



HELLENIC REPUBLIC

MINISTRY FOR THE ENVIRONMENT, PHYSICAL PLANNING AND PUBLIC WORKS

COUNTRY PROFILE

GREECE

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TABLE OF CONTENTS

	<i>page</i>
Abbreviations, signs & notes	iv
I ATMOSPHERE - AIR POLLUTION	6
Status	6
Decision-Making, Legal and Regulatory Framework, Policy Instruments and Measures	10
Strategies, Plans, Programmes and Projects	18
Information, Capacity-Building, Education, Training and Awareness-Raising	21
Research and Technology	22
Financing	23
Cooperation	23
II ENERGY	25
Status	25
Decision-Making, Legal and Regulatory Framework, Policy Instruments and Measures	29
Strategies, Plans, Programmes and Projects	40
Information, Capacity-Building, Education, Training and Awareness-Raising	41
Research and Technology	42
Financing	43
Cooperation	45
III INDUSTRIAL DEVELOPMENT	48
Status	48
Decision-Making, Legal and Regulatory Framework, Policy Instruments and Measures	51
Strategies, Plans, Programmes and Projects	53
Information, Capacity-Building, Education, Training and Awareness-Raising	54
Research and Technology	56
Financing	57
Cooperation	58

ABBREVIATIONS

ACCI	Athens Chamber of Commerce and Industry
BAT	Best Available Techniques
CAP	Common Agricultural Policy
CEU	Commission of the European Union
CH ₄	Methane
CHP	Cogeneration of Heat and Power
CNG	Compressed Natural Gas
CO	Carbon dioxide
CO ₂	Carbon dioxide
CRES	Centre for Renewable Energy Sources
CSF	Community Support Framework
ECMWF	European Centre for Medium-Range Weather Forecasts
EIA	Environmental Impact Assessment
EMEP	Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe
ERDF	European Regional Development Fund
ESP	Electrostatic Precipitator
ETHEL	Athens Thermal Bus Company S.A.
ETS	Emission Trading System
EU	European Union
EUMETSAT	European Organisation for the Exploitation of Meteorological Satellites
FGD	Flue Gas Desulphurisation
FGI	Federation of Greek Industries
GDP	Gross Domestic Product
GEF	Global Environmental Facility
GHG	Greenhouse Gas (Emissions)
GSRT	General Secretariat for Research and Technology, Ministry of Development
HES	Hydro Electric Station
HFCs	Hydrofluorocarbons
HNMS	Hellenic National Meteorological Service
HTSO S.A.	Hellenic Transmission System Operator
IPCC	Intergovernmental Panel on Climate Change
IPPC	Integrated Pollution Prevention & Control
JMD	Joint Ministerial Decision
LCA	Life Cycle Assessment
LCP	Large Combustion Plant
LNG	Liquefied Natural Gas
LPG	Liquefied Petroleum Gas
LUCF	Land-Use Change and Forestry Sector
MAP / UNEP	Mediterranean Action Plan / UNEP
MD	Ministerial Decision
MDGs	Millennium Development Goals
MoU	Memorandum of Understanding
MS	Member State
Mtoeq - ktoeq	Million tones oil equivalent – Thousands tones oil equivalent
NO _x	Nitrogen oxides
N ₂ O	Nitrous oxide
NAP	National Allocation Plan
NAPCC	(2 nd) National Action Plan for the Abatement of CO ₂ and other Greenhouse Gas Emissions 2000-2010
(3 rd and 4 th) NCC	(3 rd and 4 th) National Communication of Greece to the UNFCCC
NCESD	National Centre for Environment and Sustainable Development
NCMR	National Centre for Marine Research
NEIN	National Environmental Information Network
NGO	Non Governmental Organization
NMVOCs	Non Methane Volatile Organic Compounds
NNCAP	National Network for the Control of Atmospheric quality and Pollution

NOA	National Observatory of Athens
NSSD	National Strategy for Sustainable Development
O ₃	Ozone
ODA	Official Development Assistance
OEP	Operational 'Environment' Programme
OJG	Official Journal of the Government
OPCOM	Operational Programme 'Competitiveness'
OPE	Operational Programme 'Energy'
PAHs	Polyaromatic Hydrocarbons
PF	Pulverized Fuel
PFCs	Perfluorocarbons
PM ₁₀	Particulate Matter less than 10 microns in diameter
PGC S.A.	Public Gas Corporation S.A.
PPC S. A.	Public Power Corporation S. A.
PPP	Public Private Partnerships
PV	Photovoltaic
R&D	Research and Development
RAE	Regulatory Authority for Energy
RES	Renewable Energy Sources
SDR	Special Drawing Right
SES	Steam Electric Station
SF ₆	Sulphur hexafluoride
SME	Small and Medium size Enterprise
SO ₂	Sulphur dioxide
TEN	Trans-European Networks
TPES	Total Primary Energy Supply
TPF	Third Party Financing
UHVC	Ultra-high Voltage Centre
UNCSD	United Nations Commission on Sustainable Development
UNECE	United Nations Economic Commission for Europe
UNFCCC	United Nations Framework Convention on Climate Change
VAT	Value-added Tax
VOCS	Volatile Organic Compounds
WB	World Bank
WSSD	World Summit on Sustainable Development (Johannesburg, August-September 2002)
YPEHODE	Hellenic Ministry for the Environment, Physical Planning and Public Works

SIGNS & NOTES

. : decimal point

, : thousands' separator

EUR: euros (on average, as of November 2006, 1 euro = 1.28 USD)

USD: US Dollar

Chapter III: Industrial Development

■ Status

Greece has never been a major industrial power. Yet, the role of the secondary sector of the economy in Greece has played a crucial role in critical periods of the country's economic history, helping to absorb employment pressures during the transitional period from a traditional, agricultural economy to one with more complex and modern structures. The country's economy has quickly transformed itself from an agricultural one to one of services, with a brief post World War II interval of rapid industrialization. One can use different measures to try to assess Industry's relative weight in the economy of Greece and its evolution in the last few decades. The ones used below seem to more or less provide a consistent picture.

Employment in the industrial sector seems to follow a downward trend in recent decades. In 1993, 24.2% of the employment force was employed in the secondary sector of the economy. In 1996 this percentage had fallen to 22.9% while in 2001 it stabilized at 22.8%.

Using a different measure and time-span, notably, the most recent years, things seem little different, as indicated in Table 10.

Table 10: Industrial Sector Employment Indicator, Basis Year 2000 as 100%
(Source: National Statistical Service of Greece)

YEAR	2000	2001	2002	2003	2004
Percentage (%)	100.00	98.56	97.31	95.85	93.75

In 1970 the share of the Gross Domestic Product (GDP) generated in the secondary sector of the economy (i.e. mining, manufacturing, energy, and construction) was about 31%. In 1992 this same percentage had slipped to 26% while in more recent years it has increased to 22%. This downward trend can also be witnessed by excluding the construction sector.

In 1980, manufacturing, representing the "core" branch of the secondary sector in Greece, accounted for 17.06% of GDP. In 1990 this percentage had fallen to 16.70% and in the year 2000 it stood at 14.89%. Even so, manufacturing production actually rose throughout this period, in absolute numbers, except that its rise was smaller than the one of services. In 1980 manufacturing GDP stood at EUR 9.962 million, in 1990 it was EUR 10.544 million while in 2000 it was EUR 11.632 million.

The industrial sector (including energy but excluding construction) accounted for 14.8% of the GDP of Greece in 1995. In 1998 this percentage had slipped to 13.4% while in 2002 it was 12.7%.

Using the measure of "Value added" in industry, including energy, as a percentage of the total value added in the economy (Table 11), a similar picture of the gradual decline of industry in relative importance is presented. This indicator had remained steady at about 20-21% until 1986, when a continuous gradual decline started taking place.

Table 11: Value added * in industry, including energy (Source: OECD)

Year	1970	1986	2000	2001	2002	2003	2004
Percentage (%)	20.4	21.0	14.47	14.20	13.82	13.54	13.19

*Total value added is less than GDP because it excludes value-added tax (VAT) and similar product taxes

The overall picture is more or less similar to the one observed in all other OECD countries, though relatively more pronounced taking into account the country-specific particularities. For the case of Greece, this means that the primary sector still plays a rather important role, although declining, and that the share of services (in terms of value added) is even higher than that of most countries. Therefore, this leaves industry in Greece with a below average share of around 14% in 2001 when the OECD average for that same year stood at around 23%.

However, the abovementioned statistics should be interpreted by taking into consideration the following so as to not underestimate industry's importance in the overall economic picture of the country:

First, it should be noted that the decline of industry, and, vice-versa, the rise of service activities, is overstated to some extent because of the shift, in the last decade, towards outsourcing by industrial enterprises of service activities that were previously carried out internally and were thus recorded as value added by industry.

Second, and even more important, a large part of value added in the service sector is goods-related and consists of trade, transport and business services purchased by industry. Therefore, a high share of service value added does not necessarily reflect a shift to a service economy; the production, transport and distribution of goods remains a major, if not predominant, activity in terms of employment and value added.

Regarding the evolution of value added in industry (Table 12), a more dynamic picture of the sector's state is presented.

Table 12: Evolution of value added in industry * (Source: OECD)

Year	2000	2001	2002	2003	2004
Growth Rate (%)	5.422	6.681	2.097	5.987	0.386

* The growth rates shown here refer to value added at constant prices. Industry also includes energy and construction

A positive growth rate is witnessed for every year in the period examined. This could be attributed to the negative growth rates of the primary sector for all but one year and the positive growth rates for services.

However, the overall trend is clear and, coupled with an increase in the importance of the service sector, it has been an expected one, as the rise in living standards results to increases in the demand for services. At the same time, industry releases resources into the service sector, a consequence of the fact that the productive forces of the economy are finding more profitable or new areas in which to re-invest capital. Together with other EU countries, Greece faces the challenge of no longer being a cheap labour country and some of the older, labour-intensive industries have faced difficulties in adapting into the new global environment. Some have relocated, in whole or partly, to neighbouring Balkan countries, downsizing their activities in Greece, while others were not able to respond to the challenges posed by international competition. At the same time, however, these rough conditions have been a test for several Greek industries in recent years, which, in the face of these trends, have taken a more proactive approach, restructuring and re-organizing themselves in ways that make them more competitive in the international environment.

An example of this ability for adaptation, is the regional expansion of several Greek industrial corporations either in the form of acquisitions of foreign companies or in the form of direct investment in foreign countries. At the same time, a considerable "merge and acquisition" activity has been taking place. Food, mining, cosmetics and manufacture of basic metals and metal products seem to be some of the sub-sectors that have better and faster adapted to this new more competitive environment.

Between 1992 and 1998, the total number of industrial enterprises has been reduced by 35%, from over 8,000 to around 5,300. This reduction has not been accompanied by a respective reduction in industrial production, which presented only a slight decrease (3-5%) during the same period, with a trend to recover after 1996. The increasing share of larger companies (>50 persons) during this same time indicates that the main characteristic of this period has been the concentration of industrial production in larger units. In particular, only 15% of manufacturing enterprises employed more than 50 persons in 1992, while in 1998 this percentage had risen to 18%, with a 20% rise in 6 years.

From an environmental standpoint, this trend can be seen as facilitating both the adjustment of the Greek industrial sector to the increasing environmental requirements as well as the monitoring of the implementation of environmental policies.

In 2002, employment in manufacturing units of less than 20 employees, as a percentage of total employment in manufacturing, was 51.07%, while employment in manufacturing units of 20 employees or more, was 48.93%. This is a clear indication of the importance of small-medium enterprises (SMEs), particularly in manufacturing, as far as employment is concerned.

On the other hand, the percentage of value added in manufacturing units of less than 20 employees (excluding enterprises with less than 10 people employed) was 5.21% of total value added in

manufacturing, while the percentage of value added in manufacturing units of 20 employees or more was 94.79%, in the year 2002.

During the period from 1980 to 2000, there is a relative shift within the manufacturing sector of Greece from employment-intensive industries of consumer products to more capital-intensive or energy-intensive industries producing industrial products.

Location-wise, around one third of the total industrial units are concentrated in the Athens metropolitan area and 45% in the Attica Region. The smaller the size of the unit, in terms of employment, the larger is the concentration in the Athens area. Regarding units employing 10-19 persons, about 37% were based in the Athens area. For those employing 20-49 persons, this same percentage was 32%, while larger ones were even less concentrated around Athens (27%). Even more, these percentages are following a downward trend for all three size categories over the last couple decades. This path towards decentralization of industrial activity is regarded as highly positive as it reduces pollution pressures in the densely populated area of the capital. A licensing moratorium on new industrial activities in the Athens area that lasted for more than 15 years (Presidential Decree 84/1984) can be cited as one of the main reasons resulting to this shift. This moratorium has been lifted in recent years. In return, enterprises situated in the Attica Region must now undertake concrete measures to upgrade their environmental performance while those enterprises that have significant environmental impacts are required to adopt an environmental management system and to have it certified under either the ISO 14001 international standard or the EU Eco-Management and Audit Scheme (EMAS) Regulation, until 2010, according to Law 3325/2004.

Overall, the most important branches of economic activities in the industrial sector are: manufacturing, which in 2001 accounted for 12% of GDP and 14.4% of the total employment rate, and construction, which accounted for 7.2% of the GDP and 7.3% of the total employment rate.

The manufacturing industry includes a large number of SMEs, characterised by a high degree of flexibility and initiative. The majority of manufacturing firms are small family businesses and major branches traditionally included food and beverages, clothing, chemicals and plastics, oil and coal products, glass products and cement, while new industries emerge in information technology and telecommunications.

Additionally, Greece also has a small but growing number of enterprises active in the fields of recycling and pollution control or abatement, providing services to industry. Some of these are industrial enterprises themselves.

An example of the willingness on the part of industry to take initiatives in the environmental sector was the creation, in 1992, of the Hellenic Recovery and Recycling Association, at the initiative of the aluminium industry, at a time when no legislation on the subject had been introduced in Greece.

Energy consumption in and Environmental Pressure from the Industrial Sector

Regarding GHG emissions, the intensity of CO₂ emissions from industry has decreased by 23% in the 1990-2003 period, due to modernization investments realised in energy intensive sectors with significant exporting activity (e.g. cement, steel production etc) and the use of natural gas.

In absolute terms, emissions from industrial processes accounted for 9.1% of the total emissions and increased by 45% compared to 1990 levels. Emissions from Industrial processes are characterized by intense fluctuations during the period 1990 – 2003, reaching a minimum value of 8.53 Mt CO₂ eq in 1992 and a maximum value of 13.64 Mt CO₂ eq in 1999, that are mainly attributed to changes in industrial production. In total, the increase of emissions from industrial processes is mainly due to the increase of cement production and HCFC-22. The sector of solvents and other products use, with minimum contribution to total GHG emissions (0.1%), presents a small decrease.

Overall, the share of the industrial sector in atmospheric emissions is relatively low. The industrial sector was accountable for about 17% of CO₂ emissions, 16% of SO₂ emissions and 12% of NO_x emissions in 2000. Its share of NMVOCs and CO emissions was less than 5%.

In particular, trends indicate that emissions of NO_x from industrial processes decreased in the 1990-2003 period due to reductions in industrial production. CO emissions from industrial processes

remained almost constant during this same period while NMVOCs emissions from industrial processes decreased due to reductions in the production of certain products such as ammonia. Emissions from solvents were also decreased. SO₂ emissions from electricity generation, increased with a mean annual rate of 2.7% during the period 1990 – 2003. Yet, the operation of a desulphurisation plant at the Megalopoli electricity generation unit since 1998, resulted in the restriction of the increase of SO₂ emissions from power production. Emissions from industrial processes decreased due to reductions in industrial production (sulphuric acid production). SO₂ emissions have been clearly decoupled from industrial activity, while energy consumption and the rest of the gaseous emissions have not yet demonstrated such a trend.

Environmental pressures in urban areas are mostly related to transportation, as far as air quality is concerned, or to the service sector and residential uses when it comes to the exploitation of natural resources. Additionally, they are mostly located in certain large urban centres. Environmental impacts from industrial activities (whether they are located in urban or rural areas) are restricted through the use of Environmental Impact (EIA) Studies which are carried out by the installations' owners and then approved and audited by the competent authorities (see under "Decision-Making, Legal and Regulatory Framework, Policy Instruments and Measures").

■ Decision-Making, Legal and Regulatory Framework, Policy Instruments and Measures

Since 2003, the General Secretariat for Industry of the Hellenic Ministry of Development has prepared and enacted the following legislative acts related to sustainable development:

(i) Law 3325/11.3.2005 on the "Establishment and operation of industrial and enterprise installations in the framework of the principles of sustainable development and other provisions". The main target of this Law is to simplify the permitting procedure of industries and enterprises aiming:

- to strengthen enterprises and to improve the competitiveness of the Greek economy;
- to reduce bureaucracy;
- to reduce the time required for the permitting-process of entrepreneurial activities; and
- to guarantee a balance between entrepreneurial activities and environmental protection.

This Law is expected to result mainly in:

- substantial reductions of the time required for an enterprise to get a permit for an industrial plant's operation. It is estimated that about 70 to 75% of enterprises (low nuisance units) will be permitted in a time period varying from 10 to 30 days maximum;
- total permitting relief for small business units with total installed power of 22 kW maximum,
- the founding of a "Development Directorate" in the Ministry for Development and in every Prefecture of the country which will act as "One-Stop Shops" for the facilitation of investment plans;
- facilitation of the development process and the modernization of a large number of Greek enterprises in favor of the Greek economy and the environment.

(ii) MD 3727/724/5.8.2003 on the "Correlation of industrial and enterprise activity with the degree of nuisance described in urban planning legislation". The scope of this Decision is to correlate the industrial and enterprise activity classification with the degree of nuisance (high, medium, low) described in urban planning legislation. In this way, each type of industry is characterized for its nuisance according either to the installed power or the production capacity. The degree of nuisance determines, therefore, if a specific type of industry can be installed in a defined geographic area. MD 13727/724/2003 complements previous national legislation for the protection of the environment, such as Laws 1650/1986 and 3010/2002.

(iii) Law 3299/2005 on "Private Investment Incentives for Economic Development and Regional Convergence", which replaced Law 2601/1998. This Law provides economic incentives to enhance balanced development, increase employment, improve competitiveness, promote technological change and innovation, protect the environment, save energy and achieve regional convergence.

Moreover, under the Kyoto Protocol, the EU has agreed to reduce its collective GHG emissions by 8% below 1990 levels during 2008-2012. This target is shared among the 15 MS under a legally binding burden-sharing agreement. Thus, Directive 2003/87 established a scheme for GHG emission allowance trading within the EU (EU-ETS). Consequently, YPEHODE had developed and submitted to

the Commission of the European Union (CEU) the first National Allocation Plan of GHGs emission allowances (NAP) according to EU Directive 2003/87, for the period 2005-2007, after extensive public consultation. The first NAP of Greece was drawn up based on the Annex III criteria of the Directive and the guidelines set forward by the CEU. The NAP:

- provides a calculation of the total emissions rights for the aforementioned triennium and describes the methodology used;
- describes the rules for the rights' allocation by activity and installation and provides the table with the detailed allocation of rights for each installation;
- describes all relevant technical matters, including the potential for emissions reduction and the use of clean technologies;
- provides information on the rules for gaining access to the emissions allowances' market and on other legal/policy instruments.

NAP covers 141 existing installations and 27 new installations (new entrants) expected to operate during the 2005-2007 period and qualifying for emissions' trading. An allowance reserve is also created which is intended to cover possible unknown new entrants in the same period; 223.3 million allowances (covering 223.3 million tonnes of CO₂) are being allocated for the 2005-2007 trading period. Total CO₂ emissions from installations included in the EU-ETS are estimated at 228.1 Mt CO₂. Therefore, a 2.1% decrease of emissions is required by the installations that participate in the system. The NAP was officially approved with MD 36028/1604 (OJG 1216/B/1.9.2006). Moreover, a new NAP for GHGs emissions for the period 2008-2012 was set for public consultation on June 15, 2006; the final draft has consequently been prepared and submitted to the CEU in September 2006 while its final approval is pending.

EU Directive 96/61 concerning Integrated Pollution Prevention and Control (IPPC) aims to achieve integrated prevention and control of pollution arising from certain activities, mainly of large or medium-size, listed in Annex I of the Directive, the majority of which belong to the secondary sector. Transposition of the universal objective of Directive 96/61 into national legislation, was done by means of the following legislative reforms:

- (i) enactment of Law 3010/2002 (OJG 91/A/25.4.2002) which amended the framework Law on environmental protection (Law 1650/1986) in order to harmonise it with Directives 96/61 and 97/11;
- (ii) issuing of JMDs 15393/2332/2002 (OJG 1022/B/5.8.2002) and 11014/703/104/2003 (OJG 332/B/20.3.2003) in implementation of Law 3010/2002.

There are currently a total of 324 IPPC installations in the country. The granting of an environmental permit by the competent authority is dependent on the submission and approval of a Preliminary EIA Study, which takes into account the provision of measures for "the prevention of accidents, particularly from substance and technology usage". An EIA Study, submitted by the installation operator has to follow the basic principles of the Directive and it is considered as an integral part of the environmental permitting procedure by the competent authority.

Existing installations face the deadline of September 30, 2007, to demonstrate their compliance with the Directive's provisions. The Directive, as well as the resulting abovementioned national legislation, provides, inter alia, for the following:

- setting of limit values for emissions to air and water,
- minimisation of long-distance or transboundary pollution,
- protection of soil and groundwater,
- efficient use of energy,
- setting release monitoring requirements,
- prevention of accidents and limitation of their consequences,
- adoption of measures relating to abnormal operating conditions.

Furthermore, representatives of YPEHODE and the various industrial sectors (acting as national representatives), participate actively in the work of several technical Working Groups under the EU IPPC Bureau developing Reference Texts for Best Available Techniques (BAT) for each sector of activity. This ensures that all relevant parties are kept posted regarding any BAT-related development.

The Hellenic Environmental Inspectorate is the leading public authority in charge of assessing and reporting on environmental infringements. Inspection duties are partly decentralized, at the regional and local level, according to type of activity and installation's capacity.

Moreover, the most recent Development Law (Law 3299/2004) places great emphasis on special investments in the field of environment and technological equipment of companies through the introduction of innovations, the launching of new products and services and the support of research. Companies are, inter alia, state subsidized for implementing recycling programs while incentives have been set up for the relocation of heavily polluting companies (e.g. tanneries) into designated "Industrial and Entrepreneurial Areas".

Thus, one of the basic components of the new Development Law is the incorporation of environmental and energy concerns into the development process. In this regard, investment plans in the secondary sector that focus on the need for environmental protection, pollution prevention, energy savings and the use of renewable energy sources are eligible to be subsidized with a higher percentage of financial support than other supported plans.

For the energy sub-sector in particular, the fields in which investment plans are eligible for support include: (i) production of energy in the form of hot water or steam, (ii) production of biofuels or solid fuels from biomass as well as production of biomass intended to be used as a material for the production of energy, (iii) production of electricity from renewable sources of energy (RES) as well as the co-generation of electricity and heat (CHP). A minimum participation of 25% by the receiving entity itself has been established, in order to better ensure the successful completion and execution of the supported investment plans. The percentage of state support ranges from 13% to 55% depending on the type of the investment and the area where it will take place.

Competent authorities are required to assist in the evaluation of submitted investment plans. These may include YPEHODE, the Ministry of Development, the Ministry of Rural Development and Food, the General Secretariats of Energy and Industry of the Ministry of Development etc.

Special planning policies and instruments have also been formulated in respect to the siting of industrial plants, in order to both promote a better management of their environmental impacts and to facilitate their operation. "Industrial Zones", "Industrial Areas" as well as "Industrial and Entrepreneurial Areas" of different types have been established, at the legal level, and created on the ground. However, the predominant method for site allocation of industrial plants remains that of scattered location, obeying to specific permitting requirements but more flexible location-wise.

■ Strategies, Plans, Programmes and Projects

Greece adopted its existing National Strategy for Sustainable Development (NSSD) in 2002. This NSSD is currently being updated with a revision period to be completed by mid 2007. Among the key objectives of the 2002 NSSD, are the decrease in energy intensity and the decoupling of economic growth from energy usage, as well as the further introduction of RES and cleaner fuels in the energy and fuel mix. Special mention is made to the role of the secondary sector in this respect with the aim of rational use and conservation of energy focusing mainly on the industrial and building sectors, and the further promotion of the use of natural gas in the secondary sector.

According to the 2002 NSSD, the contribution of the industrial sector to environmental pressures is decreasing due to the lower degree of manufacturing expansion and the institutional changes that have been introduced, especially during the last decade, aiming at a more effective use of natural resources. Nevertheless, specific measures have been envisaged for further enhancing the industrial sector's environmental performances aiming at increasing its competitiveness, income and employment prospects, as well as its access to markets with high purchasing power and environmental awareness, within the globalised economy and the European markets.

To this end, the key priorities for action under the 2002 NSSD, that aim mainly at a shift from an end-of-pipe approach to an increase of the proactive-preventive measures, include: organisational and operational actions aiming at enhancing the production patterns and the products' supply chains; actions for energy conservation and increase of energy efficiency in the industrial sector (e.g. promotion of CHP and streamlining of industrial technologies); diversification of the fuels' mix towards a more extensive use of RES; diversification of the products' and energy mix; promotion of an integrated product policy with innovative changes in the design, production, recycling and use of products.

Additionally, the Operational Programme "Competitiveness" (OPCOM, 2000-2006) of the Hellenic Ministry of Development, incorporated in the 3rd Community Support Framework (CSF), also provides for: creation of new and extension of existing units for recycling; reuse and dismantling of

solid material and waste; further promotion of environmental management schemes (e.g. EMAS); promotion of pilot studies in key sectors for the identification of environmental costs and their internalisation in products' market prices; regular monitoring and assessment of the environmental performance of businesses with regard to their competitiveness and employment capacities; and pilot introduction of new economic instruments (e.g. green taxation, voluntary agreements, systems for pollution cost accounting and emission trading etc). These measures are being complemented with communication and awareness-raising campaigns and the full adaptation of the industrial sector to the new legal and institutional framework.

Regarding physical planning in Greece, YPEHODE is currently further developing the country's national physical planning framework, in the context of which 4 studies are being implemented under the Operational "Environment" Programme (OEP, 2000-2006) through funding from the 3rd CSF.

This is particularly important for industry, since one of the major obstacles often raised by companies of the secondary sector seeking to do business in Greece, until now, was the uncertainty regarding siting requirements for their plants and the resulting lengthy and complicated permitting procedures. The adoption of a coherent and integrated physical planning framework, coupled with other licensing simplification measures, is expected to change this picture and remove burdens from individual companies, thus acting as a significant catalyst for economic growth.

The 4 abovementioned studies regard the development of the "General Physical Planning Framework/National Spatial Plan for Physical Planning and Sustainable Development" as well as the development of 3 "Special Spatial Plans for Physical Planning and Sustainable Development" for 3 important sectors for the country's economic growth and development (i.e. "Industry", "RES", "Tourism"). The procedure for assigning the studies for these 3 Special Plans (technical specifications, tendering, evaluation of proposals, contractors' identification) has been completed in 2005, whereas the related procedures for the "General National Plan" were completed in 2006. To date, the first phases of all 4 studies have been already completed while conduction of the second phases is underway to be soon followed by public consultation processes and the consequent enactment of the 4 Plans. The first draft Plan expected to be ready for presentation to the public is the one for RES (due January-February 2007). The budget allocated to the "General National Plan" is EUR 476,000 while to the "Special Plan for Industry" is EUR 190,400.

In parallel and since 2005, the enactment of 2 additional Special Frameworks for Physical Planning and Sustainable Development for "Coastal Areas" and "Mountainous Areas" are also being promoted in Greece. For these 2 issues, the corresponding JMDs have been drafted and their finalisation is pending according to the outcomes of the abovementioned 4 studies under conduction.

The enactment of the abovementioned "National Spatial Plan" is expected to considerably contribute to the promotion of economic growth, social cohesion protection of natural and cultural environment as well as coordination and harmonization of all specific developmental policies, programmes and investments implemented by the public sector and local authorities, with important impacts on cohesion and growth, on the national level, that consequently affect private investments. The enactment of the 3 "Special Spatial Plans" for Industry, RES and Tourism is expected to complement and support the adaptation of physical planning and related national policies to new approaches and emerging challenges, with a view to identify new opportunities for growth, investments, enhancement of competitiveness and effectiveness of activities as well as environmental safeguarding. Finally, the enactment of the 2 additional "Special Frameworks" for Coastal and Mountainous Areas is expected to lead to a more in-depth specialisation of national policies and orientations according to existing and on-going policies of the EU and International Organisations.

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

Information, Awareness-raising, Capacity-Building

The Centre for Renewable Energy Sources (CRES), the Greek national entity for the promotion of RES, rational use of energy and energy conservation, has carried out a study for establishing and building a "Center of Energy and Environmental Management" in the Industrial Area of Thessaloniki. This project is part of the OPCOM (2000-2006) (Measure 2.1.1). The Centre will aim to provide services in the aforementioned areas in the related industries of the Industrial Area, while the project will be generally useful for all Industrial Areas in the country.

The Athens Chamber of Commerce and Industry (ACCI) is also being very active in the information and awareness-raising field. In this regard, it participated in the regional workshop on "Environment as an economic opportunity" organized in Milan, on May 17, 2004 as well as in the three subsequent workshops held in this respect in London, Budapest and Paris. Their main objective was to promote eco-efficient innovations as an economic opportunity for Europe. Results of the four regional workshops were included in several EU Council Conclusions. Since then, the ACCI also participates in the respective discussion forum established while it has created an informal database for examples of eco-efficient innovations in Europe.

Furthermore, the ACCI has undertaken a series of activities related to information dissemination regarding solid waste management and recycling under Law 2939/2001 that foresees that Greek industrial and commercial enterprises organize and finance collective systems for the recycling of several priority waste streams, namely packaging, electrical-electronic equipment, end-of-life vehicles, lubricant oils, demolition waste, tyres, batteries and accumulators. In this respect, the ACCI, has played a critical role in the implementation of the specific legislative framework by undertaking policy making and information dissemination activities, focusing mainly on the recycling fee as well as on related infrastructure requirements. In cooperation with YPEHODE, ACCI provides for these matters useful clarifications and assistance to its member-companies.

As far as information dissemination is concerned, the ACCI has organized a two-day workshop in cooperation with the Hellenic Solid Waste Management Association under the overarching theme "Recycling of priority waste streams: the role of business". During the workshop the respective legislation was comprehensively presented as well as the organization and implementation of the collective management systems was shown and analyzed to an audience of more the 400 major companies. Moreover, it prepares and publishes regularly several articles regarding the obligations of businesses for recycling priority waste streams, in the information bulletin of the ACCI.

Education – Training

High levels of employee education are positively correlated with higher productivity and with higher profits for enterprises according to several studies. The Federation of Greek Industries (FGI), together with several other social actors, have acknowledged the need for a higher level of education and training of employees and the positive effect that this would have in their operation. Yet, a very large percentage of Greek companies are very small or small-medium in size. This, despite the obvious advantage of higher flexibility, can be an impediment in their quest to further develop the qualities of their personnel as investing in human resources often comes second after more pressing needs.

The current relatively low levels of training and continuous education, indicate the potential for a significant change of course that could greatly benefit the Greek industrial sector as it is striving to move from a labour and capital-intensive stage to the knowledge-based economy.

To address such eminent issues, the response of Greece has been two-fold:

- (i) As the small size of the average Greek company can be one of the factors that discourages investment in personnel training and continuous education initiatives, training has been greatly state supported and encouraged within all CSFs and particularly the 3rd CSF.
- (ii) The simplification of licensing, tax and other administrative procedures, is also expected to relieve some of the burden from companies and assist their effort to abide by legal requirements and to address "bureaucratic" obligations. This is also expected to enable them to redirect their resources in more productive and capacity-building activities, such as investment in human resources. Both the Ministry of Development and YPEHODE are taking concrete steps in this direction, helping in streamlining procedures but also in the better prevention of pollution.

Certification of Environmental Management Systems

A review of the progress of the Hellenic EMAS Registry operated and maintained under YPEHODE, indicates that a rising number of Greek organizations has implemented an Environmental Management System (EMS) and has had it certified under the EU "Eco-Management and Audit Scheme (EMAS)". All but five of the organizations registered so far belong to the secondary sector of

the economy and their number is expected to rise further more if the current trend continues (see Table 13 below).

Table 13: Hellenic EMAS Registry – Progress of Registrations

Date	Number of Active Registrations
January 2000	1
January 2001	1
January 2002	8
January 2003	9
January 2004	10
January 2005	10
January 2006	27
November 2006	51

An even larger number of enterprises have chosen to register their EMS under the ISO 14001 standard.

The implementation of an EMS has proven to have a two-fold effect in Greece: First, organizations become aware of the environmental aspects of their activities and adopt a pro-active stance in assessing and dealing with them, bringing them under control and, if possible, eliminating them. Secondly, since the certification of an EMS can be a very useful public relations' tool, certified organizations have every interest in publicizing the existence of their EMS and their environmental achievements. Therefore, the existence and certification of an EMS becomes a very effective method of awareness-raising for the whole population, as well as for the registered organization's own personnel. Closing the loop, other, competing organizations may then feel the pressure to adopt an EMS as well, so as to not loose market share. It is in this respect, that the Greek Ministry of Development has taken the initiative of supporting financially (see "Financing") the adoption and certification of EMSs and the production of eco-friendly products and services. The EU EMAS certification scheme in particular, is run with the support of YPEHODE.

Certification of Environmentally – Friendly Products

The European Eco-Label certification has so far been awarded to 128 products of 21 industrial enterprises. The product categories are bed mattresses (50 products of 6 different companies), colors and outdoor varnishes (46 products of 8 different companies) and textiles (32 products of 8 different companies). The Eco-Label Scheme is administered in Greece by a Special Council set up for this reason since 1996 and supervised by YPEHODE.

■ Research and Technology

Research and development expenditure financed by industry in relation to industrial output was estimated at 0.19% in 2001 in Greece. However, the removal of regulatory burdens with already taken initiatives described above is expected to facilitate the Greek industry's efforts further in this domain.

Even though, R&D expenses have been relatively low in Greece, the trend is towards bridging the gap with other EU countries. Indicatively, the share of the government budget allocated to R&D for 1999 was 0.76% for Greece but the real growth rate recorded between 1995 to 1999 was 2.87%, above the EU average.

The share of SMEs in publicly funded R&D executed by the business sector is particularly high in Greece (72.84% in 1997) as it is in most small countries, since the majority of enterprises are in this size category.

Moreover, regarding energy efficiency in the industrial sector, CRES implements innovative projects and significant activities for the promotion and market penetration of new energy technologies, some of which are of particular interest to businesses. Indicatively, CRES has participated in:

- a project on an "Experimental Plant for Electric Energy Production from Wave Energy" (2001-2004) under the sub-Programme for "Development of Industrial Research and Rechnology" of the OPCOM (2000-2006),
- a HELSOLAR project aiming to "develop ties between industry and research bodies on promoting Photovoltaic systems",

- the "fuel cells testing and standardization network –FCTESTNET" aiming to create a network of research bodies and industry for R&D and on fuel cell technologies and
- an ALTENER project on "Solar Thermal Process coupled with Heat Recovery technologies in the Industrial Sector" (PROCESOL II)".

■ Financing

A number of environmental and industry-related projects are eligible for financing under the 3rd CSF. The Operational Programme "Competitiveness" (OPCOM, 2000-2006) has been launched by the Hellenic Ministry of Development with the purpose of assisting Greek enterprises to modernise and enhance their competitive position in the regional, European and world markets. A central feature of the OPCOM is to support entrepreneurship in such areas as new technologies, the RES market and environmental protection. OPCOM is also committed to funding actions for business modernisation, especially to SMEs engaged in manufacturing and processing. Ministry of Development is also promoting projects to upgrade infrastructure and conditions in designated industrial areas, the national quality system, energy infrastructures and regional structures providing information, consultation, education and management support to businesses, in particular SMEs. Along with OPCOM actions and projects, Ministry of Development is promoting several structural and institutional reforms in order to streamline the business environment, promote long-term development of the national workforce, and make optimal use of the country's natural and energy resources.

The General Secretariat for Industry of the Ministry of Development is responsible for a series of specific measures and activities that deal directly with issues of sustainable development in the Greek industrial sector. Especially, Measure 2.9 entitled "Environmental Plans and Co-operations" deals with the financial support of SMEs in the:

- effectuation of environmental schemes that result in Ecolabel, EMAS and ISO 14001 certification;
- proper management and utilization of waste through the long-term cooperation of enterprises;
- development of waste treatment plans in order to face severe environmental problems;
- prevention and treatment of large-scale industrial accidents.

Until now a large number of companies have been granted support for investment plans in the area of environmental protection and sustainable development.

Local Chambers of Commerce and other socio-economic partners have taken part in the process of formulating particular calls under the Ministry of Development, providing their expertise. For example, the ACCI has supported Ministry of Development in creating comprehensive calls for finance in the field of waste management infrastructure by making specific proposals for the nature of priority solid waste streams, the need to finance management systems (quality, environment, health and safety), to consider spatial planning issues, etc. It has also supported the same Ministry in creating the call for financing environment clusters under the OPCOM, namely between industrial companies facing common or complementary environmental challenges.

Additionally, the Operational Programme "Employment" (2000-2006) of Greece, within the 3rd CSF, and in particular under its priority axis 4, provides for the "Development and promotion of entrepreneurship and adaptability of the work-force". Among the measures identified as eligible for support are some that could apply, directly or indirectly, to the secondary sector such as: (i) Establishment of new enterprises with the participation of more than one unemployed persons with particular emphasis to the backing of unemployed persons for self-employment in the environment sector, (ii) Training of self-employed persons in the secondary sector, and (iii) Training of employed persons in enterprises. The total cost of priority axis 4 for 2000-2006, amounts to EUR 510 million with the respective public expenditure (i.e. national and EU funds) being EUR 435 million.

The Operational Programme "Environment" (OEP) (2000-2006), also launched under the 3rd CSF, aims at the amelioration of the natural and built environment with a wide-range of measures intended to serve as a basis for the application of sustainable development principles. These measures are classified under 10 priority axes, some of which apply to industry. Projects that have been approved for financing and are already under implementation include, inter alia:

- Enriching of the aquifer of the Industrial Area of Thessaloniki with the recovered/processed output of the Secondary Treatment Plant;
- Procurement of appropriate vehicles and equipment for dealing with industrial accidents, on behalf of the Fire Service of Greece;

- Informing the public on appropriate responses in cases of large-scale industrial accidents;
- Development of supporting tools for identification and response to pollution from point sources according to the requirements of the IPPC EU Directive.

Moreover, the most recent Development Law (Law 3299/2004) places great emphasis on special investments in the field of environment and technological equipment of companies through the introduction of innovations, the launching of new products and services and the support of research. Companies are, inter alia, state subsidized for implementing recycling programs while incentives have been set up for the relocation of heavily polluting companies (e.g. tanneries) into designated "Industrial and Entrepreneurial Areas".

■ Cooperation

Greece contributes to the global effort for promoting sustainable development through its development assistance and cooperation policy. The protection of the environment and natural resources is a major goal, explicitly recognized by HELLENIC AID's "Second Medium Term Five-Year Development Cooperation Programme" (2002-2006). Industrial development in the context of sustainable development is promoted, in this respect, mainly in two key fields:

(i) improving the operation of SMEs, in a number of recipient countries, with a total budget of USD 5.75 million, for the period 1999 –2003, and

(ii) training and capacity building for export promotion and trade facilitation.

The amount allocated to these projects for 1999-2003 was of the order USD 2.92 million, and directed mainly to Balkan and Mediterranean partners.

Regarding international trade, Greece and its neighboring countries are in a constant phase of development, serving, inter alia, as a pillar of regional co-operation and stability. Greek exports, a large part of which entails industrial products, increased to EUR 13.96 billion in 2005 with neighboring (mainly Balkan) countries absorbing the majority of related resources. Bulgaria was the 4th leading export destination for Greek products, with Turkey taking 6th place, Romania coming in 10th, Albania 11th and FYROM 13th.