

**EUROPEAN COMMITTEE OF SOCIAL RIGHTS  
COMITÉ EUROPÉEN DES DROITS SOCIAUX**



26 April 2005

**Case Document No. 1**

**COLLECTIVE COMPLAINT No. 30/2005**

**MARANGOPOULOS FOUNDATION FOR HUMAN  
RIGHTS (MFHR)  
v. Greece**

**registered at the Secretariat on 4 April 2005**



**COMPLAINT**

**MARANGOPOULOS FOUNDATION FOR HUMAN  
RIGHTS (MFHR)**

**against GREECE**

**(Articles 2 (4), 3 (1), (2) and 11 of the  
EUROPEAN SOCIAL CHARTER)**

# Summary of the Complaint

## I – Identification of Parties

1. The Marangopoulos Foundation for Human Rights (hereinafter, ‘Complainant’), Greek NGO with consultative status before the Council of Europe, is presenting this case against the Greek State (hereinafter ‘defendant State’ or ‘Defendant’) for non-compliance or unsatisfactory compliance of Articles 2 (4), 3 (1), 3(2) and 11 of the European Social Charter of 1961.

## II – Admissibility

2. Greece has ratified the European social charter, and its 1995 Protocol. In ratifying the Charter, Greece accepted to be bound by Articles 2, 3 and 11.

3. The Complainant is an NGO belonging to the list of organizations entitled to present collective complaints under the 1995 protocol and is included therein until December 2007.

4. The Complainant has “particular competence” in the subject matter – the right to health and the right to a healthy working environment – as required by the Protocol.

5. The complaint presents facts that, once proven, constitute a violation of the rights established by the Charter. It is presented in written form, signed by the person entitled by its Statutes to represent it, and is addressed to the Executive Secretary of the Committee.

## III – Overview of the facts

6. Greece has for the last forty years used lignite as its principal source of domestic-produced energy. The Public Power Corporation (DEH) is responsible for the vast majority of the mining and use of lignite for energy-production purposes. This corporation was a public enterprise until its partial privatisation in 2001. The State remains the major shareholder of the corporation (with 51% of shares), although it now operates as a private law enterprise.

7. The operation of the lignite open-cast mines, the transport of lignite over hundreds of kilometres using conveyer belts, the stockpiling of lignite prior to burning, the burning of lignite in power plants, the management of waste, and the dispersion of fly-ash that results from this process have all collaborated to a severe degradation of the environmental conditions in the two main areas where lignite is naturally found and intensively exploited (the Eordea valley in Western Macedonia – Kozani and Florina prefectures –, and the Megalopolis area in the

Peloponnese – Arkadia prefecture). The present Complaint is concerned, above all, with air pollution, but other forms of pollution have been documented.

8. Air pollution in the area has been found to cause a greater than normal incidence of respiratory diseases, in particular rhinitis, atrophic rhinitis and chronic obstructive pulmonary disease (COPD). The scientific data available finds that statistically significant higher prevalence rates exist among residents and non-residents of the mentioned areas. These respiratory diseases are found to be precursors of other cardiovascular and respiratory diseases, including lung cancer. This important epidemiological finding should have serious implications for health policy and environmental planning. It is particularly distressing that a large portion of the persons suffering from these diseases have declared to be unaware of them or their causes.

9. Moreover, the workers of DEH are not adequately protected despite their higher level of exposure to risk. Contrary to the well-established standards set by the Social Committee, workers in lignite mines are not entitled by law or contract to reduced working hours or additional paid holidays, as required by article 2(4).

10. Finally, minimization of work accidents and occupational disease is not adequately provided for by the State or by private actors in the lignite mining and energy sectors. Existing legislation fails to address issues of occupational disease, and does not require an adequate medical presence in workplaces. Moreover, existing legislation – roughly in par with European standards – is not adequately implemented. The existing legal framework is not adequately supervised by sufficiently staffed, equipped and funded State organs. Inspections are not frequent enough, and sanctions eventually imposed are not sufficient to improve standards and ensure compliance. A trend towards outsourcing and downsizing has been clearly taken by DEH's management, with serious implications – at both legal and practical levels – for the working conditions and legal protections afforded to employees, and in particular mine-workers.

#### **IV – Merits**

11. The Complainants claim that the State is responsible for non-compliance at two distinct but complementary levels. The State, as *de facto* manager of DEH and employer of DEH's workers, is *indirectly* responsible for the non-compliance of the obligations set forth in Articles 2(4) and 3(2). The State is also *directly* responsible for the non-compliance with the right to the protection of health. In addition, the State is *directly* responsible for the violations of Articles 2(4), 3(1), 3(2) and 11 for failing to enact legislation, enacting insufficient legislation, or inefficiently supervising and controlling the execution of existing legislation.

*Non-compliance with Article 11*

12. Given the evidence provided in the Analytical Complaint, the complainant submits that the following facts constitute instances of non-compliance with Article 11 of the Charter:

- The State has failed “to remove as far as possible the causes of ill-health” by:
  - (a) allowing the operation of lignite mines without sufficient regard to environmental impacts caused, most notably:
    - by the operation of conveyor belts and other transport activities without adequately covering dust and humidifying it, resulting in avoidable dispersion of particulate matter;
    - by the inadequate dumping of fly-ash and stockpiling of lignite without adequate measures (spraying, pelletizing) to eliminate avoidable dispersion of particulate matter;
    - by allowing the usage of depleted mine sites as dump sites for hazardous industrial waste, without regard to waste management regulations, and overlooking the already excessively polluted situation of the region.
  - (b) allowing the operation of lignite-fired power plants without sufficient regard to environmental impacts caused, most notably:
    - by allowing the continuous employment of old, high-polluting technology, incompatible with the ‘best available technology’ requirements;
    - by allowing the operation of power plants old filter technology or with no filter whatsoever;
    - by allowing the continued operation of power-plants without adequate environmental permits: *ex post* temporary permits, merely formal review and renewal procedures;
    - by establishing an inadequate environmental *monitoring* mechanism: the environmental and mining inspectorates are not sufficiently funded, equipped and staffed; violations of limit values are not followed by any administrative consequence; and political bodies authorize the violation of said limits on the argument of national necessity;
    - by establishing an inadequate environmental *enforcement* mechanism: available sanctions at the technical level are not sufficiently costly to

change the violator's behaviour; available sanctions that are dependant on political decision-makers are not applied; and, finally,

- by continued reliance on fossil fuels, in a manner conducive to the violation of the Kyoto Protocol targets for Greece.
- The State has failed to “provide advisory and educational facilities for the promotion of health and the encouragement of individual responsibility in matters of health” by:
  - (c) Failing to involve affected populations in environmental impact assessment in a meaningful way;
  - (d) Failing to involve affected populations in health assessments targeting the most common air pollution effects on health, and allowing for the formulation of an appropriate public-health policy response;
  - (e) Failing to devise a public health information strategy centred on enabling individual responsibility and instructing affected populations on the means at their disposal to manage health risks on a regular and urgency basis;
- In addition to all the instances of non-compliance raised with regard to Article 11, paragraph 1, the State has failed to “prevent as far as possible epidemic, endemic and other diseases”, by:
  - (f) Not conducting regular, population-wide health assessments, centred on air pollution health effects;
  - (g) Not devising long-term strategies to manage the public health effects of the real levels of pollution in the areas; and,
  - (h) Not devising and implementing policies to respond quickly and effectively to environmental hazards resulting from exceeding air pollutants limit values.

13. For all the above reasons taken singly and in combination, the complainant requests that the Committee find that the defendant has not complied with Article 11, paragraphs 1, 2 and 3.

#### *Non-compliance with Article 2(4)*

14. In its 13<sup>th</sup> report to the Social Committee, presented in September 2002, the State informed that no special provisions regarding reduced working hours or additional paid holidays existed with respect to workers in lignite mines. Moreover, no collective labour agreement in the lignite-mining sector covers this legal gap. In view of these facts, the well-established evidence of occupational risk, and considering the Committee's prior practice, it is clear that the State, both as *de facto* manager of DEH and as national standard-setter, failed to comply with the obligation set forth in Article 2(4).

### *Non-compliance with Article 3*

15. In light of the facts described in the Analytical Complaint, the complainant submits that the following facts constitute instances of non-compliance with Article 3 of the Charter:

- The State has failed “issue safety and health regulations” by:
  - (a) Failing to adopt a legal framework for the detection, tallying, and compensation of persons affected by occupational disease;
  - (b) Requiring only one work doctor for any workplace, for any number of employees above 50, thereby permitting companies with single large work sites (such as lignite mines employing more than 1.000 employees each) to ‘comply’ with health and safety regulations.
- The State has failed to “provide for the enforcement of such regulations by measures of supervision” by:
  - (c) Depriving the Mining Inspectorate of the adequate and required means to meaningfully carry out supervisory activities with the frequency and quality required to avert – as far as possible – the occurrence of occupational accidents and diseases; and,
  - (d) Establishing a sanctions regime in which sanctions are not sufficiently costly to change the violator’s behaviour and in which, non-pecuniary sanctions are rarely, if ever, applied because of political decision-making.

16. For all the above reasons taken singly and in combination, the complainant requests that the Committee find that the defendant has not complied with Article 3, paragraphs 1 and 2.

### **V – Evidence for the Complaint**

17. The Analytical Complaint and the Annexes to the Complaint provide enough evidence to substantiate the legal claims contained in this Complaint. Nonetheless, the complainant reserves the right to provide further evidence on both admissibility and merits in the following phases of the procedure, in conformity with whatever time-limits the Committee might chose to determine.



## **VI – Petition**

18. The Marangopoulos Foundation for Human Rights, having regard to the legal and factual arguments presented, invites the European Committee of Social Rights to:

1. declare this Complaint admissible, and
2. having fully considered the merits of the Complaint, find that the Greek State has:
  - (a) Failed to comply with its obligations under Article 11, paragraphs 1, 2, and 3;
  - (b) Failed to comply with its obligations under Article 2, paragraph 4; and,
  - (c) Failed to comply with its obligations under Article 3, paragraphs 1, and 2.

Athens, 23 March 2005

*Prof. Emer. Alice Yotopoulos-Marangopoulos*

President of the MFHR

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## 1. Presentation of the Complaint

1. The Marangopoulos Foundation for Human Rights (hereinafter, ‘Complainant’ or ‘MFHR’), Greek NGO with consultative status before the Council of Europe, is presenting this case against the Greek State (hereinafter, ‘Greece’, ‘defendant State’ or ‘Defendant’) for non-compliance or unsatisfactory compliance of Articles 2 (4), 3 (1) and (2) and 11 of the European Social Charter of 1961<sup>1</sup> (hereinafter, ‘the Charter’). The present Complaint brought by the MFHR concerns the negative effects of heavy environmental pollution on the health of those persons working or living in communities near to areas where lignite is extracted, transported, stockpiled and consumed for the generation of electricity in Greece. It also concerns the lack of measures adopted by the Greek State to eliminate or reduce these negative effects and to ensure the full enjoyment of the right to the protection of health, and of the right to safe and healthy working conditions. Moreover, the Greek State has failed in its duty to fully implement or to enforce the relevant rules and regulations to be found in domestic, European and International Law.

## 2. Admissibility requirements

### 2.1. Jurisdiction *ratione personae*

2. According to Article 1 indent *b* of the *1995 Protocol Providing for a System of Collective Complaints* of 18 June 1998<sup>2</sup> (hereinafter, ‘the Protocol’), the Contracting Parties recognize the right of international non-governmental organisations, which have consultative status with the Council of Europe and have been included in a list established for this purpose by the Governmental Committee, to submit complaints alleging unsatisfactory application of the Charter. Furthermore according to Article 3 of the Protocol, the international non-governmental organisations referred to in Article 1.*b* may submit complaints in accordance with the procedure prescribed by the aforesaid provisions only in respect of “those matters regarding which they have been recognised as having particular competence”.

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<sup>1</sup> Greece signed the *European Social Charter* (ETS N° 035) on 18 October 1961 (it is one of the original signatory parties) and ratified it on 6 June 1984. It entered into force with respect to Greece on 6<sup>th</sup> July 1984. In its declaration under Article 20, the Greek State considered itself bound by the obligations contained in Articles 2, 3 and 11 of the Charter.

<sup>2</sup> *Additional Protocol to the European Social Charter Providing for a System of Collective Complaints*, (ETS N° 158). The Protocol was adopted in 9 November 1995, and entered into force on 1<sup>st</sup> of July 1998. Greece ratified the Protocol on 18 June 1998, and it entered into force with respect to this country on 1 August 1998.

3. The MFHR is an international non-governmental organisation, which has consultative status with the Council of Europe and which is registered by the Governmental Committee on the list for the purpose of submitting collective complaints for a period of four years<sup>3</sup> (1 January 2004-31 December 2007).

4. According to Article 3, paragraph 1 of the MFHR's statutes approved by Presidential Decree 252 of 29 March 1980<sup>4</sup>, "the object of the Institution is the investigation, the study, the protection, safeguarding and promotion of, according to the common consciousness, Rights and Liberties of the Human Being [...] and the grant of appropriate Scholarships and Grants". Furthermore, according to paragraph 2, "the means for the attainment of the aforesated objects are: [...] e) the submission to Public Authorities and to International Organisations [...] of memoranda, Reports and Propositions as well as the taking of steps related to the formulation of Rules related to the Human Rights or to ascertained violations of such Rules".

5. The activity of the complainant in the field of human rights for the last 26 years is abundant and proves its interest in contributing to the "effective enforcement of the social rights guaranteed by the Charter", in accordance with the Preamble of the Protocol. In order to achieve this goal, the Foundation employs a variety of appropriate means; it has already contributed to the dissemination of information about the Charter in Greece by translating into Greek and publishing *Securing Social Rights Across Europe* by Tom Kenny, a brochure of the Council of Europe on the European Social Charter and the role of NGOs in its implementation. Moreover, the Foundation has always been concerned with environmental protection and pollution health effects; as far as the region of Ptolemaïda is concerned, the Foundation has organised in 1988 a Round-table Discussion among lawyers and other environmental pollution experts on "Ptolemaïs: A Case of Heavy Environmental Pollution". Furthermore, the MFHR has published a relevant book, *The Right to Environment: Infringements and Protection* (Editor: P. Karafotias, in Greek). Consequently, the Foundation considers that it has particular competence in the field of social rights and more specifically in the field of the effects of the environmental pollution on health and work conditions.

6. The present collective complaint is directed against the Greek State, even though many of the facts described herein are imputed to a Greek corporation governed by private law, namely the electricity production, distribution and sales conglomerate DEH (Public Power Corporation, S.A.). This is so for the following two reasons. *Firstly*, the Greek State is *indirectly responsible* for the

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<sup>3</sup> The MFHR is on said list for the period of 1 January 2004 to 31 December 2007. It has been on the list before, and was entitled file complaints under the collective complaints mechanism starting January 2000.

<sup>4</sup> See **Annex 1**, p. 3.

actions undertaken by DEH for it is the major shareholder of the company and has therefore *de facto* control of its operations as well as of its senior management. According to the International Law Commission's draft Article 8 on State Responsibility, "the conduct of a person or a group of persons shall be considered an act of a State under international law if the person or group of persons is in fact acting on the instructions of, or under the direction or control of, that State in carrying out the conduct"<sup>5</sup>. *Secondly*, the Greek State is *directly responsible* for the damages produced by DEH's actions or omissions because it has failed to adequately regulate harmful behaviour carried out by private sector actors. And in the alternative, because existing regulations have not been adequately enforced, resulting in damages to a large number of individuals, who have, directly or indirectly, suffered as a result of the non-enforcement of legally binding regulations.

## 2.2. Jurisdiction *ratione temporis*

7. Health effects of noxious substances or environmental hazards are not necessarily produced or felt immediately nor are their effects measurable in short intervals of time. Incremental health-threatening processes could appear years or even decades after their offset. In particular, health-related consequences of environmental degradation are slow to reveal their full consequences to the population directly affected and even slower to the indirectly affected population.

8. Greece has accepted the undertakings of the Social Charter with respect to the aforementioned provisions since July 1984, date of the entry into force of the Charter with respect to this country, while it accepted the collective complaints mechanism in 1998. The Charter does not establish any temporal limitations with regards to the assessment of the failure to comply. Neither does the 1995 Protocol establish any limitations to the European Committee of Social Rights' jurisdiction (hereinafter 'the Committee') on the ground that failures to comply occurred or originated before the entry into force of the collective complaint mechanism.

9. Had there been a rule of international law establishing such temporal limitations, which are not provided for by the relevant instruments themselves, the MFHR submits that the wrongful, continuous and incremental nature of the degradation of health with respect to the populations affected by environmental changes allows the Committee to look to the past in order to assess present damages, effects and consequences<sup>6</sup>. Accordingly, the Committee's

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<sup>5</sup> International Law Commission, Report on the work of its 53<sup>rd</sup> session (UN Doc. A/56/10), p. 103.

<sup>6</sup> With respect to the notion of "continuing violation" see Case of *Loizidou v. Turkey, Merits*, E.C.H.R. Reports 1996-VI, p. 2230.

jurisdiction should not be limited exclusively to the assessment of the State's failure to comply with Charter provisions after 1998.

### 2.3. Jurisdiction *ratione loci* and *ratione materiae*

10. The Committee is being addressed by complainants who are situated in the territory of a contracting party, which has accepted the jurisdiction of the Committee, with respect to facts that have taken and still take place in the territory of the same contracting party. Although the situation described in the complaint concerns essentially certain areas of the territory, it refers to the totality of places and populations in Greece, who are exposed to the health hazards and environmental degradation directly or indirectly related to the extraction, transport, stocking and consumption of lignite for energy production.

11. The present complaint deals with the inadequate implementation of the undertakings to which Greece committed itself under Article 20 of the Charter. The articles invoked concern the right to the protection of health of the population in general and of specific categories within the broader population, namely workers generally and workers in hazardous occupations. It relates to a series of general failures of the Greek State, which affect, directly or indirectly, a considerable number of persons in those areas where the environment has become hazardous to their health as well as to the health of future generations.

### 2.4. Formal requirements

12. The MFHR is administered by a five-member Governing Board the current composition of which is as follows:<sup>7</sup>

**President:** *Alice Yotopoulos-Marangopoulos*, Professor Emerita and former Rector, Panteion University, Athens

**Vice-President:** *Sotiris Moussouris*, former Assistant Secretary-General of the UN

**Secretary-General:** *James Farsedakis*, Professor and Head of the Sociology Department, Panteion University, Athens

**Member:** *George Stavropoulos*, Vice-President, Supreme Administrative Court

**Member:** *Evangelos Kourakos*, former Vice-Governor, Bank of Greece

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<sup>7</sup> According to the last update of the Statutes, approved by act 1042611/1448/80011/22.05.1997 of the Minister of Finance. **Annex 1b**, p. 1.

13. According to Article 6, paragraph 1, indent *a*) of the complainant's Statutes<sup>8</sup>, the President represents the Foundation before any Court of Justice and before any Authority.

14. In conformity with the Committee's current *Rules of Procedure*<sup>9</sup>, the Complaint is signed by the President of MFHR, the competent person to represent the organization according to its statutes; and it is lodged in writing and submitted to the Executive Secretary of the Committee, acting on behalf of the Secretary General of the Council of Europe.<sup>10</sup>

### **3. Merits of the Complaint**

15. The present Complaint concerns the negative effects of heavy environmental pollution on the health of those persons working or living in communities near to areas where lignite is extracted, transported, stockpiled and consumed for the generation of electricity in Greece. It also concerns the lack of measures adopted by the Greek State to eliminate or reduce these negative effects and to ensure the full enjoyment of the right to the protection of health, and of the right to safe and healthy working conditions.

16. In the next paragraphs the complainant provides evidence of the non-compliances stated above. In the first part (3.1.) the complainant exposes the general framework in which lignite mining takes place in Greece, the overall economic importance of the sector, and its prospects. In the second part (3.2.), the complaint indicates the environmental and health effects of large-scale, highly concentrated use of lignite for energy production, and will describe the specific instances of non-compliance with Article 11 of the Charter. In the third part (3.3.), the complainant demonstrates that Greece does not afford lignite miners additional paid holidays or reduced working hours, thereby violating Article 2, paragraph 4 of the Charter. And finally, in the fourth part (3.4.) the complainant contests the efficiency of occupational health and safety mechanisms set by the defendant, thereby proving non-compliance with Article 3 of the Charter.

#### **3.1. The Complaint's Context: Lignite, the Greek Energy Sector and Air Pollution**

17. Greece has for the last forty years used lignite as its main fuel source for domestic energy production. Lignite is the most readily available fossil fuel to be found in Greece. The largest reserves of this fuel are to be found in the Ptolemaïda-Amynteo area (Western

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<sup>8</sup> See **Annex 1**, p. 6.

<sup>9</sup> Adopted on 29 March 2004, replacing the Rules of Procedure of 9 September 1999.

<sup>10</sup> According, respectively, to Rules 23 and 22 of the current Rules of Procedure.

Macedonia). In the four mines of this area 54.58 million tons of lignite were mined in 2003<sup>11</sup>, making this site one of the largest in the world. Considerable reserves are also exploited in the Megalopolis area (Peloponnese) where production for the year 2003 amounted to 13.54 million tons. These mines are opencast coalmines that employ around 6.000 workers<sup>12</sup> (DEH employed a total of 28.100 workers at the end of 2003, nation-wide<sup>13</sup>). Nearly all the lignite extracted is used for production of electricity in coal combustion power plants.

### 3.1.1. DEH and the Greek State

18. The Public Power Corporation (DEH) is responsible for the vast majority of the mining and use of lignite for energy-production purposes. DEH was created as a State entity in 1950, but in the late 1990s it was transformed to a *société anonyme* governed by private law<sup>14</sup>. Despite its privatisation, DEH's largest single shareholder remains the Greek State (with 51,5% of shares in 2003<sup>15</sup>) and although DEH's shares are traded in the Athens Stock Exchange, the government still exercises direct control over it.

19. The total turnover of the enterprises in the Greek energy sector in 2001 was expected to achieve approximately 12% of GDP<sup>16</sup>. DEH is the largest single corporation in the market, generating about 96% of all the energy in Greece, with earnings in 2003 amounting to 3.89 billion euros.<sup>17</sup>

#### 3.1.1.1. DEH's environmental policies

20. According to its 2003 annual report, DEH is "consistently implementing environmental friendly policies". DEH has obtained, in 2003, a Ministerial Decision approving the environmental terms of its mines operating in Ptolemaïda, and in January 2004, another Ministerial Decision concerning the mines of Megalopolis and Amynteo.<sup>18</sup>

21. On the environmental issue, DEH asserts:

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<sup>11</sup>DEH 2003 Annual Report, **Annex 2** (available at [http://www.dei.gr/%28CB913DA4AED0EC5D28A15AE89AE6A6CADD3C04B97DDAC0BD%29/ecp\\_ortal.asp?id=1207&nt=18&lang=2](http://www.dei.gr/%28CB913DA4AED0EC5D28A15AE89AE6A6CADD3C04B97DDAC0BD%29/ecp_ortal.asp?id=1207&nt=18&lang=2))

<sup>12</sup> *ibid.*

<sup>13</sup> DEH 2003 Annual Report, p. 14.

<sup>14</sup> See Law 2773/1999, Official Gazette A 286 (22/12/1999) and Presidential Decree 333/2000, Official Gazette A 278 (20/12/2000).

<sup>15</sup> DEH, 2003 Annual Report (**Annex 2**), p.15.

<sup>16</sup>ICAP-DELOS "The Energy Market in Greece" report (**Annex 3**), p.273 (available at: [http://www.energia.gr/Meleti\\_icap/en/pdf.php](http://www.energia.gr/Meleti_icap/en/pdf.php) >).

<sup>17</sup> DEH 2003 Annual Report (**Annex 2**), pp. 6, 25.

<sup>18</sup> DEH 2003 Annual Report (**Annex 2**), p. 36.



*“The protection of the environment is a very important priority for our operation. Our guiding principles in environmental management are to comply with all relevant legislation, to minimize, to the extent possible, adverse effects that our activities may have on the environment and to continuously improve the environmental performance of all our activities in general. In addition, we cooperate with the Ministries of Development and Public Works, in order to formulate Greece’s position on climatic changes.*

*(...)*

*The principal by-products and gases released by our electricity generation activities are sulphur dioxide (SO<sub>2</sub>), nitrogen oxide (NO<sub>x</sub>), carbon dioxide (CO<sub>2</sub>), particulate matter such as dust and fly-ash as well as gypsum. The primary focus of applicable environmental regulation is to reduce those emissions.*

*We are contributing to the national action plan for the abatement of CO<sub>2</sub> and other greenhouse gas emissions.*

*We have started this process by establishing an emission reduction plan that involves:*

- Increased use of natural gas and hydro for electricity generation;*
- The development of renewable sources;*
- The conservation of energy;*
- The implementation of more efficient lignite technologies.*

*We have reduced CO<sub>2</sub> emissions per unit of energy produced in the decade 1990-2000. While electricity production has increased by 56% over that period, CO<sub>2</sub> emissions increased by 27%. The average CO<sub>2</sub> emission factor for our electricity generation declined from 1.3 kg/kWh in 1990, to 1.05 kg/kWh in 2002, a reduction of approximately 19%.”<sup>19</sup>*

22. Among the milestones given to the Generation Business Unit, in charge of power-plant operation, are the “use of best available techniques, for the existing and new electricity generation units”, the “reduction of impure emissions to the environment” and the “upgrading of the existing units and improvement of their output”<sup>20</sup>. The Mining Business Unit pursues land restoration programs (for depleted mines), water protection, and protection of the local flora.<sup>21</sup>

### **3.1.2. Energy production in Greece**

23. As of 31<sup>st</sup> December 2003, DEH operated a total of “eight lignite-fired power stations, four oil-fired power stations, two oil-fired units and two Combined Cycle Gas Turbines (‘CCGT’) units at the Lavrio power station near Athens; one natural gas-fired power station at Agios Georgios in Keratsini; one CCGT power station at Komotini; 24 hydroelectric stations

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<sup>19</sup> DEH 2003 Annual Report, (Annex 2), p. 38.

<sup>20</sup> DEH 2003 Annual Report (Annex 2), p. 39. See also note 77, below.

<sup>21</sup> DEH 2003 Annual Report (Annex 2), p. 38. DEH’s website contains a slightly modified version of these same commitments. With regard to the use of ‘best available technologies’, for instance, the website states that the principle is to be applied “in new power plants and gradually in existing ones” (see Annex 4, p. 1)

and 6 wind parks”, all of these in the interconnected system, Crete and Rhodes. In addition to this, another total 30 autonomous thermal stations, 15 wind parks and five solar power stations located on autonomous islands were operated by DEH. The total energy produced by DEH in 2003 was of 52.2 TWh (96% of all electricity generated in Greece). The installed capacity in 2003 was of 12,138 MW (via 95 connected and autonomous stations). DEH serves 6.8 million final customers<sup>22</sup>. 65-70% of the total energy is generated in Northern Greece, 65-70% of the consumption takes place in southern and central Greece.<sup>23</sup>

### *3.1.2.1. Geographical concentration of lignite power plants*

24. Thermal (lignite, oil and gas) electricity generation capacity in 2003 constituted 74% of total installed capacity, and represented nearly 90% of the energy actually produced in Greece. **Lignite alone represents over 43% of the total installed capacity and produced 60% of the electricity of Greece in 2003.**<sup>24</sup>

25. In the Ptolemaida-Amynteo area DEH has a total of seven power plants, as described below:

Liptol Ptolemaida (two units / 43 MW);  
Ptolemaida (four units / 620 MW);  
Kardia (four units / 1250 MW);  
Amynteo (two units / 600 MW);  
Aghios Dimitrios (five units / 1595 MW);  
Florina (one unit / 330 MW); and,  
Melitis-Achladas (one unit / 330 MW).

In the Megalopolis area DEH has two power plants:

Megalopolis A (three units / 550 MW); and,  
Megalopolis B (one unit / 300 MW).

26. It is very important to note that all of these power plants with the exception of Megalopolis (a city located in Peloponnese) are **concentrated in Northern Greece** and, in particular, **in the administrative region of Western Macedonia**. The concentration of so many lignite-operated power plants in a single region, as well as the topographic and climatologic

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<sup>22</sup> DEH 2003 Annual Report (**Annex 2**), p. 25

<sup>23</sup> DEH 2003 Annual Report (**Annex 2**), p. 26.

<sup>24</sup> DEH 2003 Annual Report (**Annex 2**), p. 28.

features of said region, increase the environmental damage and risk factors for the health of the population working or residing in the region.

### 3.1.2.2. Greece's continued reliance on lignite

27. It should be noted that in the period 2001-2003, the only increases in installed capacity are due to increases in thermal plants (lignite and natural gas). In terms of the net production, though, considerable increases occurred in the hydroelectric sector, the output of which doubled in two years<sup>25</sup>. In terms of power stations recently constructed or currently under construction, one is hydroelectric (162 MW capacity), one is lignite-fired (Florina power station, 330 MW), five are oil-fired (total 276 MW) and one is CCGT (385 MW).<sup>26</sup>

28. Although, with the completion of the Florina power plant, the construction of new lignite-fired power plants is not planned in the near future, Greece's reliance on lignite for power generation is not expected to diminish soon. **Energy demand in Greece is expected to increase an average 2.1% per year in the 1990-2020 period, as standards of living improve and converge with that of the rest of the European Union (EU).** This rate is significantly higher than the EU average and will be met first by the increase in oil and gas imports, and then by the increase in production from renewable sources. Although energy production from traditional sources is expected to decline in the long term, **lignite is still expected to be responsible for 77% of the energy produced in Greece by 2020.**<sup>27</sup>

29. Despite well-known impacts on local, national and global environment, Greece's reliance on lignite for energy production continues unabated. **Plans to continue expanding the use of lignite, the continued functioning of highly polluting lignite-fired power plants built in the late 60s and early 70s, and the lack of an alternative policy capable of both facing increased demand and allowing the phasing-out of lignite-fired power plants suggests that the trend will continue, at the expense of the environment, and of human health.**

### 3.1.3. Lignite Mining in Greece

30. The lignite-fired power plants consume enormous quantities of locally abundant lignite<sup>28</sup>. The lignite is extracted, transported, stocked and consumed locally, adding to the overall degradation of the environment in this area in the last decades. Greece is the second

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<sup>25</sup> DEH 2003 Annual Report (**Annex 2**), p. 28

<sup>26</sup> DEH 2003 Annual Report (**Annex 2**), p. 30

<sup>27</sup> Directorate General for Energy/ European Commission. *European Union Energy Outlook 2020*, published in November 1999 (quoted by: ICAP/Delos report [**Annex 3**], p. 269-271)

<sup>28</sup> A single 420MW lignite-fired power plant requires over 600 tons of lignite per hour of operation.

largest lignite producer of the EU, and the fifth in the world. DEH extracted a total 68.12 million tons in 2003, used in the nearby lignite-fired power stations.<sup>29</sup>

31. Mining is done in DEH's five open-cast mines. The four mines located in Western Macedonia (Main Field, South Field, Kardias Field and Amynteon field) produced 54.58 million tons in 2003 (80% of total national production). The last opencast mine is to be found in Megalopolis, in Peloponnese, which produced 13.54 million tons in 2003 (20% total production). A small number of privately owned lignite mines also exist in Greece, but their production is minimal compared to DEH's.<sup>30</sup>

32. **DEH is currently allowed to exploit 61.5% of existing reserves, but could be allowed to exploit up to 95% of the exploitable reserves if the State so authorizes. DEH also privately owns the land on which such reserves are to be found, acquiring them by expropriation from private owners and through concessions by the State.**<sup>31</sup>

33. According to its 2003 annual report, thanks to an 'extensive restructuring program', DEH has managed, among other things, to reduce lignite cost from 2000 to 2002 by 15,3%. Production has constantly increased, and personnel is being reduced, suggesting that fall in lignite prices is either due to increase in technology efficiency, or in labour cost reduction.<sup>32</sup>

34. Greek lignite deposits are found in continuous interchange of lignite layers (of an average height of 2m) and of intermediate inert materials (clays, sand, etc.). The height of overlayers ranges from 12 to 230m. **Hence, mine development results into enormous excavation and widespread dumpsites, which disturb the whole topography of the region and the appearance of the landscape.** Overburden-to-lignite ratio was estimated to about 3.5 m<sup>3</sup>/t in 1997, but was expected to increase as mine development required generation of larger volumes of overburden.<sup>33</sup>

35. Open-cast mining in Greece generally follows the German open-pit surface mining system<sup>34</sup>. It employs an array of electrical and mechanical equipment, including (in a reference

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<sup>29</sup> DEH 2003 Annual Report (**Annex 2**), p.35.

<sup>30</sup> For the year 1998, for instance, other companies produced about 2,7% of total national output. See ICAP/Delos report 2001 (**Annex 3**), p.120.

<sup>31</sup> DEH Annual Report 2003 (**Annex 2**), pp. 35-36.

<sup>32</sup> DEH 2003 Annual Report (**Annex 2**), p. 14.

<sup>33</sup> Laboratory of Industrial and Energy Economics, National Technical University of Athens *External Costs of Electricity Generation in Greece* (1997) (hereinafter 'ExternE-Greece report'), p. 29. (**Annex 5**, also available at <<http://externe.jrc.es/greece.pdf>>)

<sup>34</sup> The reference plant used by the Greek ExternE report was the most modern one available. Equipment described here was used in the South Field, in the Kozani Region.

mine)<sup>35</sup> crushers for hard overlayers (1000 m<sup>3</sup>/h capacity), bucket wheel excavators (340.000 m<sup>3</sup>/day capacity), conveyor belts with a total length in excess of 100km<sup>36</sup>, and spreaders for the dumping of overburden. **Development of the mines requires lowering the groundwater table, thereby affecting both surface and underground water**<sup>37</sup>. The dust produced during the lignite extraction phase is one of the most important sources of local atmospheric pollution, along with combustion gases from power plants.<sup>38</sup>

### 3.2. Air pollution and health: non-compliance with Charter Article 11

36. Article 11 of the Charter reads:

**Article 11 – The right to protection of health**

With a view to ensuring the effective exercise of the right to protection of health, the Contracting Parties undertake, either directly or in co-operation with public or private organisations, to take appropriate measures designed *inter alia*:

1. to remove as far as possible the causes of ill-health;
2. to provide advisory and educational facilities for the promotion of health and the encouragement of individual responsibility in matters of health;
3. to prevent as far as possible epidemic, endemic and other diseases.

37. **The complainant considers that: (a) by allowing the operation of lignite mines and lignite-fired power plants without sufficient regard to environmental impacts with considerable and measurable health impacts; (b) by not organizing regular systematic population-wide health assessments to measure such impacts and formulate appropriate public-health policy responses and preventive measures; (c) by not giving wide access to environmental and health impact information neither on a regular, nor on an emergency basis; (d) and by not sufficiently involving local communities in environmental impact assessment and health policy debate; and (e) by not giving sufficient means for the monitoring mechanisms to act efficiently; the defendant has failed to fully implement the obligations contained in Article 11, paragraphs 1, 2 and 3.**

38. In order to prove that the State has failed in its obligation to protect the health of the population, the complainant provides evidence of the existence of environmental pollution and evidence of the impact of this pollution on the health of the populations affected. The

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<sup>35</sup> Data provided refers only to the equipment used in one of the five mining Fields operated by DEH in Greece, in December 1997. According to ExternE-Greece report (**Annex 5**), p. 30.

<sup>36</sup> Conveyor belts are used for transporting lignite to power plants, and overburden to dumpsites. 15% of the total excavations are estimated to be transported by trucks; the remaining 85% by conveyor belts. According to information received by the complainant, the greatest part of the conveyor belts are not adequately covered to avoid dispersal of particulate matter.

<sup>37</sup> ExternE-Greece report (**Annex 5**), p. 30

<sup>38</sup> ExternE-Greece report (**Annex 5**), p. 30. See also **Annex 6, photo Lignite Mine (1) (Cloud of fly-ash)**.

complainant also provides evidence that the State does not take measures to encourage local populations to take appropriate measures to reduce exposure, or mitigate effects, by denying them information and by not organizing public health campaigns focused on the specific characteristics of the region.

### **3.2.1. Environmental Impact of Air Pollution**

39. It is nowadays generally accepted that human-made air pollution has serious deleterious effects on human health. The Committee, in addressing specific questions on the matter to Charter Contracting-Parties clearly indicates that States have an obligation to reduce – as far as possible – the effects of environmental pollution on human health.

40. Most of man-made air pollution comes from either automobile traffic or fossil fuel combustion in power plants. As indicated above, Greece relies on lignite – characterized by poor calorific content, and high sulphur content – for most of its domestic energy production, and is going to continue doing so in the foreseeable future. **These emission sources are highly concentrated on the geographic level, and have been very intense for decades. Although the Committee has already expressed concern for Greece’s policies on limitation of traffic-related air pollution, the issue of power-plant pollution has so far not been brought to its attention. This complaint hopes to enable the Committee to address this important issue for the first time.**

41. The defendant state has overall a lenient environmental policy, but this complaint focuses particularly on local effects of environmental pollution. Nonetheless, the complainants would like to start by observing Greece’s performance in Greenhouse gas emission reduction, given the important relation between fossil fuel reliance and air pollution with local, national and global effects. Moreover, we will provide an overview of the domestic legal framework in order to assess Greece’s commitments to pollution control.

#### *3.2.1.1. Greece’s CO<sub>2</sub> emissions*

42. According to figures of the Hellenic Ministry for the Environment, Physical Planning, and Public Works the use of lignite for the generation of electricity was responsible for 42% of total CO<sub>2</sub> emissions in Greece in 1997. According to a recent news article the overall percentage for the energy sector is higher: 77,9%<sup>39</sup>. Moreover, this figure has not differed significantly from

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<sup>39</sup> **In Greece, the most important source of greenhouse gases is energy sector.** Greece emits above average of EU carbon dioxide (CO<sub>2</sub>) per unit of produced energy, because energy production depends mostly on lignite and oil as well. 77,9% of greenhouse gas emissions is attributed to energy (50% with regard to production of energy and the rest with regard to transfer and heating), 9,9% to industry, 7,9% to

that of 1990, raising some concern regarding Greece's ability to respect its commitments under the Kyoto Protocol<sup>40</sup>, which has just entered into force.<sup>41</sup>

43. The International Energy Agency<sup>42</sup> suggests that despite the 1995 'Hellenic Action Plan for the abatement of CO<sub>2</sub> and Other Greenhouse Gas Emissions' commitments, emissions of CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub> in 2000 were 23.3% above the 1990 level (the Plan's target was 12-18%). Under the EU 'burden-sharing' agreement to meet the Kyoto Protocol target for 2008-2012, Greece should achieve a target of 25% above the 1990 level. In 2000, Greece was already at 23.3% above the 1990 level. **According to DEH's own annual report, "CO<sub>2</sub> emissions increased by 27%" during the 1990-2000 period<sup>43</sup>. According to Athens Observatory, Greece will have increased till 2010 its emissions to 39,2%<sup>44</sup>. How is Greece to respect said target while demand on electricity grows an estimated 2.1% each year<sup>45</sup>, from 1990 to 2020?**

44. **Concerning the current National Allocation Plan<sup>46</sup>, environmental specialists have considered it weak because it does not put an end to DEH's dependence from pollutant fuels. In addition, this Plan postpones obligatory reduction of emissions for the next three years. Furthermore, there is an important delay in the process of energy market liberalization and consequently a delay of several planned investments.** According to the plan, the first private CCGT electricity generation unit will not start operation before summer 2005, while the operation of other private units is not anticipated before the end of 2007 (according to the most optimistic prospects)<sup>47</sup>. Moreover, according to the plan the country is exploring the possibility of buying allowances after 2007, so as to maintain the sufficiency of electric energy and, in this case, plans exist for the purchased allowances to be used to introduce into the Greek power system, by 2015 at the latest, the installed power of modern technology lignite power units with a minimum capacity of 600 MW.<sup>48</sup>

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agriculture and 4,1% to waste (*H kathimerini*, 09 January 2005 [available in Greek at <[http://www.kathimerini.gr/4dcgi/w\\_articles\\_world\\_402854\\_09/01/2005\\_129733](http://www.kathimerini.gr/4dcgi/w_articles_world_402854_09/01/2005_129733)>]).

<sup>40</sup> *Kyoto Protocol to the United Nations Framework Convention on Climate Change* (signed in Kyoto, December 11, 1997), UN Doc. FCCC/CP/1997/7/Add.1 [hereinafter Kyoto Protocol], entered into force in 16 February 2005 (available at <<http://www.unfccc.de/resource/docs/cop3/107a01.htm>>).

<sup>41</sup> ICAP-DELOS report (**Annex 3**), p.122

<sup>42</sup> IEA. *Energy policies of IEA countries - Greece 2002 review* (hereinafter, 'IEA Report', [**Annex 7**]), p. 133-134 (available at <<http://www.iea.org/textbase/nppdf/free/2000/greece2002.pdf>>)

<sup>43</sup> DEH 2003 annual report (**Annex 2**), p. 38.

<sup>44</sup> *H kathimerini*, 13 February 2005 (available in Greek at <[http://www.kathimerini.gr/4dcgi/w\\_articles\\_world\\_402570\\_13/02/2005\\_133590](http://www.kathimerini.gr/4dcgi/w_articles_world_402570_13/02/2005_133590)>).

<sup>45</sup> ICAP-DELOS report (**Annex 3**), p. 270 (quoting the 'European Energy Outlook – 2020' data). See also section "3.1.2.2. Greece's continued reliance on lignite", p. 9, above.

<sup>46</sup> Hellenic Ministry for the Environment, Physical Planning, and Public Works. *National Allocation Plan for the Period 2005-2007* (December 2004) (hereinafter 'plan', **Annex 8**)

<sup>47</sup> National Allocation Plan (**Annex 8**), p. 18.

<sup>48</sup> National Allocation Plan (**Annex 8**), p. 26.

45. It is not only in the Energy sector that Greece has a bad record in upholding environmental standards. **In July 2004, the European Commission cited 9 violations to diverse instruments of EU Environmental Law ranging from waste management, to protecting endangered animal species, all the way to failing to transpose the EU Ozone Directive, which obliges member States to alert the population to stay inside and close windows when ground-level ozone reaches certain thresholds<sup>49</sup>.** These are not isolated incidents in an overall compliant environmental policy: these are typical cases of the Greek governmental environmental policies. The complainant will provide further, and more specific evidence of governmental negligence in further sections.

### *3.2.1.2. Greece's Legislative Framework*

#### **General obligations and definitions**

46. The Greek Constitution, as amended in 2001, has two applicable provisions concerning the environment and the protection of health:

##### **Article 21**

(...)

3. The State shall care for the health of citizens and shall adopt special measures for the protection of youth, old age, disability and for the relief of the needy.

##### **Article 24**

1. The protection of the natural and cultural environment constitutes a duty of the State and a right of every person. The State is bound to adopt special preventive or repressive measures for the preservation of the environment in the context of the principle of sustainability. Matters pertaining to the protection of forests and forest expanses in general shall be regulated by law. The compilation of a forest register constitutes an obligation of the State. Alteration of the use of forests and forest expanses is prohibited, except where agricultural development or other uses imposed for the public interest prevail for the benefit of the national economy.

47. Domestic law expressly recognizes the close relationship between health and environment. **Law 1650/1986<sup>50</sup>**, as modified by **Law 3010/2002<sup>51</sup>**, is the first general law regulating environmental matters in Greece. It provides fundamental definitions (article 2),

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<sup>49</sup>*H Kathimerini* (English edition), 21 July 2004, available at <[http://www.ekathimerini.com/4dcgi/\\_w\\_articles\\_politics\\_100008\\_21/07/2004\\_45112](http://www.ekathimerini.com/4dcgi/_w_articles_politics_100008_21/07/2004_45112)>

<sup>50</sup> Law 1650/1986, Official Gazette A 160 (16/10/1986) *on measures for the protection of the environment*. (All translations of legal texts are of the complainant)

<sup>51</sup> Law 3010/2002, Official Gazette A 91 (25/04/2002), harmonizing Law 1650/1986 with Directives 97/11/EU (Official Journal L 073, 14/03/1997 P. 0005-0015.) and 96/61/EU (Official Journal L 257, 10/10/1996 P. 0026-0040), replaces the following articles of Law 1650/1986: article 3 on the determination of works and activities' categories, article 4 on environmental studies with regard the approval of environmental terms and article 5 on the content of environmental studies.



categories of works and activities (article 3), for which an environmental study (article 4 and 5) should be submitted to authorities, conditioning authorization to environmental impact assessment, and the sanctions imposed for violations of the law (criminal, article 28; civil, article 29; and administrative: article 30).

48. According to Article 2 of the law, the environment comprises “the entirety of the natural and anthropogenic factors and elements that are found in interaction and influence the ecological balance, the quality of life, the health of residents, the historical and cultural tradition and the aesthetic values”. Moreover, the object of the law is to “establish fundamental rules, criteria and mechanisms for the protection of environment, so the person, as individual and as member of society, lives in a high quality environment, *in which his health is protected and the development of his personality is encouraged.*” (emphasis added). **It should be noted that this teleological concept of the Law, sets the individual and his or her development in the centre of environmental planning. In addition, health is defined as “the situation of complete physical, mental and social well-being of an individual or the totality of the population”.**

#### **Environmental Impact Assessment Obligations**

49. **Joint Ministerial Decision H.P. 15393/2332**<sup>52</sup> defines categories of works and activities that have common characteristics with regard to the evaluation and the appreciation of their environmental impact are classified in ten common groups, one of which is “mining and related activities” (Article 3, Paragraph 1, indent 5), and another is “industrial installations” which include solid fuel combustion plants (indent 9<sup>53</sup>).

50. Article 3 of **Joint Ministerial Decision H.P. 11014/703/F104**<sup>54</sup> establishes the procedure for Preliminary Environmental Evaluation and articles 4-7 regulate the Environmental Terms Approval for works and activities as follows:

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<sup>52</sup> Joint Ministerial Decision H.P. 15393/2332, Official Gazette B 1022 (05/08/2002) *implementing Article 3 of Law 1650/1986 as modified by article 1 of Law 3010/2002.*

<sup>53</sup> Article 5 of the Joint Ministerial Decision creates 2 categories (detailed in annexes) of environmental protection regimes. “Mining and related activities” are included in Annex I (table 5, group 5) and “combustion plants” in Annex I (table 9, n° 273). “Combustion plants” are also included in Annex II for which an integrated prevention and complete evaluation of environmental impact are requested, “in order to achieve the highest level of environmental protection”.

<sup>54</sup> Joint Ministerial Decision H.P. 11014/703/F104, Official Gazette B 332 (20/03/2003) applies article 4 of Law 1650/1986 as modified by article 2 of Law 3010/2002 and harmonizes it with Directive 97/11/EC (Official Journal L 073, 14/03/1997 P. 0005-0015) amending Directive 85/337/EEC on the assessment of the effect of certain public or private projects on the environment and Directive 96/61/EC (Official Journal L 257, 10/10/1996 P. 0026-0040) concerning integrated pollution and prevention.

1. **A' category, sub-category 1** (mining operations  $\geq 500.000\text{m}^2$  or about 125 acres and combustion plants of a rated thermal input  $\geq 50$  MW): the application is filed at the Ministry of the Environment (hereinafter, 'Ministry of the Environment'). The positive or the negative view of the General Director of Environment of the Ministry with the entire file is then transmitted to the Council of the Prefecture, in order to allow citizens to be informed<sup>55</sup>. All of DEH's lignite mines fall in this category. All Greek lignite-fired power plants, except Liptol-Ptolemaïda, fall into this category.
2. **A' category, sub-category 2** (mining operation  $\leq 500.000$  m<sup>2</sup> or about 125 acres and combustion plants of a rated thermal input from 5 to 50 MW): the application is filed at the competent environmental section of the administrative Department (regional administration).

51. *Preliminary Environmental Evaluation* should contain information on: a) the location and the size of the work, b) the type, the technology applied, the general technical characteristics of the work or the activity, c) the conditions of the area where the work or the activity will be realized, in particular with regard to natural and cultural environment, d) the use of natural resources, e) the cumulative action with other works or activities, f) the waste production, g) the pollution that is caused, h) the prevention of accidents, particularly from the use of substances or technology, i) in principle, brief description of measures in order to avoid, reduce and if possible redress important negative effects and k) brief description of the principal alternative solutions that the applicant envisages as well as an indication of his most important reasons for his choice taken into consideration the environmental impact.

52. With regard to the *Environmental Terms Approval*, the application contains the *Study on Environmental Impact* (i.e., the product of a successful *preliminary environmental evaluation*), which should include information at least on the work or the activity, description of the environmental situation as it is before initiation of activities in order to evaluate the effects on human beings, the flora and fauna, the soil, the water, the air and the climate, the landscape, goods and cultural heritage, as well as their interaction, a description of measures that will be adopted in order to avoid or reduce and, if possible, redress important negative effects on the environment, and a brief description of principal alternatives and choices made with special reference to the environmental impact.

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<sup>55</sup> On the right to participate in environmental assessment, and on the possibilities of challenging ministerial decisions based on environmental assessment studies, see below, section "3.2.3.7. Lack of a Public Information Policy", p.31.

53. With regard to large combustion plants (rated thermal input  $\geq 50$  MW), and in light of Joint Ministerial Decision H.P. 15393/2332<sup>56</sup>, the Study on the Environmental Impact should include, in addition, the following information: appropriate measures against pollution and methods of measuring emissions of pollutants, as well as information about the choice of the best available techniques, the waste and their environmental impact. Finally, according to Annex II, Article 16, of Joint Ministerial Decision H.P. 11014/703/F104, CO<sub>2</sub> and NO<sub>x</sub> emissions should necessarily be taken into consideration in order to determine limit values of air emissions (this list of pollutants is not exhaustive).

54. **Joint Ministerial Decision H.P. 3711/2021**<sup>57</sup> Official Gazette B 1391 (29/09/2003) provides for the publication of the Preliminary Environmental Evaluation and Appreciation (article 2) and the Study on Environmental Impact (article 4) by the Prefecture in local journals, in order to enable any person to express his or her “sufficiently-documented” concerns (‘επαρκώς τεκμηριωμένες’) within 30 days from the publication of the Study. Finally, the Environmental Terms Approval is made known as well by the Prefecture or the competent section of the Ministry for the Environment (article 5).

#### **General Framework for Monitoring and Managing Air Pollution**

55. **Joint Ministerial Decision 58751/2370**<sup>58</sup> establishes, in conformity with EC legislation, measures and conditions for the limitation of atmospheric pollution from large combustion plants. According to article 5, paragraph 5, of the Ministerial Decision, in combustion plants that use domestic lignite, the Ministry of the Environment *can authorize exceeding emission limit values*. **This legislation motivates the bypassing of limit values, arguing that lignite constitutes the principal fuel for electricity generation in Greece and that there are important difficulties because of the nature of this fuel, even if the best available affordable pollution abatement technologies are applied.** These cases should be notified to the European Commission by the State, in order to allow cooperation on the measures to be adopted.

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<sup>56</sup> See note 53, *in fine*.

<sup>57</sup> Joint Ministerial Decision H.P. 3711/2021, Official Gazette B 1391 (29/09/2003) determining “the way in which the public will be informed and participate during the procedure for the approval of environmental terms on projects and activities”, harmonizes with *Directive 85/337/EEC* on the assessment of the effects of certain public and private projects on the environment, *Directive 96/61/EC* concerning integrated pollution prevention and control and *Directive 97/11* amending *Directive 85/337/EEC* on the assessment of the effects of certain public and private projects on the environment.

<sup>58</sup> Joint Ministerial Decision 58751/2370, Official Gazette B 264 (15/04/1993), on the “Establishment of measures and conditions for the limitation of atmospheric pollution from large combustion plants” harmonizes national law with *Directive 88/609/EEC* (Official Journal L 336, 07/12/1988 P. 0001-0013) on the limitation of emissions of certain pollutants into the air from large combustion plants.

56. Directive 88/609/EEC, that this ministerial decision 58751/2370 transposes, was replaced by Directive 2001/80/EC<sup>59</sup>, which was supposed to be implemented in the Member States by 27 November 2002 (Article 18). The EU Fifth Environmental Action Program<sup>60</sup> sets as objectives that the critical loads and levels of certain acidifying pollutants such as SO<sub>2</sub> and NO<sub>x</sub> should not be exceeded at any time and, as regards air quality, that all people should be effectively protected against recognized health risks from air pollution. This is the context in which Directive 2001/80/EC was adopted. Although the deadline has now been violated for over two years, Greece has not yet transposed this Directive into national law.

57. **Joint Ministerial Decision 3277/209**<sup>61</sup> on ambient air quality and assessment, aims to define the basic principles of a common strategy to protect effectively ambient air in order to prevent or reduce harmful effects on human health and the environment as a whole. According to the Ministerial Decision, the General Directorate for the Environment of the Ministry of the Environment is in charge of setting the basic guidelines and coordination of policy at national level. The Annex to Article 5 of the Ministerial Decision includes SO<sub>2</sub>, PM<sub>10</sub> and Particulate Matter (PM) in general, in the list of air pollutants that should be taken into consideration for the assessment and the managing of ambient air quality.

#### **Specific Regulations on Pollution Applicable to Kozani and Florina**

58. **Joint Ministerial Decision 40786/2143**<sup>62</sup> expressly recognizes the need to reduce the emission of fly-ash from the combustion plants of Kozani and Florina by the application of measures against pollution.

59. It imposes on every lignite-fired units of Kozani and Florina the installation and operation of suitable dust precipitator/deduster of air emissions that emanate from the silos of ash, as well as an automatic system for spraying water, to ensure a uniform and effective humidification of the ash (Article 1, paragraph 1). Moreover, where conveyor belts or similar open systems are used in order to constantly transfer ash, there should be a water spray system, in order to maintain a certain level of humidity, which will prevent the emission of particulate matter. In addition, appropriate measures should be adopted for covering the transferred ash by any open system of transfer (Article 1, paragraph 2). In the areas where the ash is stockpiled there should be enough humidity and compression or alternatively a system for pelletizing the ash (Article, 1 paragraphs 3 and 4). The installation and operation of an automated system

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<sup>59</sup> Directive 2001/80/EC (Official Journal L 309, 27 November 2001 P. 0001-0021).

<sup>60</sup> Official Journal C 138, 17 May 1993, p.1.

<sup>61</sup> Joint Ministerial Decision 3277/209 Official Gazette B 180 (17/2/2000) harmonizes with articles 1, 2 and 3 of Directive 96/62/EC<sup>61</sup> on “ambient air quality assessment and management”.

<sup>62</sup> Joint Ministerial Decision 40786/2143 Official Gazette B 341 (06/06/1988).

constantly measuring the emission of particles is obligatory for all chimneystacks where emissions from lignite-combustions pass (Article 2). DEH is compelled to determine an expert responsible for the maintenance and operation of the system for pollution prevention and more generally for the compliance with environmental terms (Article 3). Furthermore, DEH is compelled to realize, at least, monthly controls for the measuring of the quantity of heavy and toxic metals in the ambient air that are produced by the use of lignite (Article 4).

### **Mining and Environmental Protection**

60. With regards to environmental impacts of mining, the specialized legal framework is contained in the **Regulation on Mine and Quarry Activities**<sup>63</sup>. Part C of the Regulation (Articles 85-86) refers to the protection of the environment<sup>64</sup>. Article 85 requires that mining and quarrying be planned in a way that prevents deterioration of the environment. The exploiter (DEH, in the context of the present complaint) is compelled to adopt relevant measures in cooperation with the Administration. A special technical study on environmental impact is required in order to analyse and describe natural and human environment, propose alternative methods, evaluate the effects, especially the most negative and propose measures of redress. This disposition also requires specific measures of protection and restoration. In particular with regard to loading, transfer and storing of products, materials and waste, pollution should be avoided (Art. 86). With a view to prevent particulate matter pollution, specific and appropriate measures of wetting and covering dust should be adopted.

#### *3.2.1.3. Greece's Environmental Monitoring and Enforcement Mechanism*

61. The above-mentioned **Law 1650/1986**<sup>65</sup> requires the establishment of a specialised mechanism monitoring the implementation of environmental legislation, but it is only with **Law 2947/2001**<sup>66</sup> that a Special Service of Environmental Inspectors (hereinafter, 'Environmental Inspectorate') under the auspices of the Ministry of the Environment was created. The Environmental Inspectorate has many competences; among others it is competent to control and follow-up the application of environmental terms imposed with regard to Public Works in a wider sense, as well as with regard to private works and to propose and impose sanctions if there has been a violation of environmental law. **The organ was effectively established only in February 2004, 18 years after the Law stipulated the need for such an authority.** It should

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<sup>63</sup> Regulation on Mine and Quarry Activities, MD II 5/F/17402 Official Gazette B 931 (31/12/ 1984).

<sup>64</sup> Since the environment inspectorate (Ministry of environment) started operating in 2004, mining inspectors tend to avoid imposing sanctions for environmental matters that are already dealt with on the same grounds.

<sup>65</sup> See note 50, above.

<sup>66</sup> Law 2947/2001, Official Gazette A 228 (09/10/2001).

be noted that according to 2002 Annual Report of the Greek Ombudsman<sup>67</sup>, 16% of citizens' complaints were about environmental pollution.<sup>68</sup>

62. Section B of the Environmental Inspectorate has specific competence to monitor the implementation of environmental legislation and environmental terms with regard to mining, quarries and industries. Controls should take place on a regular or extraordinary basis, or following the filing of a complaint. Nevertheless, although Article 4 of **Presidential Decree 165/2003**<sup>69</sup> creates 78 positions for the organ's staffing, only 28 inspectors constitute the General Section Inspectorate and the Inspectorate of Southern Greece, while only 4 the Inspectorate for Northern Greece (under which comes Western Macedonia as well). It is extremely important to note that under Article 9, paragraph 5, of Law 2947/2001, **the Environmental Inspectorate can only suggest sanctions when it finds a violation of environmental standards. Therefore, the imposition of sanctions depends exclusively on regional authorities (prefectures) or on the Minister of the Environment (in function of the specific violation) and is therefore an eminently political decision.** There is for instance, no specific requirement that the political decision-maker motivate his decision to not sanction a specific violation.<sup>70</sup>

63. In summary, the mechanism has its efficiency challenged by understaffing – which has so far restricted the Inspectorate's activities to acting in response to complaints –, by the fact that the mechanism is not yet well known, keeping the number of complaints and the 'subject matters' quite restricted, and finally by the political nature of the sanction decision-making process.

### **3.2.2. Assessment of the environmental impacts of lignite mining and burning**

64. The operation of the lignite open-cast mines, the transport of lignite over hundreds of kilometres using conveyer belts, the stockpiling of lignite prior to burning, the burning of lignite in power plants, the management of liquid and solid waste, and the dispersion of fly ash that results from this process have all contributed to a severe degradation of the environmental conditions in the two main areas where lignite is naturally found and intensively exploited (the Eordea valley in Western Macedonia – Kozani and Florina prefectures –, and the Megalopolis area in the Peloponnese – Arkadia prefecture).

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<sup>67</sup> 2002 Greek Ombudsman annual report, available at <[http://www.synigoros.gr/annual\\_2002\\_gr.htm](http://www.synigoros.gr/annual_2002_gr.htm)> (in Greek only).

<sup>68</sup> Special Service of Environmental Inspectors, General Inspectorate of the Ministry of the Environment "Circular on the Establishment, Organization and Functioning of the Special Service of Environmental Inspectors" (31/01/2004), ΑΠ: οικ. 26.

<sup>69</sup> Presidential Decree 165/2003, Official Gazette A 137 (05/06/2003).

<sup>70</sup> See below, paragraph 71, p. 22. According to the incident reported, the Prefecture of Kozani, which is competent for the attribution of permits, has failed to uphold its responsibilities in implementation of environmental law and, once a complaint was filed, it has not responded to the Greek Ombudsman's questions with regards to its role in the current situation.

65. The by-product of the use of lignite is a variety of forms of pollution – air pollution, soil, subsoil, water, among others – that affect a wide area in various ways. Each form of pollution has different levels of dispersion, but pollutants emitted in Greece might well affect areas out of Europe, such as North Africa, and the Middle East.<sup>71</sup> **Other forms of pollution, such as fly-ash, or dust resulting from extraction and transport of lignite, have more local effects: dispersal of particles can affect crops; excavation in open-cast mines affects table water, and liquid waste and water used for cooling can have negative impacts on local water sources, thereby affecting local flora and fauna; the emission of air pollution is related to some forms of respiratory diseases and to immune-system depression, opening the way to other sorts of health problems.**

66. Although many environmental externalities of fossil-fuel based energy production exist, it is generally acknowledged that air pollution, and its effects on health constitute the single most important damage produced by this activity.<sup>72</sup>

67. The ExternE report for Greece states that “lignite is one of the most polluting fuels used for electricity generation. This is especially true in Greece because of the inferior quality characterising the Greek lignite deposits and in particular their low heating value, and the considerable sulphur content.” The report adds that since a new lignite power plant was used to assess impacts “its environmental impacts and therefore the associated damage costs *are much lower in comparison with the plants that are actually in operation* in the Greek electricity system”<sup>73</sup> (emphasis added).

68. **Thus, although abundant, Greek lignite is of low calorific value, and has a very high sulphur and ash content as compared to lignite extracted in other parts of the world, and as compared to other fossil fuels<sup>74</sup>. These characteristics mean that significant amounts of air pollutants are generated during the combustion process, and that more pollutants are emitted per unit of energy produced than would be the case with better quality fuel.**

69. **Moreover, most of the lignite-fired power plants were built with older technology, and are therefore more polluting.** Evidence of this can be seen in the fact that the

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<sup>71</sup> ExternE-Greece (Annex 5), p. 180.

<sup>72</sup> ExternE-Greece (Annex 5), p. 41. “98% of quantified externalities are associated with the power-plant operation stage and refer to mortality impacts” (p.49).

<sup>73</sup> ExternE-Greece (Annex 5), p. 49.

<sup>74</sup> ExternE-Greece (Annex 5), p.30; ICAP-DELOS report (Annex 3), p.118.

Megalopolis lignite centre (850MW capacity) produced, in 1997, over 43% of the total SO<sub>2</sub> emissions in the whole Greek power sector, while the Ptolemaïda centre (4.768MW capacity, i.e. five times more) produced roughly 33%<sup>75</sup>. Overall, lignite power plants were responsible, in 1997, for 95% and 88% of Greek energy sector PM<sub>10</sub> and CO<sub>2</sub> emissions, respectively.

70. The ExternE project Greek report considers that dust precipitators used are of high efficiency in the reference plant – which was the newest in Greece – and estimated the overall desulphurisation system used as 90% efficient<sup>76</sup>. For older units, it is hard to assess the technology's efficiency. Moreover, there is no available evaluation of the *actual* efficiency of filters in each of the lignite-fired plants. **Beyond affirming the use of 'best available technologies' in DEH's plants, there is no detailed, publicly available assessment of the overall efficiency of the filtering system. Apparently, even though according to DEH, 'best available technologies' are deployed<sup>77</sup>, maximum limits for TSP in the Eordea Valley region and maximum levels of SO<sub>2</sub> concentration in Megalopolis are frequently exceeded, and no particular policies of impact mitigation are practiced in either of these regions. When maximum levels are exceeded, inhabitants of the area are not informed, and are therefore not equipped to take personal protective measures.**

71. According to a local newspaper<sup>78</sup>, a study (forthcoming) resulting from a complaint filed with the Greek Ombudsman, presented by local authorities, on the issue of disrespect of pollutant limit values, has revealed a revolting state of affairs. The study finds that the lignite units of Aghios Dimitrios, Ptolemaïda and Kardias operated with temporary permits since their Environmental Terms Approvals have expired in 2002 and 2003. Their temporary permits will expire in July 2005. **Most importantly, according to the Committee on Air and Noise Pollution (Ministry of the Environment), limit values are exceeded on a daily basis.** New Environmental terms have been submitted by DEH, but their processing has stalled as DEH alleges that the technological requirements imposed on her by the EU are not practicable. **Of course, this whole state of affairs begs the very simple question: why are the power plants allowed to operate in clear, admitted, documented contravention of the environmental legislation?**

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<sup>75</sup> ExternE-Greece (Annex 5), p. 178.

<sup>76</sup> ExternE-Greece (Annex 5), p. 32.

<sup>77</sup> See, for instance, DEH's website in which it is asserted that "Application of the Best Available Technologies (BAT) in new power plants and gradually in existing ones". (See Annex 4) There is no indication of how 'gradual' this process is, or what the specific targets are.

<sup>78</sup> Ptolemaios, 09/03/05, p. 1, 14 (Annex 19).



72. There are many reports of irregularities in the functioning of filters in the area. As an illustration, a recent news article<sup>79</sup>, affirms that despite the increase in air pollution in the Kozani region, DEH put off the installation of filters in four units, even though a supply contract had already been awarded. At this point, even politicians from the region – the Mayor of Kozani and the Prefect of Kozani – have asked for either a reduction of lignite-mining or the replacement of older plants by cleaner, more modern ones. **The ash clouds that cover the region are a daily nuisance.** According to one news article<sup>80</sup>, collecting dust deposited during a single night over a marble surface of 12m<sup>2</sup>, yielded about 250gr of dust. The yield did not vary significantly during the ten nights in which the operation was repeated. In previous times, the same amount of dust would be collected in two days, a fact that demonstrates the degradation of air quality.

73. With regards to conveyor belts, stretching over 100km, used to transport lignite, overburden and ash to different dumpsite, it has also been constantly observed that – contrary to the requirements of legislation – they are not covered, water sprays do not function appropriately and their speed produces unnecessary dust. **According to reports by inhabitants of the region, less than 10 km of existing conveyor belts are covered.** It should be noted that these belts are not to be found in remote uninhabited areas but frequently cross used areas, such as – until recently – the national road.

### *3.2.2.1 An attempted quantification of total externalities*

74. The 1997 ExternE report, after quantifying and totalling externalities from all energy-production cycles, reached the conclusion that the Ptolemaïda-Amynteon district was alone responsible for 66% of the total damage incurred in energy production in Greece, i.e. an estimated 2.45 billion euros per year<sup>81</sup>. The report concludes its aggregation study affirming that: **“the largest part of the electricity capacity in Greece concerns high polluting fuels and old technologies for power generation which are responsible for serious environmental repercussions.”**<sup>82</sup>

75. Whatever the uncertainties relating to the methodology used in the ExternE project, it is abundantly clear that there are palpable, serious negative effects of the long-lasting use of lignite. **The State might not have a credible short-term alternative, but that in no way**

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<sup>79</sup> “Filters still absent in Kozani”, available at <<http://www.energia.gr/indexgrgr.php?newsid=6704>>, published on the 4<sup>th</sup> of March 2005.

<sup>80</sup> Tsiotsios, I., “DEH: our filters = your blindness”, *Avgi*, 4/10/1995.

<sup>81</sup> ExternE-Greece (**Annex 5**), p. 183 and Table 9.8, at p. 185. (1 ECU = 1 Euro)

<sup>82</sup> ExternE-Greece (**Annex 5**), p. 186.

authorizes the operation of lignite mines and power plants without exercising *extreme caution* to reduce environmental and health impacts. And this is precisely what has been lacking in the last forty years.<sup>83</sup>

### 3.2.3 Health effects of environmental exposure to air pollution<sup>84</sup>

76. Air pollutants can lead to health problems either directly when they penetrate the organism or indirectly by the modification of the environment. One means of penetration is inhalation of pollutants (man breathes approximately 15m<sup>3</sup> of air every day, including pollutants). **Air pollutants can cause serious health problems, including respiratory problems (asthma, irritation of the lungs, bronchitis, pneumonia, decreased resistance to respiratory infections), allergies, adverse neurological, reproductive and developmental effects, cancer, and even death<sup>85</sup>.** Not only does ambient air pollution produce immediate effects on the respiratory system, but long-term exposure has a variety of effects in respiratory and cardiovascular health. Increased susceptibility to infection is also one of the consequences of long-term exposure, and has effects on all levels of human health.

77. The impact of a particular pollutant on the health system of an individual is difficult to measure. Size of particles, characteristic of particles and trace elements contained in it, concentration of pollutants in ambient air, duration of exposure, the level of physical activity of the subject, individual sensitivity to stimuli, smoking habits, age, gender and occupation all influence the degree of risk of each individual. It is not surprising therefore that measuring effects in sample populations is not a simple matter.

78. Even though epidemiological studies indicate that air pollution imposes on the individual a small risk for morbidity and mortality, the public-health consequences of air pollution are considerable. **One recent study comparing Austria, France and Switzerland, for instance, attributed 6% of total mortality, 40.000 deaths in a year, and over 16 million person-days of restricted activities, to air pollution<sup>86</sup>.** It should be noted that the Greek population has the highest level of consumption of cigarettes in the EU, a fact that compounds

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<sup>83</sup> See above, Joint Ministerial Decision 58751/2370, p.17.

<sup>84</sup> For a review of the literature, see B. Brunekreef, S.T. Holgate: "Air pollution and Health" in: *Lancet* 2002; 360: 1233-1242, (**Annex 9**).

<sup>85</sup> C. Pénard-Morand, I. Annesi-Maesano: Air pollution: from sources of emissions to health effects" in: *Breathe*, December 2004, vol1, no 2, pp. 109-119, (**Annex 10**).

<sup>86</sup> N Künzli, R Kaiser, S Medina, M Studnicka, O Chanel, P Filliger, M Herry, F Horak Jr, V Puybonnieux-Textier, P Quénel, J Schneider, R Seethaler, J-C Vergnaud, H Sommer: "Public-health impact of outdoor and traffic-related air pollution: a European assessment" in: *Lancet* 2000; 356: 795-801, (**Annex 11**).

respiratory health-related problems, as it is proven that cigarette consumption has a synergistic relation with ambient air pollutants. **All these circumstances suggest the need for a particularly attentive role for the State in the management of air pollution and respiratory health. It is of great consequence that the Committee has already considered that Greece does not comply with its obligation to protect health, with regards to its lax policies on tobacco consumption.**

**Table 1 – Air Pollutants: Health and Environmental Effects<sup>87</sup>**

<b>Pollutant</b>	<b>Health effects</b>	<b>Environmental effects</b>
<b>NO<sub>2</sub></b>	It is a respiratory irritant It may worsen existing respiratory illness It may lead to bronchial hyperresponsiveness and a decrease in lung function in asthmatic subjects	NO <sub>x</sub> oxidizes in the atmosphere to become nitric acid, a major component of acid rain It combines with volatile organic compounds (VOC) to form O <sub>3</sub>
<b>SO<sub>2</sub></b>	It is a respiratory irritant It may worsen existing respiratory illness: for example, it provokes asthma attacks in asthmatic subjects It increases adults' respiratory symptoms, such as cough It alters children's lung function	It oxidises in the atmosphere to become sulphuric acid, a major component of acid rain
<b>PM</b>	Particles effects on health depend on their size PM <sub>10</sub> causes: Nose and throat irritation Lung damage Bronchitis Risk of cardiac arrest Carcinogen effects if they carry toxic compounds Early death	Smoke and dust can dirty and discolour structures

79. Air pollution in both Ptolemaida and Megalopolis lignite centres has been found to cause a greater than normal incidence of respiratory diseases, in particular rhinitis and Chronic obstructive Pulmonary Disease (COPD). **The scientific data available finds that statistically significant higher prevalence rates exist among residents and non-residents of the mentioned areas.** These findings are not altered when smoking habit controlled for. These diseases are found to be precursors of other cardiovascular and respiratory diseases, including lung cancer. **This important epidemiological finding should have serious implications for health policy and environmental planning. It is particularly distressing that a large portion of the persons suffering from these diseases have declared to be unaware of them or their causes.**

<sup>87</sup> Taken from "Air pollution: from sources of emissions to health effects", p.117, note 85, above.

### 3.2.3.1. Emissions in the Eordea valley area

80. Most environmental and epidemiological studies available concern the Eordea valley. **This area is particularly polluted because of the concentration of mines and power plants, on the one hand, and the region's topography and prevailing winds, on the other hand.** According to one study from 1999, the emissions of highest concern are SO<sub>x</sub>, NO<sub>x</sub>, and organic compounds (especially polycyclic aromatic hydrocarbons, PAHs), as well as particulate matter (PM) consisting chiefly of soot and fly ash.<sup>88</sup>

81. The same study from 1999 estimates “that the mean emission of SO<sub>2</sub> from the steam generated electrical power plants (SGEPS) is 8,968 kg/h, of NO<sub>x</sub> is 14,316 kg/h and of the particles is 5,701 kg/h.”<sup>89</sup> Dispersion of pollutants varies considerably according to place and period of the day. After comparisons were made between measured pollution levels in the Ptolemaïda area and the limits set by regulations, the researchers concluded:

*“It was found that SO<sub>2</sub> concentrations exceeded the CEC yearly limit (SO<sub>2</sub> mean daily concentration must not exceed 250gr/m<sup>3</sup> for more than 2% of the days of a year for which observations are available) only at Kozani during the period 1986-1988. Both the proposed by the World Health Organization daily limit for TSP (150gr/m<sup>3</sup>) as well as the alert limits established for Athens and Thessaloniki (mean daily concentration 300gr/m<sup>3</sup>) are exceeded at almost all the observing sites in the valley and especially at Oikismos and the City of Ptolemaïda”*<sup>90</sup>

Later measurements for the 1995-1996 and 1998-1999 periods found that SO<sub>2</sub> yearly concentrations levels were below limit and target values, but that Total Suspended Particulate (TSP) concentration at most stations were well above target levels<sup>91</sup>. **More recent measurements have confirmed the general trend of frequent violation of pollutant limit values.**<sup>92</sup>

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<sup>88</sup> European Commission, DG V (Employment, Industrial Relations and Social Affairs), Directorate V/F – Public Health and Safety at Work, Unit V/F/5 Occupational health and safety at work, 5<sup>th</sup> ECSC medical research programme, Research ref. No: 7280/03/046. Sichletidis, L. “Comparative Study of the Effects of Occupational Exposure to Coal and Exposure to Environmental Pollution on respiratory Function” (1999), p. 9 (**Annex 12**). A shorter, modified version of this report has been published: L. Sichletidis, I. Tsiotsios, E. Daskalopoulou, I. Ziomas, K. Michailidis, I. Kottakis, Th. Konstantinidis, P. Palladas: “The effect of environmental pollution on the respiratory system of lignite miners: a diachronic study” in *Med Lavoro* 2004, 95 (**Annex 13**). The general results of this study were also published as a supplement in the *American Journal of Respiratory and Critical Care Medicine*, volume 2000, 163 (5):A169, 229s.

<sup>89</sup> Comparative Study (**Annex 12**), p. 27.

<sup>90</sup> Comparative Study (**Annex 12**), p. 30. It should be noted that the data available at the time of the study was limited to Total Suspended Particulate (TSP) and SO<sub>2</sub>, and only for the period 1985-1990, see p. 29. For the six-year period, SO<sub>2</sub> levels were excessive during three consecutive years.

<sup>91</sup> Comparative Study (**Annex 12**), p. 32.

<sup>92</sup> See note 78, p. 22.

### 3.2.3.2. Emissions in the Megalopolis region

82. The Megalopolis region contains **some of the oldest lignite-fired power stations** in Greece. Although we do not provide specific data on the overall emissions in the area, we should note that there are no reasons suggesting these would be inferior to those in the Ptolemaïda area. Concentrations in ambient air – and therefore health effects for individuals – might be different because of topography or prevailing winds. It should be noted, though, that **SO<sub>2</sub> emissions from the Megalopolis area are paradoxically much higher than those from the Ptolemaïda area, despite the latter being a much larger energy producer**<sup>93</sup>. This is further indication that pollution control in the Megalopolis area is not efficient, probably due to the use of old or inadequate technologies.

### 3.2.3.3. Health risk factors in coal mining

83. Besides the consequences of coal combustion, mineral matter in coal can be an occupational hazard in itself, in particular in mining. High concentrations of the crystalline forms of silica (quartz, trydimite and cristobalite) within fly ash are considered responsible for the ‘coal workers pneumonocociosis’. Moreover, high content of certain trace elements (such as As) in coal ashes can present serious environmental and health hazards<sup>94</sup>.

84. **Large particles and fly-ash are caught in the upper respiratory tract, smaller ones are respirable/inhalable and penetrate the deeper regions of the lung.** With regards to Ptolemaïda “Granulometric analyses have shown that the greatest part of the particulates has a large aerodynamic diameter and is trapped in the nasal entrance”.<sup>95</sup>

### 3.2.3.4. Results of the “Comparative Study of the Effects of Occupational Exposure to Coal and Exposure to Environmental Pollution on respiratory Function”

85. To date, a single study has been conducted to distinguish between health effects of occupational exposure and environmental exposure to particulate matter in Greece. According to the study, *rhinitis* denotes inflammatory vascularization of the nasal mucosa, which is demonstrated by pruritus, sneezing, nasal catarrh and obstruction. The relation of rhinitis with asthma is well established.<sup>96</sup>

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<sup>93</sup> See note 75, above.

<sup>94</sup> Comparative Study (**Annex 12**), p. 9.

<sup>95</sup> Comparative Study (**Annex 12**), p. 27.

<sup>96</sup> *Leynaert B, Neukirch F, Demoly P, Bousquet J*: “Epidemiologic evidence for asthma and rhinitis comorbidity” *in*: J Allergy Clin Immunol 2000, 106: S201-S205.

86. Nasal flow and obstruction of the nasal cavity were assessed in this 1999 study. The studied population was divided in four categories: workers of the lignite mines living in the Eordea valley (group A), workers of the lignite mines living out of the Eordea valley (group B), white-collar workers living within the Eordea valley (group C), and a control group of cattle breeders from Grevena (outside the Eordea valley, group D). All subjects were examined once, and a considerable part was examined a second time, three years later. Incidence of severe rhinitis was very high for lignite mine workers, regardless of place of residence (73% group A, 71.2% group B), considerably high for other residents of the valley (55.7%) and comparatively low for the control group (19.3% group D)<sup>97</sup>. For comparative purposes, consider that Sibbald and Rinc had found an average prevalence of 24% of rhinitis in a group of 5.349 of patients examined in London.<sup>98</sup>

87. Among mineworkers and inhabitants of the Eordea valley, a high prevalence rate (14%) of atrophic rhinitis was found. Atrophic rhinitis is characterized by a progressive atrophy of the nasal mucosa and subjective nasal bones. The large aerodynamic diameter of particulates as well as the presence of chromium, cadmium and nickel in these particulates have been considered the main causes of atrophy of the nasal mucosa. The study asserts that

*“... the common levels of air pollution act irritatively on the nasal mucosa, causing hypersecretion of the mucus and gradual degeneration and necrosis of the ciliary epithelial cells. Consequently, there is a disturbance of the normal clearance and an increase of the number of germs to the mucus surface. The toxic effects are possibly due to the adding or synergistic effect of various pollutants. The results of the chronic occupational dust inhalation, in relation with its chemical action and its content in germs are, in less severe situations, irritation and chronic catarrh. On the other hand, in severe situations the results are chronic rhinitis with hyperplasia of nasal turbinates and nasal cartilage, formation of polyps or atrophía of nasal mucosa. We, too, ascertained these finding in the 3 groups of Eordea region. In the paranasal cavities x-ray imaging, the patients presented hypertrophy of nasal turbinates – nasal cartilage and polyposis as follows: Group A 53.9%, group B 48.1% and group C 42.6%, while respectively the control group 20.3% presented differences of a statistical importance.”<sup>99</sup>*

It is important to note that rhinitis is a frequent precursor to asthma<sup>100</sup>. The relation between rhinitis and Chronic Obstructive Pulmonary Disease (COPD), as well as the relation between environmental pollution and COPD are still not clear<sup>101</sup>.

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<sup>97</sup> Comparative Study (**Annex 12**), p. 36. On the subjects, see p. 15.

<sup>98</sup> Comparative Study (**Annex 12**), p. 56. Sibbald B, Rink, E. “Epidemiology of seasonal and perennial rhinitis: clinical presentation and medical history” in *Thorax* 1991; 46; 895-901.

<sup>99</sup> Comparative Study (**Annex 12**), p. 56-57.

<sup>100</sup> Comparative Study (**Annex 12**), p. 79. See also note 96.

88. With regards to lower respiratory system diseases, the 1999 study found that chronic bronchitis had a high prevalence rate among the inhabitants of the Eordea valley (27.1% to 22% in groups A, B and C), if compared to the control group (9.6%). On the other hand, there was no significant variation between groups with regards to Chronic obstructive pulmonary disease (COPD). An important finding is that smoking constitutes an important pathogenic agent of bronchitis, as 33.1% of smokers suffer from chronic bronchitis, while the disease is present in only 4.6% of non-smokers.<sup>102</sup>

89. Low impact on respiratory function was assumed to be the result of the short time interval between measurements (3 years). Re-examination of the subjects after a longer time period should demonstrate the nose and lower expiratory system implications of long-term exposure in air suspended particulate polluted environments.<sup>103</sup>

90. Another study has found that the prevalence of COPD in Northern Greece was the same in high-pollution urban setting (Thessaloniki), high-pollution rural setting (Eordea valley) and in low-pollution rural setting (Grevena), although it is speculated that it is impossible to assess the real level of exposure across the area's population in general. This same study found that the overall prevalence of rhinitis in Northern Greece was of 24.7%, which would be in line with findings concerning the prevalence of rhinitis in London. Both Thessaloniki and the Eordea Valley region, despite their disparity in size and vehicle traffic, had a high prevalence rate, commensurate with the level of concentration of particulates, most of which were not inhalable, i.e., would be trapped in the higher respiratory system, and would therefore express itself in nasal lesions and irritation.<sup>104</sup>

91. The aforementioned study took place in 2000-2001 and detects a considerably lower average level of prevalence of rhinitis than the 1999 Study conducted specifically in the Eordea valley. Two reasons justify this discrepancy: the first is the difficulty of defining rhinitis in the context of epidemiological research, each study using slightly different standards; the second is the fact that a broader set of subjects was selected in the more recent study, and that they were not selected for their involvement in the lignite-extraction industry. The older study focused on comparing the impact of air pollution, and occupational hazards of open-cast mining, in the overall prevalence of rhinitis in the region, using subjects in Grevena as a control. The second

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<sup>101</sup> L. Sichletidis, I. Tsiotsios, A. Gavriilidis, D. Chloros, I. Kottakis, E. Daskalopoulou, T. Konstantinidis "The Prevalence of the chronic obstructive pulmonary disease and rhinitis in Northern Greece" in *Respiration* (forthcoming) (**Annex 14**).

<sup>102</sup> Comparative Study (**Annex 12**), p. 63.

<sup>103</sup> Comparative Study (**Annex 12**), p. 79.

<sup>104</sup> **Annex 14**, p. 7.

study was focused on comparing three different regions (Thessaloniki, Eordea valley, and Grevena), and three different types of air quality (urban, traffic-related pollution, industrial pollution of power plants, and standard good-quality air). The second study assessed the relative impacts of smoking, age and gender, whereas the first did not.

92. **What emerges clearly from these two studies is that air pollution in the Eordea valley region has health impacts at least as severe as those occurring in Greece's second largest city, Thessaloniki. The source of the pollution might be different, but the heavy pollution from airborne particulate matter has a measurable and considerable negative impact on the health of the inhabitants of the Eordea valley region. To our knowledge, no studies have been conducted in Greece's other lignite centre, Megalopolis, but there are no reasons to dismiss the risk to health because of the lack of medical studies. Much to the contrary, the general absence of more detailed – and more frequent – studies is an indication of the lack of interest by public authorities in upholding the best possible environmental standards in the region. It should be noted that both studies quoted here have been financed by the EU, conducted by individual physicians and researchers, in the last 10 years.** There is no evidence whatsoever of population-wide health assessments for the region organized and financed by the State. The lack of continuous study voids any possibility of truly assessing whether progress has been made in reducing health-effects of pollution in the area, and also renders impossible to establish a time series with which to compare the studies quoted by the complainants.

#### 3.2.3.5. *Health effects on children*

93. Some categories of persons are particularly vulnerable to the health effects of air pollution: “The respiratory system of infants is extremely sensitive to non specific stimuli, and this hyper-reactivity evolves inversely to the age of its debut. Consequently, the protection of a child's respiratory system ensures healthy lungs during adulthood.”<sup>105</sup>

94. According to one study concerning the Western Macedonia region<sup>106</sup>, symptoms for both upper and lower respiratory system were more frequent in children in Ptolemaïda, Kozani, and Florina, a fact related to the high-level of particulate pollution in the region, almost

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<sup>105</sup> Sichletidis L, Tsiotsios I, Gavriilidis A, Chloros D, Gioulekas D, Kottakis I, Pataka A: “The effects of environmental pollution on the respiratory system of children in Western Macedonia, Greece” (forthcoming) in *Journal of Investigational Allergology and Clinical Immunology*, (**Annex 15**). These results have also been published (abstract and poster) as a supplement to the *Journal Asthma*, 2003(4), Supplement 1, p. 125.

<sup>106</sup> **Annex 15**, p. 6.



constantly higher than the WHO standards. These findings were true with respect to rhinitis, as well as infectious and acute bronchitis.<sup>107</sup>

### 3.2.3.6. Lung cancer and radionuclides

95. A single study has been conducted with reference to cancer risks due to the combustion of naturally-occurring radioactive elements<sup>108</sup>. Lignite combusted in power plants contains primarily natural radioactive elements, mainly from uranium (U) and radium (Ra) series. Lung exposure to radioactive dust particles is dependent on radioisotope concentration in the air, their natural properties, the pulmonary ventilation, the lung deposition of inhaled dust particles and the clearance rate. **Increased exposure to radon has been considered to be responsible for causing acute lymphocytic leukaemia in children and young adults, and to have a synergistic relation with smoking in increasing lung cancer.** Considering that nearly half of the male population in the area smokes, these issues are of considerable concern. A correlation between radon levels and stomach cancer has also been detected.

96. The above-mentioned study found a considerable increase in cases of cancer in the 90s in both areas studied. But it could not clearly establish a link between these increases and the environmental exposure to Radon in the Eordea valley region, as compared to the non-polluted control population.

97. **The above-mentioned study could not prove that radionuclides were implicated in carcinogenesis, nor excluded an association between radon exposure and lung neoplasms.** The study calls for longer observation periods and a greater number of cases to confirm these findings.

### 3.2.3.7. Lack of a Public Information Policy

98. Another important result from the various studies previously quoted is the population's general lack of information about the health effects of environmental pollution, or the synergistic relationship between smoking and air pollution. In one study, up to nearly 40% of the persons suffering from severe rhinitis were not aware that they suffered from the disease<sup>109</sup>. In another study regarding (COPD) prevalence in Greece, **it is noted that 81% of the patients**

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<sup>107</sup> Annex 15, p.6-7.

<sup>108</sup> L. Sichletidis, I. Tsiotsios, A. Gavriilidis, D. Chloros, T. Konstantinidis, K. Psarrakos, D. Koufogiannis, A. Siountas, and D. Filippou: "Deaths from neoplasms and detection of radionuclides in excised human lungs" (forthcoming) in *Archives of Environmental Health*, (Annex 16).

<sup>109</sup> Comparative Study (Annex 12), p. 37.

with COPD had never sought medical advice for their disease<sup>110</sup>. Yet another study indicates that childhood rhinitis and asthma among children aged 9-12 are “frequently underdiagnosed and undertreated”: only 37% of the patients’ parents knew their children suffered from asthma, while only 32% knew their children had rhinitis.<sup>111</sup>

99. These findings, along with the situation described in the sections concerning environmental assessment reveal a stark picture of the failure of the State to involve the affected populations in public-policy making and to enable these same populations to adopt preventive measures collectively or individually, measures that could considerably reduce the health effects of environmental pollution.

100. It must be first said that the involvement of concerned populations in environmental assessment studies is mostly merely formal. It is significant that two parliamentary questions were raised by members of parliament and directed to the Minister of Environment<sup>112</sup> and the Minister of Development and Home Affairs<sup>113</sup>, regarding the issue of effective citizen participation in environmental assessment. Inhabitants of the region request that studies on opening and extension of mines should take place on a preventive basis, and not – as has been the practice – at a later phase, and only to confirm the already an established situation. The fears expressed spring from negative past experiences with regard to compliance with environmental terms, and from the absence of an efficient monitoring mechanism. The second parliamentary question concerns **“Ptolemaida’s Ecological Movement” request that DEH officially inform employees and inhabitants of breach widening and landslides. According to the movement, breaches always existed in the mines but lignite quarrying has played a decisive role in their widening, in particular because of the lack of long-term planning and complete studies.** Measures adopted are allegedly always fragmentary and incomplete. The same movement alleges that Studies on Environmental Impact do not deal with the problem of landslides and the Studies finally submitted in 1998 to the Council of the Prefecture were blocked by the Ministry of the Environment for a long period and returned to the Council of the Prefecture for further discussion and consultation four years later in May 2002. As a consequence, a further last-minute deferral was asked for in order for the Technical Chamber to be informed and submit its own proposals. According to the MP submitting this question, the

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<sup>110</sup> N. Tzanakis, U. Anagnostopoulou, V. Filaditaki, P. Christaki and N. Siafakas “Prevalence of COPD in Greece” in *Chest* 2004; 125:892-900, p. 898, (**Annex 17**).

<sup>111</sup> L. Sichletidis, D. Chloros, I. Tsiotsios, D. Gioulekas, G. Kyriazis, D. Spyratos, O. Charalambidou and S. Goutsikas “The Prevalence of allergic asthma and rhinitis in children of Polichni, Thessaloniki” in: *Allergol et Immunopathol* 2004; 32(2): 59-63, (**Annex 18**).

<sup>112</sup> Question addressed in 1<sup>st</sup> December 2003 by Asimina Xyrotyri-Aikaterinari, MP.

<sup>113</sup> Question addressed in 17 February 2003 by Asimina Xyrotyri-Aikaterinari and Panagiotis Lafasanis, MPs.

study approved concerned 12-14 million tons of lignite produced in the mine (Section 6), but because of problems and delays in other mines for 2003, the operation was increased to 24-25 million tons lignite in the same mine. **In the same vein, populations nearest to the sources of dangerous emissions are not involved, or informed, about measures of air quality monitoring.**

101. In addition, the complainant would like to underline the fact that despite an accumulation of reliable information tending to show the high risks incurred by the inhabitants of the lignite-centre regions, the State fails to comply with its constitutional, legal, and Charter obligation with respect to the constant monitoring of public-health in these particularly vulnerable areas. **There can be no serious policy of environmental impact abatement without serious, sustained and population-wide research: without well-established facts, there can be no meaningful policy.** Since the construction of the first lignite-fired power plants, there has been a growing social concern with the health of those living next to these units, and yet the State has not acted to assess and, in the best way possible, reduce or eliminate health hazards. **On the contrary, according to news articles<sup>114</sup>, a recent Ministerial Decision<sup>115</sup> has determined that industrial waste (among which asbestos [‘αμιαντοτσιμέντο’] resulting from demolition sites) would be dumped in the lignite mine of Kardia, in Kozani.**

102. **In a sense the Eordea valley has become the trash bin of Greece. The country’s development depends largely on the continued exploitation of lignite, and yet those regions and populations that pay the highest price to ensure Greece’s relative independence in the field of energy, are denied the additional measures of protection that would render their sacrifice endurable. This is, at its simplest form, an issue of social solidarity.**

103. The State’s non-compliance with the Charter obligations is confirmed by the lack of public awareness campaigns specifically targeting these populations and the particular environmental hazards they are exposed to. Not only is there a lack of systematic and frequent information campaigns, but the State also fails to establish an appropriate rapid response mechanism for situations in which limit levels of pollution are exceeded. These two failures result in the population’s limited capacity to take individual and collective measures: uninformed people are ill-equipped to claim their rights, are not prepared to react to hazardous

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<sup>114</sup> See, for instance, Ptolemaios 12/02/2005 edition, p.13.

<sup>115</sup> Ministerial Decision 124528 (07/05/2004) of the Ministries of Environment, Development, Health and Social Security.

levels of exposure, do not know how to recognize symptoms of health problems, and cannot make informed decisions as to their future.<sup>116</sup>

#### 3.2.4. Instances of Non-compliance with Article 11

104. Given the evidence provided above as a whole, the complainant submits that the following facts constitute instances of non-compliance with Article 11 of the Charter:

- The State has failed “to remove as far as possible the causes of ill-health” by:
  - (i) allowing the operation of lignite mines without sufficient regard to environmental impacts caused, most notably:
    - by the operation of conveyor belts and other transport activities without adequately covering dust and humidifying it, resulting in avoidable dispersion of particulate matter;
    - by the inadequate dumping of fly-ash and stockpiling of lignite without adequate measures (spraying, pelletizing) to eliminate avoidable dispersion of particulate matter;
    - by allowing the usage of depleted mine sites as dump sites for hazardous industrial waste, without regard to waste management regulations, and overlooking the already excessively polluted situation of the region.
  - (j) allowing the operation of lignite-fired power plants without sufficient regard to environmental impacts caused, most notably:
    - by allowing the continuous employment of old, high-polluting technology, incompatible with the ‘best available technology’ requirements;

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<sup>116</sup> The right to information in environmental matters has been a matter of growing interest, and one cannot fail to see the close relationship between Article 11, paragraph 2 of the Charter and Article 8 of the European Convention on Human Rights, as interpreted by the European Court of Human Rights in cases such as: *Lopez-Ostra vs. Spain* (Judgment of 24 June 1994), *Guerra and Others vs. Italy* (Judgment of 19 February 1998), *Kyrtatos vs. Greece* (judgment of 22 May 2003), *Hatton and Others vs. United Kingdom* (Judgment of the Grand Chamber, on the Merits, 8 July 2003) and more recently, the case of *Taşkin and Others vs. Turkey* (Judgment of 10 November 2004). This general principle has also been developed under EC Law – as evidenced in some of the Directives quoted above – and in the adoption of the Aarhus Convention of 25 June 1998 *on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters* (entered into force 30 of October 2001, not yet ratified by Greece).

- by allowing the operation of power plants old filter technology or with no filter whatsoever;
  - by allowing the continued operation of power-plants without adequate environmental permits: *ex post* temporary permits, merely formal review and renewal procedures;
  - by establishing an inadequate environmental *monitoring* mechanism: the environmental and mining inspectorates are not sufficiently funded, equipped and staffed; violations of limit values are not followed by any administrative consequence; and political bodies authorize the violation of said limits on the argument of national necessity;
  - by establishing an inadequate environmental *enforcement* mechanism: available sanctions at the technical level are not sufficiently costly to change the violator’s behaviour; available sanctions that are dependant on political decision-makers are not applied; and, finally,
  - by continued reliance on fossil fuels, in a manner conducive to the violation of the Kyoto Protocol targets for Greece.
- The State has failed to “provide advisory and educational facilities for the promotion of health and the encouragement of individual responsibility in matters of health” by:
  - (k) Failing to involve affected populations in environmental impact assessment in a meaningful way;
  - (l) Failing to involve affected populations in health assessments targeting the most common air pollution effects on health, and allowing for the formulation of an appropriate public-health policy response;
  - (m) Failing to devise a public health information strategy centred on enabling individual responsibility and instructing affected populations on the means at their disposal to manage health risks on a regular and urgency basis;
- In addition to all the instances of non-compliance raised with regard to Article 11, paragraph 1, the State has failed to “prevent as far as possible epidemic, endemic and other diseases”, by:
  - (n) Not conducting regular, population-wide health assessments, centred on air pollution health effects;
  - (o) Not devising long-term strategies to manage the public health effects of the real levels of pollution in the areas; and,
  - (p) Not devising and implementing policies to respond quickly and effectively to environmental hazards resulting from exceeding air pollutants limit values.

105. For all the above reasons taken singly and in combination, the complainant requests that the Committee find that the defendant has not complied with Article 11, paragraphs 1, 2 and 3.

### 3.3. Lignite mining employment regime: violation of Charter Article 2 (4)

105. Article 2, paragraph 4, of the Charter reads:

**Article 2 – The right to just conditions of work**

With a view to ensuring the effective exercise of the right to just conditions of work, the Contracting Parties undertake (...) to provide for additional paid holidays or reduced working hours for workers engaged in dangerous or unhealthy occupations as prescribed;

106. In light of the Committee's practice under this disposition, according to which the mining of lignite is a 'dangerous or unhealthy occupation' under the Charter, the complainant submits that the defendant has failed in its obligation to ensure just condition of work, by denying lignite miners additional paid holidays or reduced working hours.

107. This matter has been subject to questions by the Committee under the reporting procedure. In its Conclusions with regards to Article 2, paragraph 4, the Committee stated:

*As Greece is a major producer of bauxite, lignite, nickel and asbestos, the Committee enquires whether measures to reduce working hours and award additional holidays are also prescribed for workers employed in the sectors mining these products, and whether agricultural workers benefit from similar measures.<sup>117</sup>*

108. The Defendant State replied negatively to the question set forth by the Committee in its 13<sup>th</sup> report, submitted in September 2002<sup>118</sup>. The Committee took note of this reply<sup>119</sup> and decided to defer its conclusion on the matter, requesting that:

*in order to assess the situation properly the Committee asks that the next report contain evidence indicating that the great majority of workers employed in dangerous and unhealthy activities benefit from the protection of Article 2§4.*

109. **Not only is there no public legal framework imposing that reduced working hours or additional paid holidays be accorded to lignite mine workers, but there is no employment policy by DEH stipulating any such conditions through individual or collective labour contracts.** The State, therefore, fails to comply with its obligations at two distinct levels: *directly*, as law-maker the State fails to regulate the labour market in order to

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<sup>117</sup> European Committee of Social Rights, Conclusions XIV-2, Greece, p. 332.

<sup>118</sup> Thirteenth Report on the Implementation of the Social Charter submitted by the Government of Greece, RAP/Cha/GR/XIII(2002), registered on 6 September 2002, p.12.

<sup>119</sup> European Committee of Social Rights, Conclusions XVI-2, Greece, p. 9.

protect these miners; and, *indirectly*, as *de facto* manager of DEH, a private corporation, the State fails in its duty to establish employment contracts respectful of its international obligations.

110. **As has been established in the previous sections<sup>120</sup>, lignite miners are particularly exposed to high levels of air pollution, especially in the form of particulate matter (PM). It is a well-established scientific fact that duration and intensity of exposure to air pollution are fundamental determinants of risk for respiratory diseases. It has also been clarified how respiratory diseases may have effects on other levels of human health, particularly when combined with smoking.** These two findings indicate that while individual risk might be small, the morbidity and mortality effects of air pollution across the population are extremely important. Studies previously quoted show that lignite-miners, regardless of place of residence, suffer from rhinitis more often than other categories of persons, clearly pointing to the fact that occupational exposure to air pollutants in lignite-mining explain the majority of respiratory disease cases.<sup>121</sup>

111. This complaint has established legislative omission by the State, as well as *indirect responsibility*, due to DEH's contractual policies with regards to miners. This complaint has also established that there are real and measurable effects to the health of lignite-miners. Therefore, there can no longer be any discussion as to whether lignite mining is hazardous. The complainant requests that the Committee no longer defer its decision as to whether Greece has failed to comply with its obligations under Article 2, paragraph 4, and that the Committee find a violation of the disposition.

#### 3.4. Occupational health and safety: non-compliance with Charter Article 3 (1) (2)

112. Article 3 of the Charter reads:

**Article 3 – The right to safe and healthy working conditions**

With a view to ensuring the effective exercise of the right to safe and healthy working conditions, the Contracting Parties undertake:

1. to issue safety and health regulations;
2. to provide for the enforcement of such regulations by measures of supervision;
3. to consult, as appropriate, employers' and workers' organisations on measures intended to improve industrial safety and health.

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<sup>120</sup> See above, section “3.2.3.3. Health risk factors in coal mining”, p. 27.

<sup>121</sup> See Comparative Study (**Annex 12**). Refer also to section “3.2.3.4. Results of the “Comparative Study of the Effects of Occupational Exposure to Coal and Exposure to Environmental Pollution on respiratory Function”, p. 27, above.

113. The complainant considers that Greece does not fully comply with its obligation to issue safety and health regulations because there is no legal framework for the detection, tallying, and compensation of occupational disease, and because Work doctor regulations are insufficient. More importantly, even for occupational health and safety matters regulated by domestic law, by not establishing effective, well-funded and adequately staffed monitoring mechanisms, the State fails in its obligation under Article 3, paragraph 2.

### 3.4.1. Greece's Legislative Framework

114. It should be said, in introducing the subject, that in certain countries, such as Greece, the EC Framework Directive 89/391<sup>122</sup> had considerable legal consequences due to the fact that these countries had antiquated or inadequate legislation on the subject when the Directive was adopted.<sup>123</sup>

115. **Law 1568/1985**<sup>124</sup> on *Occupational Health and Safety* is the first general legal framework regulating occupational health and safety issues, and determining the competence of authorities for the improvement of work conditions at national and regional levels. Employers are required to engage Technical Experts and Work Doctors in enterprises employing more than 50 persons (Article 4). In these enterprises employees have the right to establish Councils or Committees on Occupational Health and Safety (Article 2). Basic principles concern: safety in general and, more specifically, safety of workplaces (Article 17-21), and safety against physical, biological and chemical agents (Article 24-28). The manufacturers', importers' and suppliers' obligation concerning machines' safety (Article 22-23) was also introduced. Finally the law allowed for the imposition of sanctions in case of infringement of legislation (Articles 33-35 as amended by Articles 24-25 of Law 2224/1994 on *Labour, trade-union and occupational health and safety issues*<sup>125</sup>).

116. Only the first part of the previous law, the one concerning Work Doctors, Technical Experts and Employees' Committees, was applied with respect to mining activities until the entry into force of **Presidential Decree** (hereinafter, 'PD') **17/1996** on *Measures for the*

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<sup>122</sup> Directives 89/391/EEC (Official Journal L 183, 29/06/1989 P. 0001-0008).

<sup>123</sup> See, "Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of Regions on the practical implementation of the provisions of the Health and Safety at Work Directives 89/391 (Framework), 89/654 (Workplaces), 89/655 (Work Equipment), 89/656 (Personal Protective Equipment), 90/269 (Manual Handling of Loads) and 90/270 (Display Screen Equipment)" (COM/2004/0062 final).

<sup>124</sup> Law 1568/1985, Official Gazette A 177 (10/10/1985) on *Occupational Health and Safety*.

<sup>125</sup> Law 2224/1994, Official Gazette A 112 (06/07/1994) on *Labour, trade-union and occupational health and safety issues*.



*improvement in the safety and health at work*<sup>126</sup>. The **Regulation on Mine and Quarry Activities**<sup>127</sup> (hereinafter, ‘Regulation’) defined the attribution of liabilities and other, more specific, issues regarding safety measures. For instance, when there are more than one contract works within the same activity, the employer is responsible for health and safety of his employees, while the exploiter is charged with work coordination and programming (article 4, para. 1, indent f). *Inter alia*, under Article 4, paragraph 2 of the Regulation, the employer – either the contractor or the exploiter – has the following obligations: to comply with measures of safety and health of his employees; to comply with protection measures proposed by the work supervisor or the doctor in charge, regarding work, employees, ‘neighbours’ (local inhabitants), and the environment; to sign, in the case of a subcontracting of the whole or a part of contract work, an agreement according to indent f (see *supra*), so that liabilities are shared proportionately. Despite the fact that DEH, in order to reduce costs, assigned to contractors a large part of its mining activities it is important to keep in mind that DEH remains the coordinator of all contractors and therefore responsible for health and safety compliance.

117. Chapter II (Articles 7-13) of the Regulation determines issues concerning individual safety measures, work doctors, health surveillance, and employees’ training on health and safety. Chapter IV refers to general and specific safety measures, among which, a disposition determining that employees should be protected against fly dust, gases, vapours and smoke (Article 22). Article 82 contains general surface safety measures, in particular with regard to landslides or ‘fissures’ (‘ρωγμές’) and Article 83 establishes specific obligations on dumpsites, for which a special reference should be made in the technical study requested with regard to any mining activity (Article 4). Labour accidents (Articles 92-96) should be stated to authorities and the Mining Inspectorate. Moreover, a catalogue on accidents should be submitted every three months to the Mining Inspectorate (Article 96) enabling the competent section of the Ministry of Development to elaborate data on frequency, gravity and causes of accidents. A notable void under the regulation is the issue of occupational diseases: there is no specific requirement to identify, count, report, and compensate persons affected by occupational diseases.

118. A more specific instrument is **Ministerial Decision 14080/732/96** on Directive 92/104/EEC<sup>128</sup>, which was the 12<sup>th</sup> individual directive within the meaning of article 16, par. 1 of Directive 89/391/ECC, *on the minimum requirements for improving the safety and health protection of workers in surface and underground mineral-extracting industries*. Among

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<sup>126</sup> Presidential Decree 17/1996 on *Measures for the improvement in the safety and health at work*, Official Gazette A 11 (18/01/1996), harmonizing with Directives 89/391/EEC (Official Journal L 183, 29/06/1989 P. 0001 – 0008) and 91/383/EEC (Official Journal L 206, 29/07/1991 P. 0019 – 0021).

<sup>127</sup> *Regulation on Mine and Quarry Activities*, on the basis of Ministerial Decision II-5H/F/17402/1984, Official Journal B 931 (31/12/1984).

<sup>128</sup> Directive 92/104/EEC (Official Journal L 404, 31/12/1992 P. 0010-0025).

general obligations for the safety of the employees, the employer should ensure and update regularly the written evaluation on safety and health (Article 3), adopt any appropriate measures for the prevention of risks, including health hazards resulting from air pollution (Article 4), dumpsites (Annex, Part A, paragraph 15), etc. Furthermore, according to Article 8, the employer should adopt measures so that each worker is entitled (or compelled) to undergo health controls, before undertaking his activities and at regular intervals afterwards.

119. If this last disposition were effectively applied, there would be no particular difficulty in integrating an occupational disease detection procedure: by monitoring certain health parameters (such as respiratory function and capacity) occupational diseases could be detected at an early stage (allowing to limit damage). Moreover, there would be a clear and formal manner to assess the evolution of an individual's health after his employment in hazardous activities. An added advantage of establishing such a procedure is that useful data on the whole miner population would be available for preventive and comparative medical research.

120. Under the Ministerial Decision, there is a general obligation of the employer for the health and safety of his employees, even if the employees do not comply with their obligations or even if a special Technical Expert, Work Doctor, or other competent service for the protection and prevention of occupational risks are employed. **Presidential Decrees 17/96 and 159/1999**<sup>129</sup> on *measures for the improvement of health and safety at work in accordance with Directives 89/391/EEC and 91/383/EC* establish the general obligations of employers (prevention, information about occupational risks, application of all measures on health and safety) and specific ones (written evaluation of occupational risks, special record on occupational accidents and catalogue, etc.). According to Article 4, paragraph 1 of the PD every employer, regardless of the number of employees, should have a Technical Expert and in the case of more than 50 employees a Work Doctor as well. The employer has the right to choose, according to paragraph 4, to assign the responsibilities of the Technical Expert or Work Doctor to one of his employees, provided that minimum time requirements are respected (paragraph 7). These requirements imply that an employer cannot assign relevant competences to an employee who does not have enough time to perform all his responsibilities meticulously.

121. Article 7 of the same PD includes general obligations of the employers, such as: occupational risks prevention, regularly informing employees about relevant issues, creation of an appropriate health and safety structure and provision of necessary means to this aim. General

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<sup>129</sup> Presidential Decree 17/96, Official Gazette A 11 (18/01/1996) as modified by Presidential Decree 159/1999, Official Gazette A 157 (03/08/1999) on *measures about occupational health and safety* harmonizing with Directive 89/391/EEC (see *supra*) and Directive 91/383/EEC (see *supra*).

principles that should be applied include: risk avoidance (prevention, evaluation and elimination of risk), adoption of a human-centred perspective for labour organization, and technology development. Moreover, employers sharing workplaces should cooperate with regard to health and safety. They should also coordinate the measures adopted and inform each other on possible risks (paragraph 9).

122. Specific obligations of employees in order to effectively handle occupational accidents are established in Article 8. Every employer should dispose of a *written evaluation of occupational risk*, which, according to Article 3 of the PD 159/1999, should contain detailed information on the specification of risks, measures adopted to prevent them and risks that could possibly arise (e.g., exposure to health hazards, physical, biological or chemical). In order to establish a complete and effective written evaluation of occupational risk, the Work Doctor and the Technical Expert should determine occupational risks in a quantitative and qualitative way and take into consideration outcomes of periodic health controls as well.

123. Employee consultation and participation in the determination of the health and safety policy is guaranteed (Article 10). Employees should also be informed about relevant legislation, risks and measures adopted (Article 11).

124. As can be seen, the legal framework is, at first view, satisfying. Nonetheless, given the specific issue of occupational exposure to certain pollutants as demonstrated above, and:

- given the **lack of appropriate regulations concerning occupational diseases**<sup>130</sup>,
- given the fact that current legislation stipulates **the obligation for the presence of only one work doctor for any number of employees above 50, leading to the absurd possibility of having a single doctor 10.000 employees,**

the complainant asserts that the State has failed to fully comply with its obligation to “issue safety and health regulations” and has thereby violated Article 3, paragraph 1 of the Charter.

#### **3.4.2. Health and Safety Monitoring and Enforcement Mechanism**

125. Supervision of compliance with the Regulation on Mining and Quarry Activities is exercised by the competent Mining Inspectorate, staffed by engineers (Article 3 of the

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<sup>130</sup> This legislative gap is the object of petition n° 4404/2000 addressed to the European Parliament Committee on Petitions and currently under analysis. See also, ExternE-Greece (**Annex 5**), p. 44 and Christos Hatzis, “Social Security and Occupational Risk in Greece”, *Hellenic Institute for Occupational Health and Safety Journal*, 16 (2003), pp. 20-25, also available at <<http://www.elinyae.gr/ekdoseis/Periodiko/2003/Vol16/Vol16.pdf>> (in Greek).

Regulation). The Inspectors have the right to control any aspect of the activity, and consult with employees and trade unions. Measures imposed by Inspectors are always notified to the exploiter so as to inform, and coordinate with, contractors on health and security measures.

126. Moreover, a Labour Inspectorate Body (S.EP.E.) was established on 1 July 1999. Article 6 of **Law 2639/1998**<sup>131</sup> provides for a general Labour Inspectorate Body coming under the Minister of Labour. **Presidential Decree 136/1999**<sup>132</sup> organizes the Body at central and regional geographical levels. This Body has two branches, one for social security and general labour issues and another for health and security issues. The Body can investigate, find and prosecute any person that violates labour legislation. It has a consultative competence as well with respect to both employees and employers. Finally, the Body should refer to the Minister any problems resulting from the application of the legislation or any issues not covered by it.

127. **The complainant considers that existing legislation is not applied and that there is no effective enforcement and monitoring mechanism. The number and frequency of accidents constitutes evidence of this assessment: according to official data, every 3 days there is a fatal accident and every 14 minutes an occupational accident in Greece**<sup>133</sup>. **This situation results directly from insufficient monitoring by the public authorities and the failure of the Greek State to impose meaningful sanctions.**

128. As is the case with environmental inspections, safety and health inspections in the Greek mining sector suffer from **extreme resource limitations**: the two geographical divisions of the Mining Inspectorate are understaffed, ill-equipped and have severe budget limitations that in practice hamper their function. There has been a clear reduction in the number of inspections, which has led to an increase of accidents: in 2000 approximately 780 inspections took place (as regards Southern Greece), while only 550 inspections took place in 2004. Budgetary constraints have meant that inspectors have to use their personal vehicles (when available), receive no – or very limited – financial aid for *in situ* visits<sup>134</sup>, and are therefore obliged to limit their level of effectiveness.

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<sup>131</sup> Law 2639/1998 on *Labour issues, the establishment of Labour Inspectorate Body and other issues*, Official Gazette A 205 (02/09/1998).

<sup>132</sup> Presidential Decree on *the organisation of the Labour Inspectorate Body*, Official Gazette A 134 (30/06/1999).

<sup>133</sup> Evaggelia Soumeli, “Health and Safety at Work: Legislation with no Application”, Institute for Labour Studies, General Confederation of Greek Worker (GSEE), available at <<http://www.inegsee.gr/enimerwsi-33-doc2.htm>> (in Greek).

<sup>134</sup> For the Southern Mining Inspectorate, competent for the Megalopolis area, but also comprising the islands, there are currently five engineers. They receive a daily financial aid of 35€ (unadjusted since 1999). According to information obtained through interview (no official public reports are available), the work conditions of Inspectors in the Northern region, are worse as they receive no financial aid whatsoever, and must travel over 260 km (round-trip) to conduct Inspections in the Eordea valley region.

129. All the elements mentioned above as well as the privatisation of DEH, have created a **business environment in which sub-contracting has become an important part of the mining operation – leading to impressive lignite cost reductions<sup>135</sup>– but also to a general weakening of the implementation of the health and safety obligations of DEH.** This occurs in part because DEH transfers responsibility for health and safety matters to contractors, and in part because DEH exercises little or no control over the contractor’s health and safety policies, or the contractor’s solvency<sup>136</sup>.

130. In assessing this information, it is extremely important to consider that Western Macedonia is **the region with the highest unemployment rates in Greece** and DEH remains the main employer in the region<sup>137</sup>. Despite the fact that mining is a hazardous occupation, DEH has – by its leading position in the labour market and its outsourcing policies – encouraged sub-contractors to recruit personnel without qualifications or training in the mining sector, offering at best, **very weak safety and health standards, and low wages.** According to a recent news article<sup>138</sup>,

*Workers at the thermal power station of Agios Dimitrios in Kozani went on a short strike in order to protest for the death of a 63-year-old worker, Kon. Efthimiadis. He worked for the contractor that had undertaken the cleaning of conveyor belts used to transfer lignite. He was terribly crushed by one of them. The inspectorate body that visited the site confirmed that serious infringements of security measures had taken place. Actually the conveyor belt was functioning although during cleaning procedures all conveyor belts are supposed to be immobilised. Workers allege that the situation is aggravated since the privatization of DEH and the implication of contractors that do not comply with the law. The local Workers’ Union alleges that contractors’ employees receive a salary of 450-480€ for a 7-hour/day contract,*

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<sup>135</sup> See paragraph 33, above, p. 10.

<sup>136</sup> In a recent judicial case before domestic courts, DEH was recognized as having the overall responsibility for ensuring the health and safety conditions of contractor’s employees. Not doing so would have meant that DEH could escape its responsibilities by contractually attributing full responsibility to sub-contractors, without precautionary regard to sub-contractor’s practices in health and safety protection, and their capacity to pay indemnities in case of accidents.

<sup>137</sup> See above, paragraph 17, at pp. 5-6, and paragraph 33, at p.10. Since its privatisation DEH has reduced the number of employees, while constantly increasing mining and generation outputs. This has been partially achieved by sub-contracting. Although contractors are not directly employed by DEH, their employment is directly dependant on the continued operation of the mining business in the region.

<sup>138</sup> Plika Maroula, “DEH’s contractors: Galley Slaves”, *H Avgi*, 23 February 2005 (available, in Greek at: <[http://193.218.80.70/cgi-bin/hwebpressrem.exe?-A=380002&-w=ΔEH\\_&-V=hpress\\_int&-P>](http://193.218.80.70/cgi-bin/hwebpressrem.exe?-A=380002&-w=ΔEH_&-V=hpress_int&-P>)). Also with regard to contractors, in its 2003 report, S.E.P.E. expresses its deep concern that big enterprises, such as DEH, in order to reduce cost, assign a large part of their activity to contractors. S.E.P.E. aimed to intensify its inspections in those workplaces during 2004, in order to control compliance with labour legislation, coordination between contractors for a common program of security and health that the exploiter / employer should guarantee (S.E.P.E. report on activities 2003, p. 28 [in Greek], available at <<http://www.ypakp.gr/members/docs/385i5.zip>>).

*amounting to a contemporary form of slavery. GENOP-DEH, the central trade union of DEH's employees, expresses its concern about repeated occupational accidents. With regard to the specific accident, they declare that it demonstrates in the clearest way that contractors are uncontrolled and that they engage workers who are not sufficiently trained and informed. Moreover, they condemn the lack of workers, which deteriorates the situation and increases the risks. They also denounce that DEH has not yet completed the procedures of hiring personnel even for 2003.*

131. Additionally, a parliamentary question has been addressed to the Minister of Labour and Social Security and the Minister of Development concerning allegations of the suspension of preventive health controls in the energy centre of Kozani-Ptolemaïda-Amynteo.<sup>139</sup>

### **3.4.3. Instances of Non-compliance with Article 3**

132. In light of the facts described above, the complainant submits that the following facts constitute instances of non-compliance with Article 3 (1) and (2) of the Charter:

- The State has failed “issue safety and health regulations” by:
  - (e) Failing to adopt a legal framework for the detection, tallying, and compensation of persons affected by occupational disease;
  - (f) Requiring only one work doctor for any workplace, for any number of employees above 50, thereby permitting companies with single large work sites (such as lignite mines employing more than 1.000 employees each) to ‘comply’ with health and safety regulations.
- The State has failed to “provide for the enforcement of such regulations by measures of supervision” by:
  - (g) Depriving the Mining Inspectorate of the adequate and required means to meaningfully carry out supervisory activities with the frequency and quality required to avert – as far as possible – the occurrence of occupational accidents and diseases; and,
  - (h) Establishing a sanctions regime in which sanctions are not sufficiently costly to change the violator’s behaviour and in which, non-pecuniary sanctions are rarely, if ever, applied because of political decision-making.

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<sup>139</sup> Question addressed on 28 March 2003.

133. For all the above reasons taken singly and in combination, the complainant requests that the Committee find that the defendant has not complied with Article 3, paragraphs 1 and 2.

#### **4. Evidentiary means**

134. The present complaint contains sufficient evidence – both in the Analytical Complaint and in its Annexes – to substantiate the legal claims contained in it. Nonetheless, the complainant reserves the right to provide further evidence on both admissibility and merits in the following phases of the procedure, in conformity with whatever time-limits the Committee might chose to determine.

135. In particular, and with the hope of ensuring both procedural equality and maximum information disclosure, the complainant reserves the right to submit to the Committee specific questions that the complainant expects the Defendant State to address at the merits phase. This is due to the fact that much information relevant to the Complaint is handled exclusively by the State and its agents, mostly due to privacy reasons, and that up-to-date, publicly available data are rarely, if ever, available.

#### **5. Petition**

136. The Marangopoulos Foundation for Human Rights, having regard to the legal and factual arguments presented, invites the European Committee of Social Rights to:

3. declare this Complaint admissible, and
4. having fully considered the merits of the Complaint, find that the Greek State has:
  - (d) Failed to comply with its obligations under Article 11, paragraphs 1, 2, and 3 (as established in paragraph 104, above);
  - (e) Failed to comply with its obligations under Article 2, paragraph 4 (as established in paragraph 111, above); and,
  - (f) Failed to comply with its obligations under Article 3, paragraphs 1, and 2 (as established in paragraph 132, above).

Athens, 23 March 2005

*Prof. Emer. Alice Yotopoulos-Marangopoulos*  
President of the MFHR

## **List of Annexes**

1. The MFHR's statutes approved by Presidential Decree 252 of 29 March 1980.  
1b: New composition of the Governing Board.  
1c: Modification of the Foundation's name.
2. DEH 2003 Annual Report (submitted in pdf format in the attached cd).
3. ICAP-DELOS report (submitted in pdf format in the attached cd).
4. DEH website print-outs.
5. Laboratory of Industrial and Energy Economics, National Technical University of Athens, *External Costs of Electricity Generation in Greece* [1997] (submitted in pdf format in the attached cd).
6. Photographic Dossier (submitted in the attached cd).
7. International Energy Agency, *Energy policies of IEA countries – Greece 2002 review* (submitted in pdf format in the attached cd).
8. Hellenic Ministry for the Environment, Physical Planning and Public Works, *National Allocation Plan for the Period 2005-2007*, December 2004.
9. B. Brunekreef, S.T. Holgate: "Air pollution and Health" in: *Lancet* 2002; 360: 1233-1242.
10. C. Pénard-Morand, I. Annesi-Maesano: "Air pollution: from sources of emissions to health effects" in: *Breathe*, December 2004, vol. 1, no 2, pp. 109-119.
11. N Künzli, R Kaiser, S Medina, M Studnicka, O Chanel, P Filliger, M Herry, F Horak Jr, V Puybonnieux-Texier, P Quénel, J Schneider, R Seethaler, J-C Vergnaud, H Sommer: "Public-health impact of outdoor and traffic-related air pollution: a European assessment" in: *Lancet* 2000; 356: 795-801.
12. European Commission, DG V (Employment, Industrial Relations and Social Affairs), Directorate V/F – Public Health and Safety at Work, Unit V/F/5 Occupational health and safety at work, 5<sup>th</sup> ECSC medical research programme, Research ref. No: 7280/03/046. Sichletidis, L. "Comparative



- Study of the Effects of Occupational Exposure to Coal and Exposure to Environmental Pollution on respiratory Function” (1999).
13. L. Sichletidis, I. Tsiotsios, E. Daskalopoulou, I. Ziomas, K. Michailidis, I. Kottakis, Th. Konstantinidis, P. Palladas: “The effect of environmental pollution on the respiratory system of lignite miners: a diachronic study” in: *Med Lavoro* 2004, 95.
  14. L. Sichletidis, I. Tsiotsios, A. Gavriilidis, D. Chloros, I. Kottakis, E. Daskalopoulou, T. Konstantinidis: “The Prevalence of the chronic obstructive pulmonary disease and rhinitis in Northern Greece” in *Respiration* (forthcoming).
  15. Sichletidis L, Tsiotsios I, Gavriilidis A, Chloros D, Gioulekas D, Kottakis I, Pataka A: “The effects of environmental pollution on the respiratory system of children in Western Macedonia, Greece” (forthcoming) in: *Journal of Investigational Allergology and Clinical Immunology*.
  16. L. Sichletidis, I. Tsiotsios, A. Gavriilidis, D. Chloros, T. Konstantinidis, K. Psarrakos, D. Koufogiannis, A. Siountas, and D. Filippou: “Deaths from neoplasms and detection of radionuclides in excised human lungs” (forthcoming) in: *Archives of Environmental Health*.
  17. N. Tzanakis, U. Anagnostopoulou, V. Filaditaki, P. Christaki and N. Siafakas “Prevalence of COPD in Greece” in *Chest* 2004; 125:892-900, p. 898.
  18. L. Sichletidis, D. Chloros, I. Tsiotsios, D. Gioulekas, G. Kyriazis, D. Spyrtatos, O. Charalambidou and S. Goutsikas: “The Prevalence of allergic asthma and rhinitis in children of Polichni, Thessaloniki” in: *Allergol et Immunopathol* 2004; 32(2): 59-63.
  19. Ptolemaios, Edition of 09/03/05, p. 1, 14.