protected areas and the implementation of the NATURA 2000 network have generally been financed on a project-basis. Expenditure for about EURO 50 million were financed through the Operational "Environment" Programme 2000-2006; since 2000, the EU financial instrument LIFE has co-financed 19 projects totalling EURO 28 million. Limited national funding (EURO 7.5 million in 2000-2006) was granted through the YPEHODE Special Fund for the "Implementation of City Master Plans and Town Plans" (ETERPS or "Green Fund"). Since 2004, the Management Bodies responsible for the protection of protected areas, have received state financial support, as they have rarely adopted self-financing instruments (e.g. entrance fees and merchandising); they have also relied on EU funds to cover their operational costs (which are excluded from the State budget).

The OPESD 2007-2013 of YPEHODE has a total budget of EURO 2.8 billion for the period 2007-2013 (of which 80% from Structural and Cohesion Funds). The programme focuses on: integrated solid waste management, a rational use of water resources, modern wastewater facilities, protection of natural resources and the efficient tackling of environmental risks (e.g. desertification, droughts, fires, floods and marine pollution). OPESD and the Regional OPs allocates EURO 225 million to support the existing Management Bodies, as well as three more that will be soon established.

■ Cooperation

Regarding bilateral development cooperation, YPEHODE was, until 2002, responsible for the designing and implementation of the "Bilateral Programme of Development Assistance and Cooperation in the Field of Environment and Sustainable Development of Greece". In this context, in 1999, when Greece first became an OECD DAC member and began its development assistance activities at full scale, YPEHODE launched the implementation of 22 projects of a total budget of EURO 1.87 million, disbursed over a period of 2-5 years. Around 30% of this budget was allocated to projects related to physical planning, most of which were implemented in partner countries of SEE-Balkans.

In 2000, YPEHODE commenced 38 new projects, with the involvement for the first time of NGOs as implementing agencies, and a time span of implementation of 4-5 years, with a total budget of EURO 6.16 million. Again priority was given in SE European countries and around 20% of projects were broadly related to physical planning mainly with respect to biodiversity protection.

Greece has been actively involved in the European Ministerial Initiative "CEMAT" in the framework of the Council of Europe. CEMAT is responsible for Regional/Spatial Planning, since 1970, and brings together representatives of the 46 Member States of the Council of Europe, united in their pursuit of a common objective: sustainable spatial development of the European continent. Fundamental documents, which have been adopted and have guided Greece's national spatial planning policies, include:

- The European Regional/Spatial Planning Charter, adopted in 1983 at the 6th Session of the CEMAT in Torremolinos;
- The European Regional Planning Strategy presented at the 8th Session of the CEMAT in Lausanne in 1988;
- The Guiding Principles for Sustainable Spatial Development of the European Continent, adopted at the 12th Session of the CEMAT held in Hannover in 2000.