

## CHAPTER I: Chemicals

### I Introduction

This chapter provides information on the different aspects of chemicals policy in Greece. The Greek chemicals industry mainly comprises small and medium sized enterprises, based on international standards. There are approximately 320 companies active in the chemicals sector, with about 19,000 employees with a high educational level. The chemical industry of Greece accounts for 7.74% of the country's industrial production and the overall turnover of the sector is EUR 2.5 billion. The chemical industry accounts for 15% of the total exports of Greece. Hellenic Petroleum S.A. (HELPE) is the largest industry of the sector, with a turnover of approximately EUR 1.2 billion. Since 2008 the chemical industry has been negatively influenced by the financial crisis and the production index had a negative sign for the period 2007-2009 (-4.8% for the period 2007-2008 and -13.3% for the period 2008-2009, mainly due to the internal demand), while it is expected to be stabilized in 2011.

The main network of industries and companies active in the chemicals sector in Greece is the Hellenic Association of Chemical Industries (HACI - [www.haci.gr](http://www.haci.gr)) which was founded in February 1994 by the 28 biggest chemical - production, -storage, and -trading companies in Greece. Since June 1994, the Hellenic association of Chemical Industries is a full member of CEFIC (European Chemical Industry Council), based in Brussels. An overview of the main legislative and policy instruments as well as some key projects and programmes are described in the following sections.

### I Decision-Making, Legal and Regulatory Framework, Policy Instruments

#### Chemicals Policy and Legislation in Greece

The government's institutional focus for chemicals management is the General Chemical State Laboratory (GCSL - [www.gcsl.gr](http://www.gcsl.gr)) under the Hellenic Ministry of Finance. The GCSL maintains a National Register of Chemical Products and serves as the national focal point for several chemical issues. GCSL is a General Directorate, whose mission comprises:

- Provision of scientific and technical support to the Customs, Tax and Revenue authorities and other services of the Ministry of Finance and Economy.
- Support the State's financial interests.
- Protection of public health and the environment.
- Protection of health and interests of consumers.
- Provision of scientific support to judicial, police and other state authorities.
- Support of the proper function of the market.

GCSL was established in 1929 by Law 4328, by virtue of which all laboratories operating in the public sector at that time were united. This led to the creation of a powerful scientific / laboratory unit which soon evolved to become the most important product / quality control system in Greece. Article 11 of Law 2343/1995 states all the responsibilities of the GCSL, as currently established. The Central Service of the GCSL consists of 7 Divisions, namely: Division of Personnel and Technical Support, Division of Food, Division of Environment, Division of Petrochemicals, Division of Raw Materials and Industrials Products, Division of Alcohol, Alcoholic Drinks, Wine and Beer and Division of Technical Tariffication. GCSL has 51 regional services (Chemical Departments) which are distributed all over the country. Out of these, 37 operate at Division level and 14 at level of Independent Section. In addition, within the framework of GCSL, two collective bodies operate:

- A. The Supreme Chemical Council of the State, which carries out legislative work, mainly regarding issues of specifications and rules of product distribution, and
- B. The Board of Directors of the Special Fund of Quality Control and Production of Alcohol and Alcoholic Drinks, which manages the operational expenses of GCSL.

More information on the Supreme Chemical Council of the State and on its legislative work is provided in GCSL's web-page: [http://www.gcsl.gr/index.asp?a\\_id=49](http://www.gcsl.gr/index.asp?a_id=49).

The GCSL is also responsible for the inspection/monitoring of chemical safety by analysing samples (e.g. from detergents, fertilisers, leather/paper materials, mining, plastics, petrochemicals, food – for pesticides or other contaminants – oil pollution samples, environmental samples, waste, industrial material etc.) on a continuous basis. Such analyses are performed either under national programmes

for market control or under protocols of cooperation for focused sampling or with respect to examination of individual samples sent to GCSL for analysis.

There is a close cooperation / co-competency of GCSL with other Ministries or institutions responsible for specific sectors and subjects linked to chemicals. These include the Hellenic Ministry of Rural Development and Food - [www.minagric.gr](http://www.minagric.gr) (e.g. for agricultural issues / pesticides, Rotterdam Convention) and the Hellenic Ministry of Environment, Energy and Climate Change (YPEKA – [www.ypeka.gr](http://www.ypeka.gr)) (for issues related to pollution, persistent organic pollutants (POPs) etc.). Furthermore, the National Organisation for Medicines (EOF - [www.eof.gr](http://www.eof.gr)) (e.g. for medicines, cosmetics, deodorants, specific food issues) and the Hellenic Food Authority (EFET - [www.efet.gr](http://www.efet.gr)), both of which fall under the Ministry of Health and Social Solidarity ([www.yyka.gov.gr](http://www.yyka.gov.gr)), which is also the competent authority in relation to health effects from chemical pollution and to the quality of drinking water.

Due to the specific characteristics of the sector of chemicals, the chemicals policy is mainly regulated by European Community law. Many of the recent EU regulatory instruments are Regulations; it should be noted that European Union Regulations are legally binding directly for the EU Member States, such as Greece (without the need for transposition in the national legislation). Greek national legislation also exists for several issues related to chemicals.

### **Registration, Evaluation and Authorisation of Chemicals (REACH) and Classification, Labelling and Packaging of substances and mixtures (CLP)**

Greece's efforts to ensure sound environmental management of chemicals and other toxic substances involved in international trade have, in recent years, been focused largely on the transposition and implementation of EU directives and regulations. This has involved, in particular, the comprehensive EU REACH system (Registration, Evaluation, Authorisation and Restriction of chemicals). The REACH Regulation (EC) 1907/2006, which entered into force on 1 June 2007, aims to improve the protection of human health and the environment in Europe through the better and earlier identification of the intrinsic properties of chemical substances. At the same time, REACH aims to enhance innovation and competitiveness of the EU chemicals industry. Under REACH, which brings together some 40 EU laws on chemical safety into one system, and fills earlier gaps, the chemicals industry must report systematically on the safety of chemicals produced or imported in large quantities. Furthermore, public access to information on chemical safety is to be expanded significantly. The European Chemicals Agency (ECHA) located in Helsinki under the EU REACH legislation oversees the programme and receives reports from EU member states on their implementation progress. Several decisions of the Supreme Chemical Council of the State are related to the implementation of the REACH Regulation. The General Chemical State Laboratory (GCSL) / Division of Environment handles and enforces the legislation concerning dangerous substances, preparations and articles. It is the competent national authority for the implementation of REACH regulation, and houses the national helpdesk for REACH. (see <http://www.gcsl.gr>). Furthermore, HACI, through one of its members (Sustchem - [www.sustchem.gr](http://www.sustchem.gr)), has also developed a toolkit to assist chemical companies with respect to the REACH Regulation (see <http://www.haci.gr/ReachRule.htm>).

The GCSL / Division of Environment is also the competent national authority of the CLP Regulation (EC) 1272/2008 on Classification, Labelling and Packaging of substances and mixtures, which was put in effect on 20 January 2009. The CLP Regulation is a European Union regulation which complements the REACH Regulation and aligns the European Union system of classification, labelling and packaging chemical substances and mixtures to the Globally Harmonised System (GHS). Other recent national legislation related to the implementation of the CLP Regulation include JMD 3015811/2633 (OJG/1410/B/6.9.2010) and JMD 287/2010 (OJG 1726/B/3.11.2010).

In order to enforce the above mentioned legislation the followings national actions are taken:

#### *(1) Inspections*

The GCSL carries out inspections of companies producing, importing and distributing substances, mixtures and articles in the national territory and performs controls during imports of these goods at the borders in cooperation with Customs Authorities. The inspections are performed by a network of inspectors, who are properly trained officials of the GCSL with experience in chemicals legislation. The inspections are usually announced to the companies beforehand, are planned in an annual basis and are executed by the regional Chemical Departments of the GCSL with the co-ordination and supervision of the Division of Environment. The findings of each inspection are communicated to the inspected company after the completion of the inspection; in case of non-compliance with the

requirements of the legislation, sanctions are imposed according to law. In the framework of REACH regulation approximately 70 inspections were conducted in 2010, while in the framework of CLP approximately 100 inspections are conducted each year.

#### (2) National Register of Chemical Products

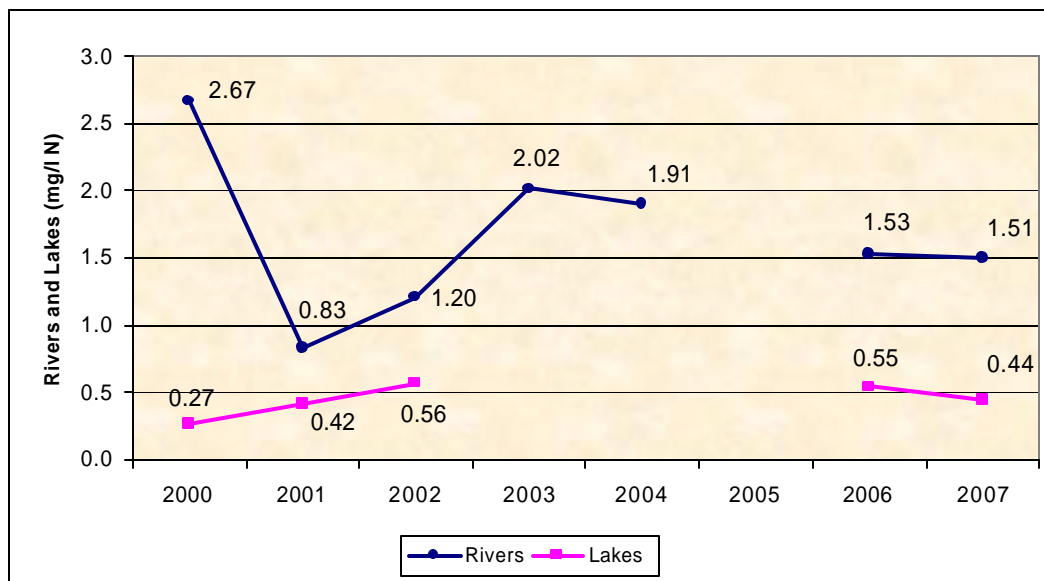
The National Register of Chemical Products apart from the registration of chemical products includes information concerning the chemical composition of chemicals which are placed in the market and are considered dangerous on the basis of their health effects or their physicochemical effects. It was created according to article 17 of Directive 1999/45/EC, concerning the approximation of laws, regulations and administrative provisions of the Member States relating to the classification, packaging and labelling of dangerous preparations, as it is implemented in the national law with the "Decision of the Supreme Chemical Council No. 265/02". Therefore, the registration procedure applies to all chemical preparations classified and labelled as dangerous due to their physicochemical or health effects.

The registration of a dangerous product can take place either before or in a short time after it is placed on the Greek market. The person that is legally liable for placing the product on the Greek market, i.e. either the producer or the importer or the distributor, must submit to GCSL/ Division of Environment the registration together with the relevant Material Safety Data Sheets (MSDS). There is no minimum size/sales limit for companies to register. Especially for detergents and cleaning products the registration is done to the Division of Raw Industrial Chemicals of GCSL. The registered product is assigned an identification number (ID no) that is used for any future reference but it is not obligatory to be printed on the label.

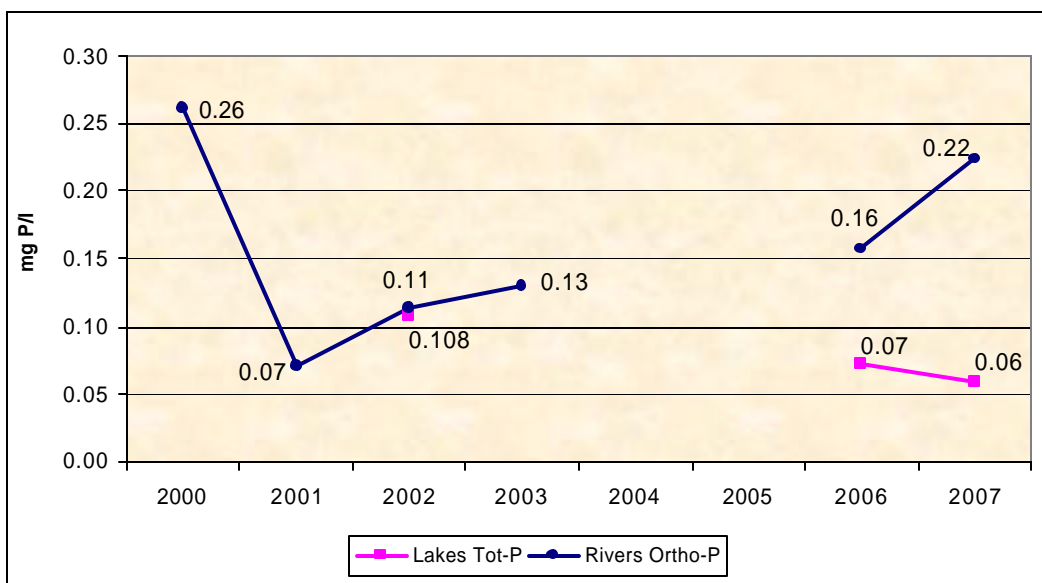
#### Agricultural chemicals – nitrates pollution

The nitrate concentrations in groundwater bodies generally reflect the relative importance and intensity of agricultural activities above them. Mean nitrate concentrations in groundwaters are above the background levels (10 mg/l  $\text{NO}_3$ ), but well below the parametric value of 50 mg/l  $\text{NO}_3$  (Drinking Water Directive). Between 2000 and 2007, the annual average nitrate concentrations in Greek rivers decreased by approximately -43.5% (from 2.67 to 1.51 mg N/l), reflecting the effect of measures to reduce agricultural inputs of nitrate. Nitrate levels in lakes are generally much lower than in rivers and vary between 0.27 mg N/l and 0.44 mg N/l over the period 2000-2007. The number of monitoring stations in lakes increased from 13 stations in 2000 to 26 stations in 2007 (Figure 1.1). Phosphorus concentrations in Greek rivers and lakes have generally low levels over the period 2000-2007 (Figure 1.2).

**Figure 1: Nitrate ( $\text{NO}_3$ ) concentrations in Greek freshwater bodies, 2000-2007**



Source: National Centre of Environment and Sustainable Development (NCESD), 2010

**Figure 2: Phosphorous concentrations (OP or TP) in Greek freshwater bodies, 2000-2007**

Source: National Centre of Environment and Sustainable Development (NCESD), 2010

More specifically, after the 1997 incorporation of EU Directive 91/676 “for the protection of waters from nitrate pollution caused by agriculture” (arising mainly from the use of nitrogen fertilisers), in the Greek national legislation with JMD 16190/1335/1997 (Official Journal of the Government - OJG 519/B/1997), JMD 19652/1906/1999 (OJG 1575/B/1999) and JMD 20419/2522/2001 (OJG 1212/B/2001), criteria for determining the level of risk of nitrate pollution of inland waters by agriculture were drawn up and specific areas to be particularly protected due to their vulnerability were designated as follows:

- i. Surface waters (especially water used or allocated as drinking water), whose nitrate load exceeds or may exceed the threshold values set by JMD 46399/1352/1986 regarding “drinking water”. This category features the basin of river Pinios of the Ilia Prefecture in Peloponnesus.
- ii. Ground waters, whose nitrate load exceeds or may exceed 50 µg/l. This specific category features the aquifers of the Thessaly plain, the aquifers of the Kopaida and Argolic plains, the groundwater of the basin of Pinios river in Ilia, the groundwater of the basin of Strimonas river as well as the aquifers of the Arta – Preveza plain (i.e. the groundwater of the basins of Louros and Arathos rivers).

The first two categories (i and ii) also include the surface and ground waters of the Pella – Imathia plain around Thessaloniki that encompass the basins of the Aliakmonas, Loudias, Axios and Gallikos rivers, the lakes of Lagada and Volvi as well as the surface and ground waters of South Kilkis area.

- iii. Lakes and river deltas as well as coastal and sea areas that are prone to eutrophication. This category includes the waters of Pagasitikos bay.

Following JMD 19652/1906/1999, a catalogue featuring at first 4 zones vulnerable to nitrate pollution was compiled, in accordance with the article 3 of Directive 91/676/EC, which included the areas of i. Eastern and Western Thessaly, ii. the Kopaida plain, iii. the Argolic plain and iv. the basin of Pinios river of Ilia. Furthermore, following JMD 20419/2522/2001, the catalogue was updated with 3 more areas: v. the area of the Thessaloniki -Kilkis -Pella -Imathia Prefectures, vi. the basin of Strimonas river and vii. the Arta–Preveza plain. Therefore, 7 vulnerable zones have been enacted to date. The JMD on nitrate pollution regarding sensitive areas was recently amended (OJG 1132/12.6.2008); JMD 19652/1906/1999 was complemented by JMD 106253/8.11.2010 (OJG 1843/B/24.11.2010).

In compliance with article 5 of Directive 91/676/EC, Greece, as part of its agro-environmental policies, has enacted and set up 7 Action Plans, one for each of the abovementioned 7 overall designated vulnerable zones, aiming at their protection from nitrate pollution. These specific Programmes

incorporate a set of rules and obligations for farmers situated within the designated vulnerable zones. More specifically, they enact:

- the application of a threshold for maximum nitrogen fertilisation of soils according to the type of cultivations, the soil type, climatic conditions, the ground's slope, irrigation needs and practices etc in order to prevent fertilisers' excess, surface runoffs or leachates;
- the deployment of sustainable irrigation practices and well designed irrigation schemes to prevent irrational use of water and soil sliding;
- the safe and sustainable disposal of agricultural / animal breeding waste aiming at reducing nitrate point pollution;
- the maintenance of wild flora during autumn and winter especially on slopes so as to reduce nitrate surface runoffs;
- the deployment of high safety measures for fertilisers' transport and storage.

In compliance with article 4 of Directive 91/676/EC on nitrate pollution in Greece and aiming at safeguarding the quality of all water bodies in the country, Ministerial Decision (MD) 85167/820/2000 (OJG 477/B/2000) established the "Code of Good Agricultural Practices related to the protection of water bodies against nitrate pollution caused by agriculture". The measures foreseen in the Code are compulsory within the vulnerable zones to nitrate pollution (as specified above under bullet points i, ii, iii), whereas for the rest of the country, the implementation of the Code is on a voluntary basis, its aim being the safeguarding of a generally good quality status of all water bodies of the country. The Code also aims to assist farmers to shift to more environmentally-friendly practices which will allow them to secure their income while reducing nitrate pollution mainly as result of fertilisers used in cultivations. More specifically, the Code aims at:

- Reducing nitrate concentrations in surface and groundwater due to agricultural runoffs and leachates;
- Providing guidance and regulations as regards to the storage and transportation of the fertilisers, the quantity, use and application to nitrogen fertilisers;
- Providing guidance to farmers on proper water management practices, i.e. irrigation schemes, water conservation etc;
- The proper and safe use of pesticides;
- The proper handling and disposal of agricultural/animal breeding waste so as to safeguard both environmental quality and public health.

Moreover, regarding irrigation water, national policy focuses on formulating and implementing an integrated national scheme, encompassing agronomic, water and environmental policy objectives, which promotes the rational use of water, aims to improve irrigation efficiency and practices in both communal and private irrigation networks and ensures that all water abstractions are properly licensed. This scheme focuses at gradually replacing groundwater takes by surface waters.

### **Ozone -depleting substances**

Greece is a Party to both the Vienna Convention on the Protection of the Ozone Layer and its Montreal Protocol on Substances that Deplete the Ozone Layer (Law 1818/1988, OJG 253/A/15.11.1988), which regulate at an international level the production and consumption of Ozone Depleting Substances (ODS). Greece has subsequently acceded to four amendments adopted by the Parties to expand the scope of chemical coverage, tighten controls of ODS, and improve the scientific and technical basis for control decisions (London, 1990; Copenhagen, 1992; Montreal, 1997; and Beijing, 1999). EU Member States are also bound by Regulation (EC) 2037/2000, which has phase-out targets going beyond the requirements of the Montreal Protocol for the production and consumption of ODS including CFCs, halons, HCFCs and methyl bromide. Greece transposed the 2000 EU Ozone Layer Regulation into national legislation in 2007 through a JMD (OJG 1827/?/11.9.2007) and moved quickly to fully comply with the range of EU obligations. A central licensing system was established to control permitted trade of ODS. Inspections of imports and exports are performed by Greek customs authorities who are authorised to specify penalties according to a 'code of illegal trade'. Unlicensed ODS are returned to the country of origin at the importers expense. Recovery of banned ODS from end-of-life vehicles and electrical/electronic equipment is now receiving priority attention. Banned chemicals are sent to other EU countries that have approved facilities for ODS destruction, consistent with the Greek waste management legislation and international regulations. Transboundary movements are overseen by the Solid Waste Management Department of YPEKA. Other recovered ODS, appropriate for recycling or recovery, are either sent abroad or forwarded to licensed Greek facilities which are monitored by the Environmental Inspectorate.

## Management of industrial risk

A series of industrial and –in general technological – accidents worldwide has led in identifying safety as a major aspect of any activity. In response to this need, a number of international Organisations and Treaties have developed legal instruments to promote safety and accident prevention and to define appropriate processes to ensure human protection in the case of an accident. This led to European Union Directive 82/501/EC, better known as “Seveso” Directive. The Seveso Directive was revised by EU Directive 96/82/EC (the “Seveso II” Directive), which has fully replaced its predecessor, introducing new concepts, such as a revision and extension of its scope, the introduction of new requirements relating to safety management systems, emergency planning and land-use planning and a reinforcement of the provisions on inspections to be carried out by Member States. In the light of more recent industrial accidents and studies on carcinogens and substances dangerous for the environment, the Seveso II Directive 96/82/EC was amended (and extended) by the Directive 2003/105/EC. A number of Guidelines have been published to ensure a more efficient implementation of the Directive in EU Member States. In Greece, the Seveso II Directive is implemented through JMD 12044/613/19.3.2007 (OJG 376/B/19.3.2007), as amended in OJG 2259/B/27.11.2007. The competent authority for the Seveso II Directive is YPEKA. Further information is provided in the site of YPEKA (<http://www.ypeka.gr/Default.aspx?tabid=548&language=el-GR>). 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.

Another instrument related to industrial risk is the 1992 UNECE Convention on the Transboundary Effects of Industrial Accidents (Helsinki Convention). The Convention is designed to protect people and the environment against industrial accidents, aiming at preventing accidents from occurring, or reducing their frequency and severity and mitigating their effects if required. The Convention promotes active international cooperation between countries, before, during and after an industrial accident. Greece ratified the 1992 UNECE Convention on the Transboundary Effects of Industrial Accidents (entered into force on 19 April 2000) in 1997 (Law 2546/1997, OJG 256/?/16.12.1997).

## Heavy metals and other chemicals in water and air

The legal framework for dangerous substances was initially established in the EU by Directive 76/464/EEC on pollution caused by certain dangerous substances discharged into the aquatic environment. More recent EU legislation on water quality includes Directive 2006/11/EC, while the legal framework for dangerous substances is gradually integrated in the Water Framework Directive 2000/60/EC (which was transposed in the Greek legislation with Law 3199/2003 – OJG 280/A/9.12.2003 and Presidential Decree 51/2007 – OJG 54/?/8.3.2007). The more recent Directive 2008/105/EC on priority substances, lays down environmental quality standards (EQS) for priority substances and certain other pollutants, with the aim of achieving good chemical status by 2015 and through establishing appropriate measures and programmes. The aforementioned directive has been transposed into Greek legislation with JMD 51354/2641/?103/2010 – OJG 1909/B/8.12.2010, on environmental quality standards in the field of water policy, amending and subsequently repealing Council Directives 82/176/EEC, 83/513/EEC, 84/156/EEC, 84/491/EEC, 86/280/EEC and amending Directive 2000/60/EC.

The Special Secretariat for Water, which is established under YPEKA, is using the measurements of national monitoring programmes for the assessment of the status of surface waters, as well as the analysis of anthropogenic pressures, in order to formulate the monitoring network for surface waters, which will be fully operational in the first semester of 2011. This network will monitor biological, general physicochemical, and specific chemical parameters (including heavy metals and other priority substances), as well as morphological and quantitative data that are indicative of anthropogenic pressures in the respective areas.

An integrated program on the management of environmental health hazards in the Asopos River basin has been drawn out and is currently being implemented, under the guidance of YPEKA. JMD 20488/2010 (OJG 749/B/ 31.05.2010) set strict limits for both the quality of the waters of the Asopos River as well as for the effluents (waste) of the industries located in the Asopos River basin. Following this, several concrete steps are taken to restore the situation on the ground and to set up a permanent monitoring mechanism.

For underground waters, taking into consideration the implementation of the Water Framework Directive and its "daughter" Directive 2006/118/EC, transposed into Greek legislation with JMD 39626/2208/130/2009 – OJG 2075/B/25.9.2009, on the protection of groundwater against pollution and deterioration, an analysis of anthropogenic pressures is currently taking place in order to determine the detailed parameters of ground water that should be monitored, including heavy metals (lead, mercury, cadmium, arsenic etc.), pesticides or other substances which are indicative of anthropogenic pressures in the region.

Regarding atmospheric pollution from heavy metals, more recent national legislation includes JMD 22306/1075/103/2007 (OJG 920/8.6.2007) on the designation of target-values and estimation limits for the concentrations of arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons (PAHs) in atmospheric air, in compliance with EU Directive 2004/107/EC.

### **Food safety**

The competent authority regarding food safety in relation to chemicals is the Hellenic Food Authority (EFET), which is a Governmental Organisation, supervised by the Ministry of Agricultural Development and Food. The headquarters are based in Athens, while eight regional directorates are currently operational (Attica, Central Macedonia, Thessaly, Western Greece, Crete, Thrace, Epirus, Northern Aegean). The principal aim of EFET is to take all the necessary actions to ensure that food produced, distributed or marketed in Greece meets the standards of food safety and hygiene as described by the national and European legislation. The Hellenic Food Authority also acts as the national contact point of the European Union for the management of the Rapid Alert System of Food and for the Codex Alimentarius as well as the focal point of the European Food Safety Authority (EFSA).

The globalisation of the food chain is continually leading to new challenges and risks to the health and interests of consumers. Greece's efforts to ensure food safety have been focused on the transposition and implementation of EU directives and regulations. The central goal of the European Union's food safety policy is to achieve the highest possible levels of protection for human health and consumers' interests in relation to food. This it seeks to do by ensuring that food is safe and appropriately labelled, while at the same time ensuring the effective functioning of the internal market. To that end, the EU has developed a comprehensive body of food safety legislation, which is being continually monitored and adapted as new developments arise. This legislation is based on risk analysis. The establishment of EFSA was a key step to support the work of the EU institutions in protecting EU consumers in this field, providing independent scientific advice on existing and emerging risks. The basic principles of EU legislation on contaminants in food are described in Council Regulation 315/93/EEC, as follows: (a) food containing a contaminant to an amount unacceptable from the public health viewpoint and in particular at a toxicological level, shall not be placed on the market, (b) contaminant levels shall be kept as low as can reasonably be achieved following recommended good working practices, and (c) maximum levels must be set for certain contaminants in order to protect public health. Maximum levels for certain contaminants in food are set in Commission Regulation (EC) No 1881/2006. This Regulation entered into force on 1 March 2007. Maximum levels in certain foods are set for the following contaminants: nitrate, mycotoxins (aflatoxins, ochratoxin A, patulin, deoxynivalenol, zearalenone, fumonisins), metals/heavy metals (lead, cadmium, mercury, inorganic tin), 3-MCPD, dioxins and dioxin-like PCBs and polycyclic aromatic hydrocarbons (benzo(a)pyrene).

Regarding the issue of pesticides in food and water, Regulation (EC) 396/2005, as amended by Regulation (EC) 299/2008, on maximum residue levels (MRLs) of pesticides in products of plant and animal origin, defines a new fully harmonised set of rules for pesticide residues, from 1 September 2008. This Regulation simplifies the existing legislation by harmonising pesticide MRLs and making them directly applicable. Directive 98/83/EC, the Drinking Water Directive, sets quality standards for drinking water quality at the tap (microbiological, chemical and organoleptic parameters) and the general obligation that drinking water must be wholesome and clean. Furthermore, it obliges EU Member States to regularly monitor drinking water quality and to provide to consumers adequate and up-to-date information on their drinking water quality. Joint Ministerial Decision Y2/2600/2001 provides the provisions in order to harmonise the Greek national legislation with Directive 98/83/EC on the quality of water intended for human consumption.

The GCSL is responsible for the inspection/monitoring of food safety by analysing food samples in a continuous basis. Such analyses are performed under national programmes for market control, under protocols of cooperation for focused sampling or with respect to examination of individual samples sent to GCSL for analysis. Under Regulation (EC) 1881/2006 approximately 800 samples are

examined/analysed per year and under Regulation (EC) 396/2005, as amended by Directive 98/83/EC and JMD Y2/2600/2001, approximately 300 samples are examined per year.

## **Programmes and Projects / Good practices**

### **General information on the Operational Programmes (OPs)**

In the context of the various Community Strategic Frameworks (CSFs), Greece has drawn up several Operational Programmes for the previous programming periods. Under the 4<sup>th</sup> Programming Period 2007-2013 an overarching National Strategic Reference Framework (NSRF) has been drawn covering all new sectoral OPs. The NSRF constitutes the reference document for the allocation of European Union Funds at national level for the years 2007–2013. Although there is not a specific OP dedicated to chemicals, the implementation of measures related to chemicals has been incorporated in a number of different OPs and several authorities are carrying out specific projects in this respect. Information on some specific measures related to chemicals follows.

### **Priority programmes of the General Chemical State Laboratory**

More specifically, during the 3<sup>rd</sup> Programming Period 2000-2006, i.e. the 3<sup>rd</sup> CSF, the GCSL was involved in three major projects, concerning:

1. Water quality control (as authority responsible for implementation, financial management and operation). Budget: EUR 3.81 million
2. Integrated information system on chemicals (as authority responsible for operation, with the Ministry of Finance as authority responsible for financial management and the General Secretariat for Information Systems as authority responsible for implementation). Budget: EUR 950,000
3. Creation of chemical metrology laboratory (as authority responsible for operation, with the former Ministry of Development as authority responsible for financial management and the Hellenic Institute of Metrology as authority responsible for implementation). Budget: EUR 1.5 million

### **Priority programmes on research and technology related to chemicals**

The General Secretariat for Research and Technology (GSRT - [www.gsrt.gr](http://www.gsrt.gr)), which belongs to the Ministry of Education, Lifelong Learning & Religious Affairs ([www.ypepth.gr](http://www.ypepth.gr)) is the main authority responsible for the development and implementation of R&D policy in Greece. In view of the NSRF, GSRT has elaborated on a strategic plan which presents the strategy for the development of research, technology and innovation during the above mentioned years. Along with economic priorities, 11 thematic priorities were introduced into the strategic plan after public consultation and identification of the economic and social sectors that hold a strong position in the country's economy. The thematic priorities are analogous with those of the EU's 7th Framework Programme. Based on the outcome of a public consultation, a thematic priority that addresses specifically environmental issues was included in the strategic plan to demonstrate the country's willingness to address these issues. The full text of the strategic plan and the included thematic priorities is available at GSRT's web site, at the following address: [http://www.gsrt.gr/default.asp?V\\_ITEM\\_ID=4699](http://www.gsrt.gr/default.asp?V_ITEM_ID=4699) under the title "STRATEGIC PLAN FOR THE DEVELOPMENT OF RESEARCH, TECHNOLOGY AND INNOVATION (RTDI) UNDER THE NSRF 2007-13". GSRT has already issued (or is elaborating) different calls to subsidize RTD&I activities. As a general rule eligible applicants are research organizations and enterprises. Certain of the above RTD&I calls apply to specific thematic areas, some related to chemicals. The following are characteristic examples of such calls, already issued:

#### *Cooperation*

This action encourages the cooperation between business and Science and Technology (S&T) organisations. The action's objectives are to improve the competitiveness of enterprises and the quality of life, strengthening the links between research and production and promoting outwardness and a multidisciplinary approach through international S&T cooperation. The action is implemented through collaborative S&T projects either on a medium-scale or on a large scale (in terms of the number of participating entities as well as in terms of budget). The budget of the action (public spending) amounts to EUR 76.1 million. The designated priority area for the 2009 Call of the Cooperation action which is more relevant for chemicals is "Biotechnology". Its content is related to the development of innovative diagnostic, imaging technologies and new pharmaceuticals, the development of high safety and high quality food and sustainable food production, the utilisation of



biotechnology for sustainable production and management of the natural, marine and animal capital-Improvement of sustainability in all production systems, and optimisation of the health of the plant, marine and animal capital. The number of projects selected for funding after evaluation was 16, and the total budget for the above projects is EUR 16.4 million.

#### *Supporting new enterprises and SMEs*

This action's objective is to support the needs of SMEs and new enterprises and motivate the implementation of S&T projects by a larger number of enterprises. Potential Beneficiaries are: (a) Groups and associations of SMEs with common problems, needs (refers mainly to SMEs in the same sector) and objectives (SMEs from various sectors, multidisciplinary approach to attaining common objectives or solving common problems and needs); (b) newly-established enterprises, in operation for six (6) years at the maximum; and (c) enterprises –irrespective of size– that have not received public funding for research activities so far. The budget of the action (public spending) concerning new enterprises amounts to EUR 10.8 million and the one concerning groups of SMEs amounts to EUR 22.4 million. The designated priority area more relevant to chemicals is the one related to "Agriculture, fishery, livestock farming, food and biotechnology, high value-added products and manufacturing technologies with emphasis on traditional sectors". The number of submitted proposals was 58 and the total budget for selected projects is EUR 16 million.

#### **Priority programmes on environmental issues related to chemicals**

YPEKA is managing the implementation of the National Operational Programme "Environment and Sustainable Development" (OPESD), with a total public budget of EUR 2.25 billion (of which 80% from the EU Structural and Cohesion Funds) for the period 2007-13. The programme focuses on: integrated solid waste management, rational use of water resources, modern wastewater facilities, protection of natural resources and the efficient tackling of environmental risks. The programme's strategy is focused in seven strategic priority areas. The main aim of the programme is the protection, improvement and sustainable management of the environment, in order to provide the appropriate setting for the protection of public health and the improvement of the quality of life of citizens as well as to provide the basic elements for strengthening economic competitiveness and growth.

Compared to the previous programming period (2000-06), the 2007-13 share of total EU transfers for environmental infrastructure and nature protection increased by 11%. The overall planned budget for environment-related investments in Greece for the same period, including funds earmarked from all related sectoral Operational Programmes, apart from OPESD will exceed EUR 6 billion, representing 26% of the total available EU funding to Greece for the implementation of the country's overall National Strategic Reference Framework (NSRF) 2007-13. A "Special Agency for the Management of OPESD" operates under the auspices of YPEKA, while, most recently, a "Special Agency for the Coordination of Environmental Activities" was launched under YPEKA in order to coordinate the implementation of all environmental activities in the national and regional levels

Indicative, specific, priority activities under OPESD related to chemicals include: (a) In relation to the Montreal protocol on ODS, priority actions include an inventory of ODS and related supporting activities, with an overall estimated budget of EUR 300,000. (b) In relation to the management of industrial risk / "Seveso II" Directive, priority actions include information and awareness raising of the public (focused on people living in the vicinity of industrial installations) and special studies on the environmental impacts of large-scale industrial accidents, with an overall estimated budget of EUR 2 million. (c) In relation to chemicals pollution of water bodies, priority actions focus on pollution hot-spots, with an overall estimated budget of EUR 2.5 million, as well as on the implementation of programmes for the monitoring of the status of water quality and quantity of surface and underground waters, with an overall estimated budget of EUR 24 million, etc.

#### **Priority programmes on agricultural chemicals / nitrate pollution**

Greece is applying a mix of voluntary and mandatory instruments to reduce the risk of nitrate pollution from agriculture. During the period 2000-2009 there was a substantial reduction in the intensity of use of nitrogenous fertilisers from 3.7 to 2.7 tonnes per square kilometre of agricultural land. This reduction was achieved through the Ministry of Rural Development's (partly EU-funded) programme of agri-environmental measures, which started in 1995. In 2005, the agri-environmental measures funded by the Rural Development Programme 2000-06 involved almost 13 000 farmers (contracts) and a total area of around 261 700 hectares (EC, 2007b). Participating farmers committed themselves to permanent set-aside, fallowing, crop rotation, and fertilisation practices taking account of both crop nitrogen demand and the need to prevent nitrogen losses to the environment (Karyotis *et*

al., 2006). The programme is to be continued and further expanded. Similar voluntary agri-environmental measures, also by way of providing financial incentives to farmers to participate, are aimed at preserving and enhancing wetland areas such as Lake Pamvotis in the Epirus region (north-western Greece) and the lakes and lagoons of Thrace. Moreover, the mechanism of “cross-compliance” applies to all farmers benefiting from EU financial support (Chapter 4). “Cross-compliance” requires farmers to implement the good agricultural and environmental conditions and the environmental statutory management requirements, which are prescribed by the EU legislation and detailed in the National Rural Development Programme 2007-13. Concerning water protection, these requirements mainly correspond to those set by EU Directives 80/68/EEC and 91/676/EEC.

Greece has declared 7 vulnerable zones (the country's main fertile plains under intensive agriculture) under the EU Nitrates Directive 91/676/EEC, and has formally adopted the action programmes required for each area. These zones are located in northern Greece (Salonica -Pella-Imathia plain area and the Strimonas River basin), central Greece (Thessaly and Kopaida plains) and the West (Arta-Preveza plain and the Pinios S. Iliia area). The programmes 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 Farming Practice, which is voluntary for farmers in other areas.

Regarding the implementation of agri-environmental measures, there are specific provisions in the OP related to Rural Development, for the 4<sup>th</sup> Programming Period 2007-2013. The main responsibility lies with the Hellenic Ministry of Rural Development and Food / Directorate of Land Planning and Environmental Protection, in collaboration with the administrative authorities, the paying agency and the regional authorities. The main legislation covering this programme is the European Union Regulation No. 1698/2005 on support for rural development by the European Agricultural Fund for Rural Development. The overall objective of the measures incorporated in this specific OP are the protection and improvement of the environment and its natural resources (soil, water, atmosphere), the preservation of biodiversity and of genetic resources in particular, and the conservation of the rural landscape and its features. The proposed interventions are grouped depending on the objectives to be achieved into specific sets of actions aiming mainly to soil protection, water resources protection, protection of biodiversity and conservation of landscapes. The agri-environmental actions provide financial support for specific agricultural production methods more compatible with environmental requirements. Some of them are new and the remaining are continuing from the previous programming period 2000-2006. The most relevant action is sub-measure 2.1 of Measure 2.1.4 on agri-environmental payments, which is related to the “protection of nitrate vulnerable zones” (reduction of nitrate pollution in agriculture). This action has as objectives the reduction of fertilisers applied, the reduction of water consumption for irrigation and the creation of ecological compensation areas (buffer zones). The adopted series of actions aim to restore the environment; in that context farmers are encouraged to apply specific methodologies adapted to the designated area and the crop.

## ! Education, Information and Awareness -Raising

The GCSL is the main responsible authority for production of data, statistics and indicators as well as for reporting on chemicals. For specific issues where the main competency lies with other authorities, these authorities produce the relevant data. Data is also collected and processed by the Hellenic Statistical Authority - ELSTAT ([www.statistics.gr/portal/page/portal/ESYE](http://www.statistics.gr/portal/page/portal/ESYE)) and, for issues related to the environment, by the National Centre for Environment and Sustainable Development (NCESD - [www.ekpaa.greekregistry.eu](http://www.ekpaa.greekregistry.eu)). NCESD also calculates relevant indicators and facilitates national reporting, inter alia to the European Environment Agency. NCESD dedicates a specific web-page on environmental information:

[http://www.ekpaa.greekregistry.eu/index.php?option=com\\_content&view=article&id=110&Itemid=105&lang=en](http://www.ekpaa.greekregistry.eu/index.php?option=com_content&view=article&id=110&Itemid=105&lang=en)

Several activities for education, information and awareness-raising focusing on specific issues and target groups have been organised. A few examples are presented in the following text:

The GCSL organises presentations on issues such as the REACH Regulation (EC) 1907/2006 for various enterprises. In this respect and in the framework of the obligations arising for the Public Power Corporation (PPC) from the application of REACH, due to its activities as producer, supplier and user of chemical substances, a presentation was held on 28.11.2008, with the initiative of the Environment Department of PPC (“European Regulation REACH - PPC obligations as producer, supplier and user of chemical substances”). Approximately 40 company managers attended the presentations and the

discussion that followed. Reference was made to the pre-registration and registration procedures of chemical substances produced and distributed on the market by PPC (ash) as well as to the actions required by the chemical substances suppliers of PPC in order to allow the marketing of the substances and their use by the Company. Following such presentation, a continuous briefing of the competent company managers is conducted - whenever required - as regards all developments taking place in the framework of the registration procedures of chemical substances. HACI and its member companies also organise seminars aiming at educating and training company managers in order to assist companies to comply with the requirements and the different stages of REACH regulation. Recent seminars organised in collaboration with Scientific and Educational Centre of Chemical Engineers (EEKXM - [www.eekxm.gr](http://www.eekxm.gr)) and Sustchem Company include: "New REACH Regulation for Chemicals – Preparation of companies for its implementation", "Understanding and preparing for REACH" and "Using the IT Tolls for Pre-registration". HACI has also organised several one-day meetings to increase awareness regarding the REACH regulation.

EEKXM organises seminars and training courses on different subjects related to chemicals, such as the CLP Regulation 1272/2008/EC or risk management (a new course was recently launched on "Specialised approaches and methods for risk management in order to sustain operational continuity in industry"). Regarding food safety, Ministerial Decision 14708/2007 (OJG 1616/B/17.8.2007) specifies the terms, conditions and processes for implementing mandatory education and training of the personnel of food companies and of Inspection Authorities and Agencies related to Official Food Inspection. EFET is the competent authority for the education and training activities and keeps the registry for educators (according to Ministerial Decision 14707/2007 (OJG 1615/B/17.08.2007)). An educational brochure entitled "Things to pay attention to, when using everyday products that contain chemical substances" was edited by GCSL and HACI and published by the former Ministry for Development / General Secretariat for Consumers. This brochure provides useful information for consumers, together with the emergency call number of the National Centre for Poisoning and the call number of the national helpline for consumers (1520). This brochure is also available online (e.g. <http://www.haci.gr/images/pdfs/fylladio.pdf>). Information of emerging issues related to chemicals is provided in the websites of competent authorities, such as GCSL, YPEKA, EFET etc.

Greece has developed a National Plan for the implementation of the UNESCO and UNECE Strategy for Education for Sustainable Development (ESD), within the framework of the United Nations Decade of Education for Sustainable Development 2005-14. A National Committee for ESD, involving all relevant Ministries and environmental NGOs, was established to coordinate ESD initiatives and to prepare a Law on ESD and its approval. The Department of Health and Environmental Education within the Hellenic Ministry of Education, Lifelong Learning and Religious Affairs ([www.ypepth.gr/](http://www.ypepth.gr/)) is responsible for environmental education and awareness in primary and secondary education and the supervision of the Coordinators of Environmental Education from each school district. These include education and awareness raising on issues regarding environmental and health risks related to chemicals. Some 50 schools participate in ESD activities within international networks sponsored by UNESCO. Information and communication technology instruments are increasingly used in Greece to support environmental education (e.g. dedicated web-forums hosted on the website of the Hellenic Ministry of Education, Lifelong Learning and Religious Affairs). Sixty Centres of Environmental Education (CEE) are also operating all over Greece, linked in a National Network of CEEs and in 14 regional networks.

## Cooperation

### **The Stockholm Convention, Aarhus Protocol and EU Regulation on Persistent Organic Pollutants (POPs)**

The Stockholm Convention on POPs, administered by the United Nations Environment Programme, is a global treaty to protect human health and the environment from chemicals that remain intact in the environment for long periods, become widely distributed geographically, accumulate in the fatty tissue of humans and wildlife, and have adverse effects to human health or to the environment. Exposure to POPs can lead to serious health effects. Greece ratified the Stockholm Convention on POPs (entered into force on 17 May 2004) in 2006 (Law 3447/2006, Official Journal of Government (OJG) 52/13.3.2006). YPEKA acts as the focal point for the Stockholm Convention on POPs. In this respect YPEKA co-operates closely with the Ministry of Finance (GCSL / Division of Environment).

In 1983 Greece ratified the 1979 UNECE Convention on Long Range Transboundary Air Pollution (LRTAP, entered into force in 1983) and has signed but not yet ratified its 1998 Aarhus Protocol on POPs (entered into force on 23 October 2003).

The Stockholm Convention and the POPs Protocol of the LRTAP Convention were transposed into European Community law with Regulation (EC) 850/2004 and are therefore directly legally binding for Greece.

### **The Rotterdam Convention on Prior Informed Consent (PIC) and the PIC Regulation**

The Rotterdam Convention on the Prior Informed Consent (PIC) procedure for certain hazardous Chemicals and Pesticides in international trade, aims to promote shared responsibility and cooperative efforts among Parties in the international trade of certain hazardous chemicals in order to protect the human health and the environment from potential harm and to contribute to the environmentally sound use of those hazardous chemicals, by facilitating information exchange about their characteristics, by providing for a national decision-making process on their import and export and by disseminating these decisions to Parties. Greece ratified the Rotterdam Convention on the Prior Informed Consent (PIC) Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (entered into force on 24 February 2004) in 2003 (Law 3176/2003, OJG 208/?/29.8.2003). The Hellenic Ministry of Finance/ GCSL acts as the focal point for the Rotterdam Convention, together with the Hellenic Ministry of Rural Development and Food. The PIC Convention has been transposed into European Community law with Regulation (EC) 689/2008.

#### *Enforcement of Regulation (EC) 689/2008/EC in Greece (in implementation of the PIC Convention)*

The GCSL / Division of Environment is a Designated National Authority (DNA) to carry out the administrative functions under Regulation (EC) 689/2008, regarding the exports of industrial chemicals. More specifically the GCSL shall ensure that exporters meet their obligations, such as:

- to provide to the DNA an export notification,
- to obtain through the DNA the explicit consent of the importing country,
- to ensure that all exported dangerous chemicals are packaged and labelled in accordance with relevant EU legislation,
- to provide in due time to the DNA any information required by an importing Party to the Convention, prior to each transit movement of a chemical listed in part 3, Annex I (article15),
- To impose penalties for non compliance and administrative fees and to notify the European Commission of the penalties in case of violations and of administrative fees,
- To check and forward export notifications to the European Chemicals Bureau,
- To obtain explicit consent from the DNA of the importing country for exports of chemicals listed in parts 2 and 3 of Annex I.

The implementation process is as follows: Customs Authorities contact the regional chemical services of the GCSL for exports of particular TARIC codes. If it concerns a chemical or an article which falls into the provisions of regulation (EC) 689/2008 the regional chemical services of the GCSL check if the relevant obligations have been fulfilled in order to permit the export of the chemical. If these obligations are not fulfilled, the regional chemical services of the GCSL have to communicate with the DNA, and if it concerns a chemical or article of Annex V, export is banned.

### **The Basel Convention on transboundary movement of hazardous waste**

The 1989 Basel Convention on the Transboundary Movement of Hazardous Waste and their Disposal, which was ratified by Greece in 1994 (Law 2203, OJG 58/?/1994), establishes a control procedure for the export and import of hazardous waste among the convention parties. Greece has fully adopted the Basel procedures that require prior notification of waste exports and imports, and written consent from the concerned authorities before any transboundary movement takes place, based on waste lists agreed to by the Convention parties. At the moment, Greece is in the process of ratifying the amendment of the Basel Convention of 1995 ("Basel Ban"), which has not yet entered into force, prohibiting all exports of hazardous waste destined for disposal from OECD to non-OECD countries. The Basel Convention provisions, including the "Basel Ban" amendment, are already implemented by Greece through the EU Waste Shipment Regulation 1013/2006 (WSR).

### **Other multilateral co-operation**

Greece has also maintained a long-standing involvement in the OECD's Environmental Health and Safety programme and participated actively in the programme's component on Good Laboratory Practices. Furthermore, Greece is being particularly active in the area of food safety, and hosted a meeting of the OECD Task Force on the Safety of Novel Foods and Feeds in Athens in 2006.

At the UN level, Greece participates in UNEP's International Registry of Potentially Toxic Chemicals (UNEP-IRPTC) and the Intergovernmental Forum on Chemical Safety (IFCS).