

**EUROPEAN COMMITTEE OF SOCIAL RIGHTS
COMITE EUROPEEN DES DROITS SOCIAUX**



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Case Document No. 7

Marangopoulos Foundation for Human Rights v. Greece
Collective Complaint No. 30/2005

**FURTHER RESPONSE FROM MFHR TO THE
GREEK GOVERNMENT'S FURTHER RESPONSE
ON THE MERITS**

registered at the Secretariat on 11 September 2006

SUMMARY

1. INTRODUCTORY REMARKS	1
2. RESTATEMENT OF THE CASE UNDER ARTICLE 11	2
2.1. Summary of the evidence on air pollution	2
2.1.1. General remarks	2
2.1.2. Summary of the evidence on particulate matter	6
2.1.3. Summary of the evidence on SO ₂ and NO _x	9
2.1.4. Closing Observations on Air Pollution	9
2.2. Summary of the evidence on health problems	10
2.3. The obligation to remove the causes of ill-health	12
2.3.1. Summary of the evidence on the operation of lignite mines	12
2.3.2. Summary of the evidence on the operation of lignite-fired power plants	13
2.3.2.1. Licensing practices	13
2.3.2.2. Best available technology	14
2.3.2.3. Evidence on Monitoring	18
2.3.2.4. Evidence on Enforcement	18
2.3.3. Summary of the evidence concerning non-compliance with the Kyoto Protocol	21
2.4. Obligation to provide Advisory and Educational Facilities and to encourage individual responsibility in matters of health	25
2.4.1. Non-involvement of populations in environmental assessment	25
2.4.2. Non-involvement of populations in health assessment	26
2.4.3. Absence of a public health information policy	26
2.5. Obligation to prevent diseases as far as possible	27
2.5.1. Absence of population-wide health assessment	27
2.5.2. Absence of mitigation policies	28
3. RESTATEMENT OF THE CASE UNDER ARTICLE 2 §4	28
4. RESTATEMENT OF THE CASE UNDER ARTICLE 3	29
4.1. The obligation to issue health and safety regulations	29
4.1.1. Absence of a regulatory framework for occupational disease	29
4.1.2. Inadequacy of the regulations concerning occupational doctors	30
4.2. The obligation to provide for the enforcement of health and safety regulations	32
4.2.1. Inefficiency of monitoring	32
4.2.2. Inefficiency of enforcement	34
5. CONCLUDING OBSERVATIONS	35
6. PETITION	37

LIST OF ANNEXES	38
LIST OF ABBREVIATIONS, ACRONYMS AND CONVENTIONS	38

TABLES AND FIGURES

Table 1	EU adopted limit-levels for selected pollutants	p.4
Table 2	Ambient air quality data not presented or not collected by the State	p.5
Table 3	Main findings of air quality studies in the Kozani-Ptolemaïda region	pp.6-7
Table 4	BAT as reported by the State in both submissions	pp.15-16
Figure 1	Standardized fatal accidents per 100.000 workers, EU15 and Greece	p.33

MARANGOPOULOS FOUNDATION FOR HUMAN RIGHTS
COLLECTIVE COMPLAINT No. 30/2005

**REMARKS ON THE HELLENIC GOVERNMENT'S FURTHER
OBSERVATIONS AND SUMMARY RESTATEMENT OF THE CASE**

1. The Marangopoulos Foundation for Human Rights (hereinafter, 'the complainant', or 'the MFHR') has the honour to present its remarks to the Hellenic government's (hereinafter 'the State' or 'Greece') further written submissions on the merits of Collective Complaint No. 30 (hereinafter, 'the Complaint'), brought under the 1995 Protocol Establishing a Collective Complaint Mechanism (hereinafter, 'the Protocol'), alleging multiple instances of non-compliance with the European Social Charter of 1961 (hereinafter, 'the Charter'), and declared admissible by the European Committee of Social Rights (hereinafter, 'the Committee') on 10 October 2005.

1. Introductory remarks

2. The MFHR has decided to submit the present summary restatement of its case and the appended paragraph-by-paragraph comment (hereinafter, 'Comment') on the State's further submissions on the merits (hereinafter, 'SO-2') in order to clarify important aspects of the Complaint that have been either disregarded by the State's submissions or not adequately addressed. In doing so, the complainant has endeavoured to limit itself to the evidence already presented by either of the parties or to information in the public domain, and has circumscribed its additional allegations to points contested by the State.

The complainant presents its remarks and their annexes *as information* to the consideration of the Committee, without willing to extend the written procedure any further, given the nature of the rights under discussion and the urgent need to act for the protection of health. The State had the possibility, since April 2005, to collect data and provide the Committee with the relevant information. However, it is only at this final stage of the procedure that it provided the bulk of its arguments. Therefore the MFHR deems it necessary and in conformity with the fundamental principles of due process of law and equality of arms to briefly comment upon those arguments, and summarize the case.

3. Some preliminary and general observations on *SO-2* are required.

By the size of the State's submissions, one would expect a comprehensive refutation of the complainant's allegations on law and on fact for each one of the Charter provisions invoked. This is not the case, and it is as important to assess what was asserted by the State as it is to note which points it failed to address. Much of the information provided in *SO-2* had already been presented in the State's first submissions on the merits (hereinafter, *SO-1*) and numerous contradictions between the two exist. Moreover, throughout *SO-2* the State still presents information and data that are not verifiable and do not help to seriously examine the underlying problems.

In multiple occasions, EU law provisions are invoked by either party. The complainant has invoked such provisions to the extent they provide reliable, science-based and State-accepted standards, *e.g.* for air quality or best available technologies (BAT). The State, on the other hand, uses EU law defensively, to claim either that by complying with EU law it also fulfils the Charter's requirements or that certain community law provisions are not binding upon it.

general
observations
on *SO-2*

In several cases the State misunderstood the MFHR's claims, and responded to allegations the complainant never made. With regard to these instances, the complainant has attempted to clarify the underlying issue, and the original meaning of its allegations. Finally, the State continues to 'adopt' the Public Power Corporation's (hereinafter 'DEH', or 'Corporation') positions, statements and data, without autonomous evaluation or separate assessment. This is a particularly grave shortcoming with regard to the issue of monitoring and enforcement mechanisms efficiency.

2. Restatement of the case under Article 11

4. The State claims that either there is no environmental degradation, or that there are no health effects or, additionally, that the health effects observed are not imputable to its actions or omissions. The MFHR claims that air quality problems and health impacts – both proved by independent scientific studies – constitute strong evidence of violations of Article 11, unless the State proves that it has taken *all possible measures* to avoid the environmental degradation and to mitigate the resulting health problems. It has failed to do so. These three elements, together or separately, constitute failures to comply with Charter Article 11 (*Comment*, §§9-13, 55[1]).

2.1. Summary of the evidence on air pollution

2.1.1. General remarks

5. The State has tried to demonstrate that ambient air quality in both the Kozani-Ptolemaïda and Megalopolis areas is either ‘adequate’, ‘improving’ or ‘comparable to other areas’. The considerable amount of information presented by the State in furtherance of its claim is not persuasive, as will be seen below.

6. Nonetheless, before proceeding to discuss the evidence, the complainant would like to point out that the State’s evidentiary task was quite straightforward, and was not carried out with enough precision and transparency.

Ambient air quality standards worldwide focus on three categories of limit-levels, regardless of pollutant. The *long-term exposure* limit-level, expressed as the yearly average of daily mean concentrations of a pollutant, is useful in measuring the average level of exposure of individuals, and disregards both short-term episodes and seasonal variations of pollutant concentrations. It assesses the ‘background’ air quality, and is relevant for the assessment of accumulated, long-term effects of poor air quality. The *short-term exposure* limit-level is set higher than the previous one, but must not be exceeded in more than a specified number of days, or hours per year. This indicator measures the risks associated with short episodes of high-concentration of a pollutant, incidents that are strongly correlated with short-term increased mortality and morbidity. Finally, *national ceilings*, expressed as a total number of tons of a specific pollutant, serve the purpose of setting a cap to the amount of pollution that may be emitted by certain or all sectors of activities within a given country. The purpose of this limit-level is to force the adoption of policies that reduce the aggregate level of pollution, e.g. the Kyoto Protocol targets. In the following table¹, the adopted limit-levels for each pollutant relevant to the Complaint are displayed:

ambient
air quality
standards

¹ Total Suspended Particulate (TSP) includes all airborne particles in ambient air, regardless of size. Particulate Matter <10µm (PM₁₀), or *fine* particles, includes only airborne particles in the range smaller than 10 micrometers (10⁻⁶m). PM₁₀ also includes PM_{2.5} particles (size <2,5µm). PM₁₀ and PM_{2.5} are more strongly related to health problems than the coarser TSP, because they are inhaled deeper, and are capable of reaching the lower respiratory system. Sulphur Dioxide (SO₂) and Nitrogen Oxides (NO_x) are both acidifying substances strongly related to acid rain and are well-known respiratory irritants. Greenhouse Gases (GHG), normally expressed in tons of CO₂ equivalent (CO₂eq), include multiple gases related to the greenhouse effect, the monitoring and abatement of which is crucial in the limitation of global climate change. Limit levels for PM₁₀, SO₂ and NO_x are established by Council Directive 1999/30/EC of 22 April 1999 *relating to limit values for sulphur dioxide, nitrogen dioxide and oxides of nitrogen, particulate matter and lead in ambient air* (OJ L 163, 29.6.1999, p. 41), the consolidated version of which is available at <<http://eur-lex.europa.eu/LexUriServ/site/en/consleg/1999/L/01999L0030-20011023-en.pdf>>, last visited on 30 August 2006. GHG emissions ceilings for Greece are established by the EU Burden Sharing agreement on the joint fulfilment of the Kyoto Protocol, and were taken from the Greek National Allocation Plan for the period 2005-2007 (NAP1). National limit values for SO₂ and NO_x are taken from Directive 2001/80/EC of the European Parliament and of the Council of 23 October 2001 *on the limitation of emissions of certain pollutants into the air from large combustion plants* (OJ L 309, 27.11.2001, p. 1) available at <<http://eur-lex.europa.eu/LexUriServ/site/en/consleg/2001/L/02001L0080-20011127-en.pdf>>, last visited on 30 August 2006. The limit-value for TSP, established by Council Directive 80/779/EEC of 15 July 1980 *on air quality limit values and guide values for sulphur dioxide and suspended particulates* (OJ L 229,

Table 1 – EU adopted limit-levels for selected pollutants

	long-term exposure	short-term exposure	national ceiling
TSP	150µg/m ³	300µg/m ³ daily limit (not to be exceeded >18 days per year)	n.a.
PM₁₀	40µg/m ³	50µg/m ³ daily limit (not to be exceeded >35 days per year)	n.a.
SO₂	120µg/m ³	350µg/m ³ hourly limit (not to be exceeded >24 times a year) and 125µg/m ³ daily limit (not to be exceeded >3 times a year)	320 ktons (For plants existing before 1 July 1987)
NO_x	40µg/m ³	200µg/m ³ hourly limit (not to be exceeded >18 times a year)	70 ktons (For plants existing before 1 July 1987)
GHG	n.a.	n.a.	110,2 Mtons (to be reached at the latest in 2012)

The State has asserted that it is not bound by certain of these limit-levels before specific dates provided for in the relevant European legislative acts. As mentioned before, international standards – such as the EU air quality standards – are only invoked by the complainant to the extent that they provide science-based, reliable benchmarks accepted by the State, against which to assess its performance (*Comment*, §§7[2], 9-13, 111[1], 229). They are used throughout the Complaint in order to compare *observed* air quality with *accepted* limit values.

7. Assuming, as the MFHR does, that the State has systematic measurements of ambient air quality for the Kozani-Ptolemaïda and Megalopolis areas, these could have been presented in a straightforward manner, for each pollutant. This could have been accomplished by the presentation of a table showing, for the last eight years²: what yearly average values had been registered at each relevant measurement station, for each pollutant category; the number of times short-term exposure limit-levels had been exceeded at each station, for each year, and for each pollutant; and, finally, the estimated or measured data on the total national emissions for each pollutant with a national ceiling.

absence
of data

Since the State asserts that it carries out systematic measurements and monitoring activities, and that these are readily available to the public, the information suggested above

30.8.1980, p. 30) has since then been repealed by the EU, as it is no longer considered a sufficiently accurate indicator of air quality for health protection. It is presented in Table 1 because the State has referred multiple times to measurements of this pollutant, despite its limited usefulness as a health-sensitive indicator.

² The complainant is assuming, without conceding, that for the State the only facts falling within the Committee’s competence *rationae temporis*, are those that occurred since 1998, date of the ratification of the Protocol establishing a collective complaints mechanism. The complainant’s position on the issue, as stated in the admissibility phase, is as follows: because the effects of long-term exposure to ambient air pollutants may be felt only years after exposure, the complainant submits that the morbidity and mortality related to chronic conditions such as upper respiratory dysfunction are attributable to the State, even though exposure to pollution might have occurred before 1998.

could easily have been compiled in a suitable manner since this Complaint was declared admissible in October 2005. The State has done no such thing, raising questions about the quality, completeness and relevance of the information on air quality it provided (*Comment*, §§119[2-8], 135[2-3], 143-4).

8. Despite the alleged availability of information, **no information** whatsoever was provided (or collected) by the State, for certain of the pollutants and limit-levels, as seen:

Table 2 – Ambient Air Quality Data not Presented or not Collected by the State

Measurements on long-term exposure limit-values for:	<ul style="list-style-type: none"> • NO_x in the Kozani-Ptolemaïda region; • NO_x in Megalopolis before 2003; • SO₂ in Megalopolis from 1970-1996³; • PM₁₀ in Megalopolis before 2003;
Measurements on short-term exposure limit-values for:	<ul style="list-style-type: none"> • PM₁₀ in both the Kozani-Ptolemaïda and Megalopolis regions; • SO₂ (hourly and daily) in both the Kozani-Ptolemaïda and Megalopolis regions; • NO_x in Kozani-Ptolemaïda before 2003;
Measurements on national ceiling limit-values for:	<ul style="list-style-type: none"> • both SO₂ and NO_x;⁴

9. Moreover, for those air quality indicators for which *some information* was provided, the Complainant observes that the graphics presented do not allow serious scrutiny (*Comment*, §§119[2-8], 135[2-3], 143-4). Besides not indicating their sources, the figures show single curves for each region, although multiple measurements stations exist in both regions. Each station has its own characteristics: it might be urban, industrial or rural; it might be closer or farther away from lignite-related emission sources; it is affected differently by topography and wind patterns; and, it is representative of different population densities. The main problem with the ‘aggregate approach’ chosen by the State is that by averaging the measurement values from multiple stations, areas with high concentrations of air pollutants ‘disappear’ from the graphic representation of the trend in pollutant concentration.

opaqueness
of data
presented

For instance, the State has not challenged the MFHR’s assertion that the village of Klitos (pop. 1.300) and the city of Kozani (pop. 46.000) have both been exposed for years – at least from 1997 to 2003 – to levels of particulate matter concentrations that would violate the EU standards for PM₁₀ (*Res.*, §15[2]; *SO-2*, §100). Despite this, if one were to look at *SO-2*’s

³ This is a peculiarly important omission, because of the high sulphur content of the lignite in the Megalopolis area. Poor fuel quality and inadequate abatement techniques have resulted in Megalopolis A and B (850MWth), being responsible in 2001 for 57% of the electricity generation sector’s total SO₂ emissions, and 39% of national emissions. Despite that, no measurements of SO₂ were taken in Megalopolis before 1996, although such measurements were carried out as early as 1986 in the Kozani-Ptolemaïda region.

⁴ Although the State in *SO-2* strongly challenges a scientific paper that asserted Greece’s marginal infringement of its 70kton NO_x ceiling for existing plants (those that operated before 1987), it does not provide a value for the current level of NO_x emitted by these large combustion plants (*Comment*, §138[1,2]).

Figures 8 and 10, one would have the impression that air quality in the Kozani-Ptolemaïda region is good. This impression would nonetheless be unfounded, as roughly a third of the valley’s population has been exposed for years to well-documented, health-endangering levels of air pollution.

2.1.2. Summary of the evidence on particulate matter

10. A number of studies on particulate matter (TSP, PM₁₀) concentrations in ambient air were presented by the complainant (*Complaint*, §§80-82; *Res.*, §§14-19). The results of these studies were not challenged by the State, but it was alleged that ‘source apportionment’ studies had shown that the majority of particles in ambient air came from diesel combustion engines and were therefore unrelated to DEH’s activities (*SO-1*, pp.29-30; *SO-2*, §§103, 110). The State concluded that it was vehicular traffic, and not fly-ash from power plants that caused air pollution.

11. The complainant must first restate the findings of the studies it has invoked in the *Response*, or that the State has invoked in *SO-2*⁵:

Table 3 – Main Findings of Air Quality Studies in the Kozani-Ptolemaïda Region

Main findings on TSP and PM ₁₀ concentrations	
Triantafyllou (2000)	<p>This study was the first to publish PM₁₀ measurements for Kozani, and covered the period 1991-1994, finding that:</p> <ul style="list-style-type: none"> • “the annual mean concentration of PM₁₀ in the southern [Eordea Mountain Basin] for 1991-1993 exceeded the US Environmental Protection Agency (EPA) air quality standard, while during the next year this value was found to be approximately equal to the air quality standard. (...) The minimum concentrations during the entire 24-hr period were in the range of 50-70 µg/m³, depending on the time of the year” (p.1021). • Table 1 (p.1020), showing monthly and annual mean concentration of PM₁₀ from January 1991 to December 1994 reveals that the monthly average was below the 50µg/m³ short-term limit level in only 17 out of 48 months (this should normally not be exceeded in more than 35 days a year). More importantly, only 4 months in 48 had a daily average below the 40 µg/m³ level which is the standard for long-term exposure. • It was noted that lower concentrations occurred during spring, and were caused by natural precipitation of particles because of rainfall (p. 1020). The author also indicates that in summer, the “causes of the high concentration were the lignite mining operation, the open coal mines and the absence of wet removal processes”.

⁵ Full references of the articles: Triantafyllou, A.G. (2000) “Patterns and Concentrations of PM₁₀ in a Mountainous Basin Region”, *J. Air & Waste Management Assoc.*, **50**: 1017-1022 (mentioned in *SO-2*, §99, but not provided by the State; now presented as **Annex 3**); Triantafyllou, A.G. (2003) “Levels and Trends of Suspended Particulates Around Large Lignite Power Plants”, *Environmental Monitoring and Assessment*, **89**: 15-34 (*Res.*, **Annex 1**); Triantafyllou, A.G. (2005) “Particulate Matter Over a Seven Year Period in Urban and Rural Areas Within, Proximal and Far from Mining and Power Station Operations in Greece”, *Environmental Monitoring and Assessment*, published online August 2006, (*Res.*, **Annex 2**); Samara, C. (2005) “Chemical mass balance source apportionment of TSP in a lignite-burning area of Western Macedonia, Greece”, *Atmospheric Environment* **39**: 6430-6443 (*SO-2*, **Annex 7**); Petaloti, C. (2006) “Trace elements in atmospheric particulate matter over a coal burning power production area of western Macedonia, Greece”, *Chemosphere*, article in press (*SO-2*, **Annex 8**).

Triantafyllou (2003)	<p>This study analyzed the measurements of TSP from eight measurement stations (and PM₁₀ for one) from 1983-1998 and shows that the EU long-term limit-level of 150µg/m⁻³ for TSP (Figure 3, pp. 23-25) was exceeded at :</p> <ul style="list-style-type: none"> • K. Spor (measurements 85-96) from 85-87 • PPC Village (measurements 86-98), from 86-94, and in 96 • Komanos (measurements 83-97) from 83-86, from 88-90 and from 93-96 • Akrini (measurements 85-97) from 85-90 <p>Moreover, the EU short-term TSP limit-level of 300µg/m⁻³ was exceeded:</p> <ul style="list-style-type: none"> • K. Spor from 85-87 • PPC Village from 86-94, and in 96 • Komanos from 84-86, 89, 94 and 96 <p>Finally, in Kozani both long- and short-term limit-levels for PM₁₀ (of 40 and 50µg/m⁻³ respectively) were exceeded for all three years measured (1996-1998).</p>
Triantafyllou (2005)	<p>This study using measurements for both TSP and PM₁₀ from 1997-2003 concluded that:</p> <ul style="list-style-type: none"> • 80% of the particles escaping from electrostatic precipitators (ESPs) were in the range <10µm, 25% of which in the range <2,5µm which is of paramount importance for human health related effects. • TSP long-term exposure limit levels were exceeded only in Klitos. As for short-term exposure limit-levels no conclusions could be drawn from Figure 4. • PM₁₀ long-term exposure limit levels were exceeded only in Klitos and Kozani. • PM₁₀ short-term exposure limit-levels, according to Figures 4 & 8, were exceeded at least 25% of days in Oikismos and Pentavrisos (P8, P9), at least 10% of the days in Florina (P11), and possibly 10% of the days in Koilada and Pontokomi (P5, P7). (<i>Comment</i>, §101[2]). In other terms, between five and seven of the existing nine stations measured exceedances of this parameter.
Samara (2005)	<p>This source apportionment study (see below, §13) found that TSP long-term exposure limit-levels from 2000-2001 were exceeded only in Klitos. But it also found that limit-levels for Arsenic (As), mainly associated with diesel combustion particles (p.6439) were exceeded in Pontokomi, PPC community, Kozani, Klitos, Florina, Ptolemaida and Vegoritis (Table 2, p.6434). This shows that in measurements stations with totally different characteristics, arsenic limit-levels in ambient air are exceeded.</p>
Petaloti (2006)	<p>Analysis of the effect of wind on TSP concentration found that in six out of nine measurement stations increases of TSP levels in ambient air are associated to DEH's mining and combustion activities (pp.7-9). Moreover, the long-term exposure limit-levels for Cd [Cadmium] (5 ng/m⁻³), As [Arsenic] (6 ng/m⁻³) and Ni [Nickel] (20 ng/m⁻³) associated to PM₁₀, were exceeded at S4 [Klitos] (Cd, As, Ni), S1 [Kozani](As), S7 [Ptolemaida] (As) and S10 [Florina](As) (p.4) Cadmium and Arsenic were strongly associated with diesel combustion, a source of emissions in itself largely attributable to DEH's activities (see below, §13).</p>

12. The State has put considerable emphasis on the fact that studies have also detected a downward trend in TSP concentrations through time, due to the improvement of particles abatement technology. The complainant has acknowledged this fact (*Res.*, 14[3]), but has asserted that it must not be given too much weight: *firstly*, although the TSP standard is no longer used by the EU because it is not an adequate indicator for health-endangering particles, exceedances of this limit-level have been constantly observed in at least one measurement station (Klitos) for the entire period 1997-2003, and in multiple stations in the 90s; *secondly*, measurements of PM₁₀ particularly those of the *Triantafyllou (2005)* study have found clear exceedances of long-term exposure limit-levels in two measurement stations (Klitos, Kozani) and short-term exposure limit-levels in at least five and at most seven measurement stations

downward
trend in TSP
concentration

(out of a total of nine)⁶; and, *thirdly*, the only study to verify the *real* efficiency of electrostatic precipitators with regard to fine particles (*i.e.*, those <10µm) has found that 80% of these escape the filter (*Comment*, §§65-68). No study or evidence contradicting these findings have been presented or referred to by the State.

13. On the second point, the State has also based much of its argument on ‘source apportionment studies’ that were not clearly identified before *SO-2*, although they were mentioned in *SO-1* (*SO-1*, pp.19-20; *Res.*, §16[2,3]). The conclusion drawn by the State from the *Samara (2005)* study – *i.e.* that most particulate pollution in the Kozani-Ptolemaïda region is due to vehicular traffic – is not warranted. The article itself states that “[d]iesel burning in vehicular traffic *and in the power plants for generator start up* was found to be the major contributor to ambient TSP levels at all 10 sites” (p.6430, emphasis added). It further clarifies that “[a]round 30,000t/yr⁻¹ of diesel oil is used in semi-trucks, (...) *Another 27,000t/yr⁻¹ is used in the four power stations for generator start up.*” (p. 6431; emphasis added). So, contrary to the State’s allegations, **roughly half of the diesel consumed in the region is consumed directly by the four power stations alone, for generator start up.** Moreover, the amount of vehicular traffic related to DEH’s activities must be considerable: around 10,000 DEH employees and contractors (of an estimated work-age population of about 70,000) must commute every day; and, 10-15% of all excavated materials in the mines (at least 21.1Mt/yr) is transported by diesel-fuel trucks (*Comment*, §§110, footnote 17).

source
apportionment
studies

14. Finally, the State allegation according to which air quality in the Kozani-Ptolemaïda region is comparable to, or better, than that found in areas not affected by power plants must be scrutinized attentively (*Comment*, §95[1]). The Complaint is about environmental conditions in specific areas, where multiple state-owned, intensely polluting installations and mines operate non-stop for the last 45 years. It is not appropriate to draw comparisons between these, and urban centres affected by totally different kinds of sources, of a much wider variety and complexity. More importantly, air conditions being *even worse* in other areas does not make air quality in these two specific areas *adequate*, and indicates a broader failure by the State to secure the best possible air quality. As shown above, air quality in the Kozani-Ptolemaïda region is far from being appropriate for human health.

comparability
of air quality

15. No specific articles on particulate matter concentrations in Megalopolis have been published, nor has the State produced any. Due to topography and a lower concentration of emissions sources, particulate matter concentration in ambient air in Megalopolis could be better than those observed in Kozani-Ptolemaïda. No conclusion can be drawn from *SO-2* Figures 11-13 (See above §9), except to note that PM₁₀ measurements were not taken prior to

particulate
matter in
Megalopolis

⁶ This finding on short-term exposure limit-levels exceedances is further strengthened by *SO-2*’s Figure 10, that shows a clear exceedance for the average of all measurement stations in 2000, and a linear trendline very close to the limit-level for all other years.

2003, and TSP measurements prior to 1996. This, in itself, is an indication of inadequate monitoring, and raises serious questions about the State's commitment to ensuring the best possible air quality. The complainant also refers to its arguments (*Res.*, §18), according to which Megalopolis A (units I-III) had the worst PM₁₀/MW emissions ratio of Greece, and further observes that Megalopolis B (unit IV), due to the combined use of flue gas desulphurisation (FGD) and ESPs, has the lowest⁷. This has considerable implications for the issue of best available technology (BAT), as seen below (see, §34).

2.1.3. Summary of the evidence on SO₂ and NO_x

16. Only two studies have been published⁸ on ambient air concentrations for these two pollutants. The State has provided only tables with averaged mean concentrations, the quality of which is unascertainable (see above, §9). Moreover, as highlighted in Table 2, above, no information was provided by the State on a number of important parameters. The most noteworthy are the lack of *any* long-term exposure measurements for NO_x in Ptolemaïda, and the *absence* of data on exceedances of short-term exposure levels for SO₂, in both regions.

17. Because of these important lacunae, the complainant must insist on its arguments concerning the strong degradation of emissions factors from lignite-fired power plants, for both pollutants, and its projected effects on national emissions levels for SO₂ and NO_x (*Res.*, §§20-24). According to the studies quoted by the complainant, emissions factors – mass of pollutant (kg) emitted per unit of energy produced (MW) – is increasing for most lignite-fired power plants, suggesting that abatement measures for both SO₂ and NO_x are insufficient.

The insufficiency of SO₂ abatement measures is particularly serious. Despite the fact that the Megalopolis lignite centre represents about 7% of national installed capacity, it produces over 57% of the electricity sector's SO₂ emissions, due to high sulphur content of the fuel. Despite this well known fact, only one flue gas desulphurisation (FGD) unit has been operating, with limited efficiency, in Megalopolis, and only since 1999. The three other units have been operating since the 1970s without any SO₂ abatement measures whatsoever.

2.1.4. Closing Observations on Air Pollution

⁷ This should be given particular importance because Megalopolis B has a higher capacity-factor (77%) – i.e. operates more hour per year –, than Megalopolis A (70%). See *Kaldellis et al. Response Annex 5*.

⁸ Triantafyllou, A., P. Kassomenos and G. Kallos, 1999: "On the degradation of air quality due to SO₂ and PM10 in the Eordea Basin, Greece". *Meteorologische Zeitschrift*, 8, 60-70; Zoumakis, N.M., A.G. Kelessis, G. Kallos, A. Triantafyllou, B. Charalampidou, Th. I. Kozyraki, F.K. Vosniakos, and M. Manolopoulou, 1992: "An analysis of the SO₂, NO₂ and particulates concentration levels under inversion break-up fumigations in the Ptolemaes-Kozani valley, Greece". *Fresenius Envir. Bull.*, 1, pp. 700-705. The complainant was not able to obtain copies of these studies so far.

18. What emerges from this brief overview of the evidence is that the State, while claiming to monitor air pollution closely, has not been able to provide a clear, straightforward picture of air quality in both regions where lignite is used for electricity generation. Much information has simply not been collected (Table 2, above), or not been appropriately presented (§9, above). The lack of information is all the more surprising given the State's unhampered access to measurements, and the ample time it was afforded by the Committee to provide the information. Moreover, peer-reviewed, scientific studies that the State has not challenged, provide detailed measurements for multiple stations, showing multiple violations of both short- and long-term exposure limit-levels for TSP, PM₁₀ and hazardous trace elements (Nickel, Cadmium and Arsenic) in ambient air.

Source apportionment studies that the State relies on in order to claim that vehicular emissions are the cause of pollution in Kozani-Ptolemaïda actually provide little support for its thesis. Rather, they show that diesel combustion engine particles are strongly related to DEH's activities, both in generator start up and in vehicular traffic (transport of personnel and excavated materials). The State's strategy of 'shifting the blame' from DEH to other sources is not in line with its obligation, under Charter Article 11, to monitor and adopt measures to ensure adequate ambient air quality.

2.2. Summary of the evidence on health problems

19. The Complaint presented a number of studies that measured the impact of ambient air pollution in the Kozani-Ptolemaïda region on human health, particularly the impacts on respiratory function (*Complaint*, §§76-97). In describing the effects of air pollution on health, the MFHR attempted to underline the various complex manners in which ambient air pollution could affect human health: *directly* and *indirectly*; in the *short-* and *long-terms*; *independently*, *cumulatively* or *synergistically* with other substances, pathological agents or life-patterns (*Complaint*, §§76-79; *Res.*, §§52-53). It was also highlighted that chronic respiratory problems, although not necessarily dramatic in the short-term, had over the long-term an impressive cost in terms of shortened life (disability adjusted life years, DALYs) and reduced productive activity. If adopting the measures required to ensure a sane environment involves costs, the cost of doing nothing, from a public health perspective, is equally impressive.

20. As already described, the main cohort-study conducted in the area had measured the relative rates of prevalence of upper respiratory system disease among persons exposed to occupational pollution (resident and non-resident lignite miners), and to environmental pollution (white collar workers living in the Eordea Valley), and compared them to a control group of cattle breeders from outside the Eordea valley. The results of this comparative study showed a much higher prevalence of respiratory problems among mine workers, regardless of

high prevalence
of respiratory
problems

place of residence, and a considerable, statistically significant, difference in prevalence rate between the control group and the white collar workers exposed to environmental pollution in the Eordea Valley (*Complaint*, §§85-92). This and other studies also presented in the Complaint discussed the prevalence of chronic bronchitis, chronic obstructive pulmonary disease (COPD) and lung cancer.

21. The State's observations regarding these studies limit themselves to rather vague comments on methodological problems of cross-sectional studies in general, highlighting the uncertainties of the conclusions drawn from such studies (*Comment*, §§170ff). For instance, it is alleged that clinically-oriented studies tend to over-estimate prevalence of disease because this renders the study more attractive for publishing. Such sweeping criticism would invalidate entire bodies of scientific research. It should be noted that the State has presented no studies that it would consider methodologically sound. In fact, throughout this procedure, the State has mentioned – not even produced – a grand total of *two* epidemiological studies in forty-five years.

State's
criticism of
methodology

22. Although the State admits expressly the *undoubted* existing link between pollution from large industrial installations and health problems of people working and/or residing near those areas (*SO-2*, §161-163), it has not carried out a wide and long-term assessment of pollution health effects with an inter-disciplinary approach. The State invokes only two epidemiological studies, within 45 years, conducted by Hygiene Laboratories exclusively. Not a single peer-reviewed article or study was invoked by the State. Based on these two studies, the State alleges that the lignite cycle had no measurable negative public health impacts in Kozani-Ptolemaïda and Megalopolis (*SO-1*, pp. 39-40). The complainant found several problems with regard to the methodology used, the age and quality of the data, and with regard to the manner, in which conclusions were drawn by the authors and how these were used by the State (*Comment*, §§176, 181, 187, 188[3], 189[1-2]; *Res.*, §§33-51).

epidemiological
studies invoked
by the State

More specifically, the studies invoked by the State used only old, statistical, inappropriately (or not at all) disaggregated data (*Comment*, §§176[1], 189[1]; *Res.* §§35, 48) without justifying the choice of the methodology used with reference to international literature. Moreover, the conclusions reached by the authors are not fully justified (*Res.* §34) and a thorough reading reveals that: (i) in *Kozani*, mortality rates had an 'impressive and rapid increase' due to cardiovascular problems (*Comment*, §§188[3], 189[1]; *Res.*, §42 and *Res. Annex 12*, pp. 57-58); (ii) in *Megalopolis*, contrary to *SO-1*'s claims, mortality rates are higher than the national average for cardiovascular diseases in both men and women and the rates of infections and neoplasia (in women) are slightly higher than in the rest of the Greek semi-urban areas (*Comment*, §188[3], *Res.*, §49 and *Annex 14*, p. 93; overall *Comment*, §188[3]); (iii) in *Komanos*, there is a statistical correlation between monthly rates of men's deaths and monthly average values of particulate matter concentration (*Res.*, §45; *Comment*, §187).

23. The State also alleged that increases in cancer prevalence, measured in only one study, the sample of which is avowedly insufficient, could be attributed to smoking habits, ageing of the population or the effects of the Chernobyl accident. Not only is this not the conclusion of the study itself, but the State nowhere provides a reason for acknowledging these causal factors and not air pollution (see, below, §57).

cancer
studies

24. What clearly emerges from the attentive appraisal of the evidence on health impacts of the lignite cycle is that, regardless of scientific uncertainties – which doubtlessly exist for any methodology or study – the studies provided by both complainant and State point out to a higher prevalence of respiratory and cardiologic problems, higher morbidity and mortality in the populations of Kozani and Arkadia prefectures. These results do not contradict each other: the body of evidence is in general agreement.

conclusion
on health

It is quite striking that throughout this procedure the State, via DEH's memorandum, presented only two epidemiological studies, the methodology and conclusions of which were extensively discussed in the *Response*. The State's position in *SO-2* seems to be that the existing uncertainties in all studies do not allow conclusions to be reached. As is well known, under the *precautionary principle*, which is clearly embodied in Charter Article 11, the lack of scientific certainty is not an acceptable reason for omission. As will be seen below, not only does the state not properly measure health impacts, but it also lacks a policy of prevention. If uncertainties do indeed still exist as to the *extent* of the impacts of air pollution on human health, it is in great part due to the fact that the State did not conduct the precautionary research (§56, below) and monitoring (§39, below) required for the protection of health.

2.3. The obligation to remove the causes of ill-health

2.3.1. Summary of the evidence on the operation of lignite mines

25. In the context of the lignite mines' operation, both the *Complaint* and the *Response* dealt with the inappropriate usage of conveyor belts (CBs), the usage of depleted mines as solid waste dumpsites and their negative impacts on the environment. The complainant raised specific matters regarding the non-coverage of CBs, their operation at high speed, and the lack of humidification systems (*Complaint*, §§35, 59; *Res.*, §§58ff). The State has, at no stage of the procedure, provided any data to clarify the exact terms under which CBs *should* operate and actually *do* operate, to confirm or refute the complainant's assertions. It has gone as far as claiming that it would be meaningless to provide such information (*SO-2*; *Comment*, §202). However, the State should have provided relevant data for the simple reason that it was so obviously called upon by the complainant to do so on specific points. It would have then been easier for the Committee to assess the State's compliance with the international standards it invokes.

26. Furthermore, the State provides contradictory information on the questions relating to the usage of CBs. It is not, for example, clear from the State's language in *SO-2* whether the relocation of the village of Klitos is completed to date. Additionally, the State provides no meaningful explanation why it started covering the CBs of Aghios Dimitrios power plant, since the village of Klitos (situated in close proximity to the power plant) is allegedly relocated. Moreover, the fact that the CBs of Aghios Dimitrios have still only been partially covered reveals that for at least ten years, they have been operating uncovered in a region where, as the State itself has admitted (see above, §9), TSP and PM₁₀ concentrations have always been exceeded and still considerably exceed the EU limit-level standards.

conveyor
belts

The State is particularly silent on the issue of speed-control and humidification measures that should be taken for the appropriate operation of CBs. However, the State concedes (*SO-2*, §289, indent [xii]) that the spraying system of the CBs of Megalopolis A (I-III) was partially inefficient, and have still not been upgraded.

27. As regards the complainant's allegations about solid waste disposal, the State provides no data to refute them or demonstrate that the waste management sites operate efficiently and in accordance with the existing legal framework. Additionally, the State makes no reference whatsoever to the concerns voiced by inhabitants, local newspapers, and even the Kozani Bar Association, on the disposal, in the DEH mines located in Kozani, of asbestos coming from other parts of northern Greece.

waste
disposal
sites

28. In conclusion, the State's failure to provide coherent data demonstrating that DEH's lignite mines operate with full respect of the environment, coupled with the decisions of administrative courts condemning DEH for not operating its lignite mines in compliance with the approved environmental terms (*Res.*, §§109-111) demonstrate that the State does not fulfil its obligation to remove the causes of ill-health.

conclusion
on mines

2.3.2. *Summary of the evidence on the operation of lignite-fired power plants*

2.3.2.1. LICENSING PRACTICES

29. The complainant presented the Ombudsman's findings concerning environmental licensing of DEH's units at Kardía, Aghios Dimitrios and Ptolemaída in Kozani, as an exemplary case revealing the lack of an effective environmental policy and the disastrous consequences resulting from the disproportionate weight given to the false and exaggerated dilemma of 'energy supply security' vs. 'respect for environmental law requirements and health' (*Comment*, §§245-247).

The State deviated from the explicit administrative procedures relating to the licensing of each individual power plant unit by ministerial decisions providing for site-specific

environmental terms (*Complaint*, §§46-60; *Res.*, §71; *Comment*, §248). By a *sui generis* procedure, the State granted to all units, by *law*, a *joint temporary* permit ultimately granted for 8 years (*Res.*, §74 and footnote 140).

30. Besides the disrespect for formal requirements, substantive problems arise from this practice: (i) access to justice and judicial review are denied, as laws fall outside the jurisdiction of the *Conseil d'Etat*, whereas ministerial decisions do not (*Res.*, §73); (ii) Article 24 of the Greek Constitution, as interpreted by the *Conseil d'Etat*, is transgressed because, if for any reason a joint permit of operation must be issued, it must be based on individual and specific environmental assessments for each unit (*Res.*, §73); (iii) the authorisation of Aghios Dimitrios' units, the most polluting power plant in Europe, according to WWF (*Res.*, §§74-82), was eventually given without *any* environmental terms approved; (iv) the principle of proportionality is being violated regarding the restrictions imposed on the right to health and the constitutional right to the protection of the environment in order to assure the legitimate public interest of energy supply security (*Comment*, §245).

problems arising from licensing practices

31. The procedural problems emerging from the above practice illustrate the ineffective compliance with environmental requirements: (i) 'temporary' permits are provided *by law* for power plants with *expired* environmental terms (*Comment*, §270; *Res.*, §§73-74 and footnote 140); (ii) approved environmental terms *are repeatedly modified* by subsequent Ministerial Decisions, continuously lowering the environmental protection standards in order to facilitate DEH's compliance (*Res.*, §83; *Comment*, §260); (iii) the considerable *delay in the administrative practice of licensing before* as well as *after* the adoption of the IPPC directive⁹ – even if temporary permits will be eventually replaced by permanent and individual ones – creates more doubts about the effective compliance of DEH's units with BAT requirements and the legislative framework (*Res.*, §§75-78; *Comment*, §§246, 250); (iv) national legislation does *not provide for the continuous training and update* of public authorities charged with environmental licensing, in violation of EC Directives (*Res.*, §87; *Comment*, §§266-269).

non-compliance with existing environmental requirements

2.3.2.2. BEST AVAILABLE TECHNOLOGY

32. The complainant asserted that the State has failed to remove as far as possible the causes of ill-health, by allowing the continuous employment of technology incompatible with the "best available technology" (BAT) standards, established by the European Union. More specifically, the complainant – basing itself entirely on the information presented by the State and DEH in *SO-1* –, demonstrated in its *Response* that the technology employed by DEH is

⁹ Council Directive 96/61/EC of 24 September 1996 *concerning integrated pollution prevention and control* (OJ L 257, 10.10.1996, pp. 26-40), *SO-2*, **Annex 18**.

outdated, inefficient, and implemented inconsistently, underlining, furthermore, the fact that the information presented by the State in *SO-1* was incoherent and incomplete (*Complaint*, §69ff; *Res.*, §§91ff).

33. In *SO-2*, the State neither responds to the complainant’s specific assertions concerning its disregard for BAT, nor does it provide clear, coherent and straightforward information regarding the technology actually applied by DEH. Table 4, below, displays the technology used by DEH, based on the information provided by the State in its two submissions and additionally demonstrates the inconsistencies between these two.

Regarding *particulate matter abatement*, the EU BAT reference document on Large Combustion Plants (BREF 2005) requires that Electrostatic Precipitators (ESPs) be used in combination with Flue-Gas Desulphurisation (FGD). For *SO₂ abatement*, BREF 2005 requires that low sulphur fuel be used in combination with FGD technologies.

EU BAT requirements

Table 4 – BAT as reported by the State in both submissions

Unit	DEH’s alleged technologies (SO-1)	DEH’s alleged technologies (SO-2)
Megalopolis A Units I-II	<ul style="list-style-type: none"> The operation of these units will be restricted from 2008-2015 (p.31); therefore interventions in ESPs are of limited possibility, given that their remaining lifetime is little (p.7). No FGD mentioned. 	<ul style="list-style-type: none"> Extensive maintenance and upgrading of ESPs are in progress for units I-II. The project has already been completed for unit I and is in progress for unit II (pp. 47, 88). No FGD mentioned.
Megalopolis A Unit III	<ul style="list-style-type: none"> Interventions for the improvement of the ESPs are taking place, to be completed by the beginning of 2006 (p.6). The installation of a FGD unit is under way (p.30-31, 33). 	<ul style="list-style-type: none"> The installation of high performance ESPs was completed in March 2006 (pp. 41 and 84 tables). A wet-FGD system is in construction in Unit III, to be completed in 2008 (p. 52).
Megalopolis B Unit IV	<ul style="list-style-type: none"> High-efficiency ESP has been installed (p. 6). Already has a FGD unit which presented problems, was upgraded, and its operation now can be considered sufficient (p. 6) Upgrade of FGD under way (pp.31, 33). 	<ul style="list-style-type: none"> The installation of high performance ESPs was completed in March 2006 (p. 84, table). A wet-FGD is in operation in Unit IV since 1999 (p. 84, table). Upgrade of FGD under way (p. 52, table).
Kardia Units I-II	<ul style="list-style-type: none"> The ESPs were replaced since 1987 (p. 32). No FGD mentioned. 	<ul style="list-style-type: none"> High performance ESPs operate since 1993 (p. 83, table). No FGD system is installed. Reliance only on natural desulphurisation (p. 84, table).
Kardia Units III-IV	<ul style="list-style-type: none"> The ESPs were replaced since 1987 (p. 32). No FGD mentioned. 	<ul style="list-style-type: none"> High performance ESPs operate since 2003 and 2004 respectively (p. 83, table). No FGD system is installed. Reliance only on natural desulphurisation (p. 84, table).

Ptolemaida Units I-III	<ul style="list-style-type: none"> ▪ ESPs replaced since 1987 (p. 32). ▪ No FGD mentioned. 	<ul style="list-style-type: none"> ▪ High performance ESPs operate since 1987 (pp. 41 and 83, tables). ▪ No FGD system is installed. Reliance only on natural desulphurisation (p. 84, table).
Ptolemaida Unit IV	<ul style="list-style-type: none"> ▪ ESPs replaced since 1987 (p. 32) ▪ No FGD mentioned. 	<ul style="list-style-type: none"> ▪ High performance ESPs operate since 1994 (p. 83, table). ▪ No FGD system is installed. Reliance only on natural desulphurisation (p. 84, table).
Ag. Dimitrios Units I, III, IV	<ul style="list-style-type: none"> ▪ Upgrading of existing ESPs and addition of new ones (p. 32). ▪ The Aghios Dimitrios I-IV ESP replacement project to be completed in 2007 (p.6). ▪ No FGD mentioned. 	<ul style="list-style-type: none"> ▪ A project of upgrading existing ESPs and adding new ones to be completed at the end of 2007 (p. 41, table). ▪ A project of upgrading existing ESPs and adding new ones to be completed early 2008 (p. 83, table). ▪ No FGD system is installed. Reliance only on natural desulphurisation (p. 84, table).
Ag. Dimitrios Unit II	<ul style="list-style-type: none"> ▪ Upgrading of existing ESPs and addition of new ones (p. 32). ▪ Aghios Dimitrios I-IV ESP replacement project to be completed in 2007 (p.6). ▪ No FGD mentioned 	<ul style="list-style-type: none"> ▪ High performance ESPs are in operation since May 2006 (p. 83, table). ▪ Upgrading and addition of new ESPs to be completed at the end of 2007 (p. 41, table). ▪ No FGD system is installed. Reliance only on natural desulphurisation (p. 84, table).
Ag. Dimitrios Unit V	<ul style="list-style-type: none"> ▪ No information provided ▪ No FGD mentioned. 	<ul style="list-style-type: none"> ▪ High performance ESPs since 1999 (p. 83, table). ▪ No FGD system is installed. Reliance only on natural desulphurisation (p. 84, table).
Melitis	<ul style="list-style-type: none"> ▪ It was constructed taking into account the most state-of-the-art anti-pollutant technology, according to the IPPC (p.30) 	<ul style="list-style-type: none"> ▪ High performance ESPs in combination with Wet-FGD (p. 84, table). ▪ Operation of wet-FGD (p. 52).

34.. Regarding *particulate matter* abatement technologies, two issues arise from *SO-1* and *SO-2* (*Comment*, §§239[1][2]). *Firstly*, according to the information presented by the State, very old and inefficient electrostatic precipitators still exist and operate, unable to withhold the most dangerous particles produced in the course of lignite combustion (*Res.*, §15; *Comment*, §§65-68). *Secondly*, the technology applied is partial and inefficient, as, *e.g.*, the ESPs are not used in combination with FGD systems to abate particles emissions, in disregard of EU BAT standards (*Res.*, §97; also, above §15).

particulate
matter
abatement

35. Regarding *SO₂ abatement*, the information provided by the State demonstrates that DEH relies almost exclusively on natural desulphurisation and has not installed FGD systems, significantly deviating from the EU BAT standards, according to which not only is natural desulphurisation not enough to abate SO₂, but it can also contribute to the emission of higher amounts of particulate matter. As already asserted by the MFHR, *if natural desulphurisation were an adequate measure, Melitis would not require an FGD system and Megalopolis would*

sulphur
dioxide
abatement

have never been allowed to operate without FGD. This suggests that implementation of SO₂ abatement measures is inconsistent (*Res.*, §98; *Comment*, §239[5]).

36. The complainant has repeatedly raised the issue of the outdated and inefficient technology used by DEH, and called upon the State to provide clear information on specific matters. However, the State still fails to respond to the complainant's specific assertions.

More specifically, one-and-a-half years after the initial Complaint was filed, and five months after the complainant submitted its *Response*, the State still does not provide clear, coherent and comprehensive information on the technology used by DEH. This becomes evident when one compares the answers contained in *SO-1* and *SO-2*. Not only are there contradictions between these two – e.g., according to *SO-1* interventions in the ESPs of Megalopolis A units I-II are of limited possibility due to those units' limited lifespan, whereas according to *SO-2*, the very same ESPs are undergoing 'extensive maintenance and upgrade', which is already completed for one of the units; contradictions are apparent also *within SO-2* – e.g. according to *SO-2* (p. 83), in Aghios Dimitrios unit II, high-performance ESPs are in operation since May 2006, whereas according to p. 41 of the very same response, the upgrading and addition of new ESPs in the same unit will be completed at the end of 2007 (*Comment*, §239[3]).

contradictions
on BAT used

The opaqueness of the information provided by the State with respect to the technology employed by DEH, is *incompatible with the State's claim of thorough inspections and effective monitoring and supervision* of the Corporation's activities. This assertion is further corroborated by the State's latest official reply to the European Commission concerning the IPPC implementation: in the years 2000-2002 Greece carried out only 24 inspections for all 324 installations – not only DEH's – covered by the IPPC Directive (*Comment*, §241[1]).

37. In *SO-2*, the State also attempts to misrepresent the character and minimize the importance and function of the EU BAT standards for Large Combustion Plants, by clearly misquoting a line from the Preface of the BREF 2005. Since the State considers the EU BAT document to be "of no legal value" – signalling its unwillingness to conform to the European standards collectively established – it should, at least, present an alternative document which it would accept to follow and enforce. This alternative national BAT document, appearing on the Ministry of Environment website – but never mentioned by the State – is vague and incomplete compared to the detailed and comprehensive European one. The State fails to justify on what grounds it decided to deviate so significantly from the EU-wide standards and whether the national standards it establishes can afford equivalent or better protection for the environment and human health (*Comment*, §234).

unwillingness
to follow EU
BAT standards

38. Thus, by not respecting the best available technology standards accepted at European-wide level, by allowing DEH to operate disregarding these standards, by not providing national BAT standards that afford an equivalent or higher level of environmental protection and by not

conclusion
on BAT

exercising effective monitoring and supervision of the technology applied by DEH, the State fails in its obligation to remove, as far as possible, the causes of ill-health under Charter Article 11§1.

2.3.2.3. EVIDENCE ON MONITORING

39. The ineffective implementation of the environmental legislation – licensing and respect for BAT – is unfortunately just one side of the coin. The other is the lack of effective monitoring and enforcement. The State does not at any point refute the complainant’s assertions regarding the inefficiency of the environmental monitoring mechanism. The complainant has asserted that the environmental inspectorate or other organs charged with monitoring the environment are insufficiently funded, under-staffed and ill equipped (*Complaint*, §§61-63; *Res.*, §§102-104). However, throughout *SO-2* there is not one reference to the environmental inspectorate and its activities, or to any other environmental organs, such as prefectural authorities. Thus, the State apparently still lacks the mechanisms to obtain independent assessment on the quality of environment in Greece, to find violations of environmental law and sanction them accordingly: not a single case of fine, suspension of activities or criminal proceedings for breaches of environmental regulation is mentioned by the State.

In the case at hand, the State continues relying on DEH’s environmental assessment of its own performance as extensively illustrated in the section on air pollution (above, §7). This reliance of the State on the Corporation – an additional indication of the collusion between the two – further aggravated by the local community’s economic dependency on DEH, explains, to a considerable extent, the lack of thorough, fact- and science-based environmental monitoring. For these reasons, the complainant requests that the Committee find that the ineffectiveness of the State’s *environmental monitoring mechanism* constitutes a violation of its commitments under Article 11§1 of the Charter.

2.3.2.4. EVIDENCE ON ENFORCEMENT

40. In both the *Complaint* and the *Response*, the State was challenged by the complainant to provide the Committee with specific information on the effectiveness of monitoring demonstrated by evidence on sanctions, including fines imposed (*Complaint*, §§61-63; *Res.*, §§105-113). The State failed to do so in both *SO-1* and *SO-2* (*Comment*, §§205, 278) and confined itself to repeating general principles and legal requirements without a single example

of concrete implementation. The State would leave no doubt about the effectiveness of enforcement mechanisms if it provided the Committee with reports or statistics or even simple decisions indicating that DEH is sanctioned, proportionally of course.

41. In stark contrast, the complainant demonstrated that: (i) **sanctions**, are not applied and the inhabitants' specific complaints about infringements are treated by competent authorities in an incomplete, defective and inadequate manner, without due regard to the principles of transparency and good governance (*Comment*, §§278, 289; *Res.*, §§106-107); (ii) in the cases where sanctions *are* imposed by competent authorities, these **are not sufficiently costly** to force the violator to cease the violation or deter future or repeated breaches (*Comment*, §278; *Res.*, §§108-109); and, (iii) even in the cases where high-level courts or other authorities, such as the *Conseil d'Etat* and the Ombudsman, find that applicable law was violated resulting in health endangering situations, **the decisions are not executed**. The cases of Mavropigi's mine before the *Conseil d'Etat* and the Kokkari case before the Ombudsman presented by the complainant are quite striking examples of the State's effort to circumvent judicial review and enforcement of judgments giving priority to energy supply security (*Comment*, §290-293; *Res.*, §§110-112).

42. In the *Mavropigi case* the State adopted the following practice: once a Joint Ministerial Decision (JMD) approving environmental terms is challenged before the *Conseil d'Etat*, the Administration withdraws it on the very day of the hearing – consequently rendering judicial review impossible – and *re-issues* a new one with *identical substantive content*, differing only in minor formal details. Once the new one is challenged and annulled by the *Conseil d'Etat* on the ground of defective environmental impact studies, the Administration, instead of ceasing the operation of the mine, allows its continued operation on the basis of older, already abrogated JMDs with expired environmental terms.¹⁰ Moreover, once the *Conseil d'Etat* suspends the older, identical JMD – which was considered still in force by the Administration¹¹ – the competent Ministers withdraw it, to prevent its annulment by the *Conseil d'Etat*, and issues a new one *with exactly the same substance* as the previous, suspended one¹².

Mavropigi
case

As a result of this practice, the mine still operates today. Mavropigi's inhabitants lodged a new appeal against the latest JMD (June 2006) and it remains to be seen whether the State will withdraw it once more. Taking in consideration that this is the third JMD – with

¹⁰ *Conseil d'Etat*, Judgment 998/2005 of 1.4.2005, by which the JMD 105947/6.2.2003 was annulled and consequently the mine "Dytiko Pedio" should have stopped operating, but the Administration alleged that the previous JMD 93328/59/5.9.2001 was still in force, that no legal lacuna existed, and that the mine could operate on the basis of the older environmental permit.

¹¹ *Conseil d'Etat*, Suspensions Committee, Decision 519/2005 of 14.07.2005, which suspended the above-mentioned older JMD 93328/59/5.9.2001, considered to be still in force by the administration.

¹² JMD 142453/753/23.2.2006, which was issued, regardless of the negative opinion by both the Prefecture Council of Kozani, and the Municipality of Ptolemaïda in the context of the environmental licensing procedure.

exactly the same content – challenged before the *Conseil d'Etat*, the complainant's assertion on the State's lack of willingness to enforce judgments is strongly corroborated (*Comment*, §§290-291; *Res.*, §§110-111).

43. As to the *Kokkari case*, the State's allegation that it did not concern a lignite-fired power plant and, consequently, is irrelevant to the present Complaint (*SO-2*, §292), is not accurate. It is hard to miss the common points of the two cases (*Comment*, §292[1]; *Res.*, §112), which ultimately are: (i) the disregard for legal requirements and court decisions; and, (ii) the opacity of procedures even with respect to the Ombudsman who reached an eloquent and extremely critical conclusion (*Res.*, §112 *in fine*) about the Administration's defective performance in environmental matters.

44. The State also alleged, with regard to this case, that since Judgment 2232/1999 of the *Conseil d'Etat* rejected the inhabitants' appeal against approved environmental terms for the Kokkari station, the complainant's allegations are "totally unproved and misleading" (*SO-2*, §292). The complainant will demonstrate the contrary, because the cases before the Ombudsman and the *Conseil d'Etat* had different scopes: the appeal to the Ombudsman – raising a greater number of issues relating to the environmental impact of the Kokkari station – had a much broader scope, and aimed at much more than the annulment of a specific administrative act providing for environmental terms, as was the case before the *Conseil d'Etat*.

One of the many issues raised before the Ombudsman was the non-execution of Judgment 4577/1998¹³, demonstrated by DEH's continuing activities with regard to the diversion of a stream, annulled by said judgment (*Res.*, §112). After consulting the *Conseil d'Etat* on this matter¹⁴ and contacting competent local authorities on environmental monitoring¹⁵, the Ombudsman concluded that *if it were true* that works had been completed by the time the hearing took place, DEH would have submitted evidence to this effect before the *Conseil d'Etat*.

The Ombudsman's role is to mediate between the administration and citizens, especially in those cases in which formal requirements of procedural nature prevent the Courts from examining *factual issues*, as was the case with Judgment 2232/1999. In the latter, the *Conseil d'Etat*, while reviewing a subsequent environmental impact study providing for a liquid waste management system that did not involve the stream object of Judgment 4577/1998, did not, and *could not*, deal with the *factual issue* of the continuation of DEH's works on the

¹³ *Conseil d'Etat*, Judgment 4577/1998 of 18.1.1998 the administrative act approving a stream's diversion, planned by DEH in order to expand its installation, a thermoelectric power plant.

¹⁴ The *Conseil d'Etat* stated that had the works indeed ceased in 1996, as DEH alleged before the Ombudsman, the procedure would have been dropped and the suspension (by Decision 805/1996), prior to the annulment (by Judgment 4577/1998) would never have been granted.

¹⁵ Local authorities were based only to DEH's internal correspondence and documents, in order to assume that DEH's activities had already been completed.

stream, despite Judgment 4577/1998, i.e., with the issue of non-execution (*Res.*, §112; *Comment*, §292[3]).

Therefore, what justifies the MFHR invoking the *Kokkari case* is that it illustrated (i) the lack of execution of *Conseil d'Etat* decisions; and, (ii) how the quality of monitoring mechanisms depends exclusively on the commitment of local authorities. Even if, according to Judgment 2232/1999, the environmental terms approval satisfied the legal environmental requirements, it is not less striking that the Ombudsman, after examining the case, reached such strongly worded conclusions about the lack of efficient and effective enforcement of judgments and monitoring (*Res.*, §112 *in fine*).

45. Besides the failure to autonomously monitor DEH's activities, the State fails to enforce its own environmental standards by: not applying sanctions when violations occur or are reported; not applying sufficiently dissuasive sanctions, including but not limited to fines; and, by not upholding Court decisions that implement environmental law. For these reasons, the complainant requests that the Committee find that the inefficiency of the State's *environmental enforcement mechanism* constitutes a violation of its commitments under article 11§1 of the Charter.

conclusions
regarding
environmental
enforcement

2.3.3. Summary of the evidence concerning non-compliance with the Kyoto Protocol

46. The MFHR has asserted, without being challenged by the State, that the energy generation sector in general, and the lignite cycle in particular, have an overwhelming contribution to total national emissions of multiple pollutants including Greenhouse Gases (GHG) (*Res.*, Figure 2, Table 1, §§26-27). It was further observed that controlling the emissions from this limited number of State-owned installations, would be easier and more cost-effective than the adoption of other, more complex measures, that would involve a much greater number of social and political actors. Although the complainant acknowledged that the high impact of the electricity generation sector is a reality in all industrialized countries, Greece's performance in the field of Greenhouse Gas (GHG) emissions abatement was insufficient, *i.e.* that it was approximately 10% off track to its target (*Res.*, §§27, 114-20, Figure 3). The complainant further observed that Greece had not made "demonstrable progress" towards its target, as required by the Kyoto Protocol (*Res.*, §118), and that its compliance with Kyoto would probably be achieved only by the use of flexible mechanisms (*Res.*, §119).

47. In its latest submissions, the State has put considerable emphasis on the fact that the EU has established a collective mechanism for the joint fulfilment of the Kyoto Protocol target and that Greece is allegedly complying with its obligations under the European Burden Sharing

the Greek
NAP

Agreement¹⁶, and other European legislation. Under the European Union Emissions trading scheme (EU ETS), Greece has adopted a National Allocation Plan (NAP) for the period 2005-2007 (NAP1).

The NAP, and the emissions allowance distribution, must be approved by the European Commission. Greece has given much importance to the EU approval of its NAP1 (*Comment*, §§156, 158, 293) but its enthusiasm is unwarranted: (i) Greece's NAP was the last one to be approved by the EU; (ii) all NAPs, even those from countries that are as much as 35% off track to their target, were approved by the Commission. Most importantly, approval by the EU means simply: that the formal aspects of the plan comply with requirements; that the assumptions and projections *seem* adequate; and, that *if* all assumptions contained in it actually materialized, the country would likely achieve its target. Additionally, approval of the national allocation plan does not imply a judgment on the *probability* of the State performing as planned (see below §49).

48. Much before the entry into force of the Kyoto Protocol, a mechanism of in-depth review of national communications had been established under the *UN Framework Convention on Climate Change* (UNFCCC). States are required to report periodically on the measures adopted to combat climate change, and these communications are evaluated by in-depth review teams of specialists. The examination of Greek national communications and corresponding reviews provides an instructive overview of the unreliability of projections and of national emissions reduction plans¹⁷. The State has repeatedly asserted its commitment to improved environmental performance – based since 1995 in the ‘penetration of natural gas’, increasing renewable energy sources, co-generation, etc. –, provided assurances that with additional measures targets would be achieved, and has regularly missed them. The MFHR’s scepticism before the NAP projections, including its estimation of the decrease in the relative importance of lignite in the national energy mix (*Comment*, §17[2]), is founded on the observation of previous failures.

It is notable that the Third National Communication (NC3)¹⁸, based on the same set of assumptions and projections of the NAP1, received a very critical In-depth Review (IDR):¹⁹

“During the review, the team analysed the information provided in the NC3 together with data from the 2004 inventory submission of Greece to the UNFCCC secretariat (...) The

¹⁶ Council Decision of 25 April 2002 *concerning the approval, on behalf of the European Community, of the Kyoto Protocol to the United Nations Framework Convention on Climate Change and the joint fulfilment of commitments thereunder* (2002/358/CE), OJ L 130 of 15.05.2002, p. 1.

¹⁷ See more extended comment on this issue in **Annex 5**.

¹⁸ *Third Greek National Communication to the UNFCCC Secretariat*, submitted 14 February 2003, available at <<http://unfccc.int/resource/docs/natc/grenc3.pdf>>, last visited on 26 August 2006.

¹⁹ UNFCCC, *In-depth Review of Greece's 3rd National Communication (IDR3)* (FCCC/IDR.3/GRC), published 1 November 2005, (at §§130-131) available at <<http://unfccc.int/resource/docs/2005/idr/eng/grc03.pdf>>, last visited on 26 August 2006.

results of this analysis suggest that Greece hardly contributed to achieving the aim of the Convention, as its total GHG emissions increased by 22.3 per cent in the period from 1990 to 2000, without considering CO₂ from LUCF, and by 24.4 per cent, if CO₂ from LUCF is considered. The review team also noted that the national target of limiting the increase in CO₂, CH₄ and N₂O emissions to 15±3 per cent during 1990–2000, as set in the 1995 National Action Plan on Climate Change (NAPCC), was not achieved. (...) [T]he review team concluded that *meeting the Kyoto Protocol target through the implementation of domestic actions alone will be challenging for Greece, even if all adopted and planned policies and measures are thoroughly implemented, and if the key assumptions materialize as described above.*” (emphasis added)

This should be read along with the European Environment Agency’s (EEA) own assessment that “recent projections indicate that *with a consistent implementation* of its 2003 plan Greece will *come close to meeting its target*” (emphasis added; *Comment*, §157). The EEA assessment suggests that if (i) projections are accurate; and (ii) Greece consistently implements its additional measures, it *will come close* to meeting its target. This means that *at best*, Greece will *nearly* reach its target. Given the uncertainties, and prior experience with the State’s implementation of environmental policy, it seems unlikely that both conditions above prove true.

EEA
assessment

49. Finally, the State has claimed that the first verified emissions data show that Greece ‘over-accomplished its targets’, and that ‘all of DEH’s lignite power plants are in compliance status’ (*Comment*, §§156-8). For 2005, NAP1²⁰ allocated 71.135.034 allowances (tons of CO₂) to the multiple installations registered as operating in its territory. All these installations together produced ‘only’ 71.033.294 tons of CO₂. This means that 0,15% of allowances were

Results of the
first year of
EU emissions
trading

²⁰ The NAP1 establishes a Business as Usual (BaU) scenario and sets out the policies to be pursued in order to achieve its specific target: a 25% increase of GHG emissions by the year 2012 compared to the baseline year. The BaU, a model based on a series of demographic, economic and climatologic assumptions is used to estimate the future emissions assuming that only the current, but no additional, measures for abatement of GHG are implemented. On the basis of this scenario, the type of measures that must be adopted and the total amount of emission reductions they must accomplish can be estimated, and a ‘with additional measures’ scenario is established. This ‘with additional measures’ scenario should theoretically lead to the achievement, by Greece, of its commitment under European burden sharing agreement for the joint fulfilment of the Kyoto protocol. Also based on these projections, the NAP1 determines the total amounts of allowances (right to emit one ton of CO₂eq) it will distribute to its industrial installations. Each installation participating in the EU ETS, at the beginning of each yearly cycle, is allotted a number of allowances corresponding to how much the State estimates that it will emit. It should be noted that the distribution of allowances determines the level of effort that a State wishes to impose on the industrial sector for reducing emissions. If allowance caps are set too high, there is little economic incentive for industry to adapt. In the Greek case, 72% of all national allowances were given to the electricity generation sector, of which 59% exclusively to lignite units (which represent only 43% of total national installed capacity). If an installation emits less than expected, it can trade its excess allowances in the EU ETS. Conversely, those installations that over-emit must acquire supplementary allowances, or be considered in non-compliance, and be forced to pay €40 per allowance they have not surrendered at the end of the cycle. This market-based mechanism is supposed to ensure that emissions reductions are carried out where it is most cost-effective to do so.

not spent (in other terms 101.740 tons of CO₂ were not emitted; See **Annex 40 reviewed**, Table 7).

All 141 installations in Greece were in ‘compliance status’ in 2005, and not only DEH’s. Compliance is assured by surrendering an amount of ‘emissions allowances’ equal to the total verified (real) emissions, at the end of the yearly cycle. This can be accomplished either by real emissions reductions, or by buying allowances. Thanks to the unprecedented transparency brought about by the establishment of the EU *Community Independent Transaction Log* (CITL)²¹, data on Greece allows the complainant to demonstrate that the contribution of the energy sector on the overall balance of emissions was quite negative. The energy sector emitted 1,13% more CO₂ than expected by the NAP1 (lignite 0,64%). **In absolute terms, this represents 584.377 excess tons of CO₂ (272.430 tons for lignite)**, which must be contrasted to the 101.740 allowances saved on the national balance.

50. That DEH’s units are ‘in compliance’ only shows that DEH had to buy over half a million allowances from other installations that *actually reduced* their emissions. Indicatively, it should be highlighted that the following lignite-fired installations over-emitted:

Aghios Dimitrios (I-V)	Megalopolis A (I-III)	Megalopolis B (IV)
by 5,26% or 681.536t of CO ₂	by 23,63% or 1.054.539t of CO ₂	by 20,98% or 546.617t of CO ₂

Overall, DEH bought a total of 845.783 emissions allowances, paying €2.324.000. That represents €2,74 per allowance (ton of CO₂)²². It acquired 300 thousand more than necessary in order to use them in the next cycle. To keep that in scale, one should consider that DEH’s assets are worth €12.7 billion and its profits in 2005 were €202 million (*Comment*, §156[2]).

51. As demonstrated above, the MFHR is not alone in having reservations about the State’s capacity to achieve its Kyoto Protocol target under the EU burden sharing agreement. Not only have previous estimations and national plans systematically failed to deliver the expected results, but under the current plan, emissions are growing more than expected. The current NAP – despite not setting extremely demanding caps for DEH – has not managed to force the Corporation to focus on GHG emission reductions. The ‘punishment’ – the need to acquire half a million allowances – cost the corporation two million euros, a mere trifle compared to its other operating costs. The caps were so weakly dissuasive that the Corporation bought 60% more allowances than it actually needed. Greece, by not ‘making demonstrable progress’ towards the reduction of emissions, and by relying exclusively on flexible mechanisms to comply with the Kyoto Protocol, fails to comply with Charter Article 11.

Conclusion on non-compliance with the Kyoto Protocol

²¹ See <<http://ec.europa.eu/environment/ets/>>, last visited on 26 August 2006.

²² See DEH, *Annual Report 2005*, published May 2006 (pp. 103 and 107) available at <<http://www.dei.gr/documents/PPC-DELTIO-ENG-06-Final.pdf>>, last visited on 26 August 2006.

2.4. Obligation to provide Advisory and Educational Facilities and to encourage individual responsibility in matters of health

2.4.1. Non-involvement of populations in environmental assessment

52. *SO-2* provides absolutely no information on the participation of affected populations in environmental assessment. To the contrary, the complainant presented in its *Response* clear instances of the State's disregard for the affected populations and the input they should have in environmental assessment. Hence, in the case of Mavropigi village, the State approved the environmental terms for the operation of DEH's mine at "Dytiko Pedio" in spite of a study asserting the negative impact of the mining activity on the village, and closing its eyes to the inhabitants' voiced willingness to relocate (*Response*, §110).

The public consultation process for the Greek National Allocation Plan (NAP1) offers another clear example: 'public consultations', required by EU law, began on 20 December 2004 with the web-based publication of the draft NAP, and ended four days later, on Christmas eve. The NAP is a very complex document, and given the extremely short time period for consultations, the total lack of NGO involvement in the drafting phase²³, and the inexistence of public access to data and methods used in the NAP projections and estimations, it was hardly possible for even specialized organizations to offer opinion during the consultations. The process also disregarded the EU guideline that consultations be conducted in two phases²⁴. Moreover, the comments that were made – particularly regarding emission caps for the electricity sector – resulted in no substantive changes of the NAP1 (*Comment*, §95[1]).²⁵

Furthermore, as the complainant has already asserted in its *Response* §123, not only are affected populations denied involvement in environmental assessment, they are as well denied open access to environmental data and information, and are therefore impeded from effectively exercising their right to challenge the State's environmental decisions. The State has not refuted any of the above assertions made by the complainant, either in *SO-1* or *SO-2*.

²³ NAP1, pp. 51ff (*SO-2*, **Annex 41**). It should be highlighted that certain 'stakeholders' – such as DEH – were involved in drafting the NAP from the very beginning. Involvement in drafting also ensures increased transparency of data, estimation methods, and favours capacity-building and increased public awareness.

²⁴ See Climate Action Europe (CAN), *National Allocation Plans 2005-7: Do they deliver?*, April 2006, available at <http://www.climnet.org/EUenergy/ET/0506_NAP_report.pdf#search=%22National%20Allocation%20Plans%202005-7%22> (pp.37ff), last visited on 26 August 2006.

²⁵ For the second Greek National allocation Plan for the period 2008-2012 (NAP2), the 'consultation procedure' was hardly any better: the Greek version of the NAP was published on the Ministry of Environment's website on 15 June 2006, and 'consultations' closed on 25 June (see, <http://www.minenv.gr/download/2006-06-15.epistoli_divoul.aerion%20.doc> last visited on 1 September 2006). The NAP2 was due on 30 June, and it is improbable that any suggestions could be seriously considered under such strict time constraints. To the complainant's best knowledge, no major environmental NGO had the time to submit comments. As with the NAP1, NGOs were not involved in the drafting process.

2.4.2. *Non-involvement of populations in health assessment*

53. The complainant has asserted, additionally, that health assessment for the measurement of the impact of lignite on human health has rarely been carried out, and has not involved affected populations in a way that would allow them to participate meaningfully and contribute, in this manner, to the formulation of policies aiming at their protection (*Complaint*, §§99-100; *Res.*, §§124-125). As has already been stated, the State's "participatory health assessment" policies are limited to only two epidemiological studies, the methodology and conclusions of which the complainant has already challenged. The State provides no evidence that affected populations meaningfully participated in any of these studies, discussing their concerns and obtaining answers from the researchers; on the contrary, both studies were based exclusively on old data collected by state organs, such as data originating from health insurance booklets. Thus, the State has failed to demonstrate that it takes steps to support the active participation of affected populations in health assessment and that it "encourages individual responsibility in matters of health".

2.4.3. *Absence of a public health information policy*

54. The response provided by the State to the complainant's assertion regarding the absence of a public health information policy demonstrates that the measures allegedly taken do not fulfil the full spectrum of the State's obligations under Charter article 11§2 (*Res.*, §§126-128). *Firstly*, the information strategies invoked by the State are limited only to primary and secondary education pupils, and do not cover the wider adult population living in areas affected by the lignite-cycle. *Secondly*, the information presented by the State on the health education provided in schools does not allow one to draw any conclusion on its effectiveness. More specifically, the State does not provide any specific information on the courses that allegedly take place at schools, does not provide any indicative titles or information on their content. Moreover, even were one to assume that courses were adequate in quality, 103 health and environmental education courses in a year constitute an extremely modest accomplishment: in Kozani Prefecture there are roughly 150 primary and secondary schools. *Finally*, the State does not make any reference whatsoever to rapid-response mechanisms, which assist individuals in the case of sudden pollution incidents, even though the complainant clearly

discussed it in its *Response* (§§126ff), allowing one to conclude that no such mechanisms exist.²⁶

55. By not meaningfully involving affected and potentially affected populations in both environmental and health impact assessment, and not establishing rapid response mechanisms, the State has failed in its obligation to provide advisory and educational facilities and encourage individual responsibility in matters of health.

2.5. Obligation to prevent diseases as far as possible

2.5.1. Absence of population-wide health assessment

56. The complainant has asserted the State's obligation to conduct adequate and periodic medical studies aimed at contributing to the planning and implementation of sound and effective public health policies. This requirement is distinct from the State's obligation to *involve* affected population in health assessment. The State's response demonstrates that to date, after 45 years of DEH's activities in the Kozani-Ptolemaïda basin, the State's population wide assessment is limited to only two epidemiological studies of questionable quality, as the complainant has shown. It also emerges from these studies that the State does not systematically collect and process data on mortality and morbidity in the affected regions and thus lacks important information that would allow it to assess the situation of health in the affected areas and respond accordingly.

57. The lack of population wide assessments, is illustrated by the fact that no research on the impact of the lignite cycle on the prevalence of cancer has been carried out by the State (*Complaint*, §§95-97; *Res.*, §13 and footnote 14; *Comment*, §§177-180). The only study carried out on this subject, presented by the complainant (*Complaint Annex 16*), was inconclusive and clearly indicated the need for larger samples and longer observation periods. The State's comments on this study limit themselves to suggesting that although cancer is a multifactorial disease, increase in cancer deaths should be attributed to ageing, smoking and Chernobyl dust. At no point did the State suggest that air pollution might be a factor, despite proof that hazardous trace elements are found in excessive concentrations in ambient air. More striking

²⁶ EU Directive 1999/30, on air quality limit-levels (see footnote 1, p. 3), not only establishes limit-levels, but also 'alert thresholds' envisaging precisely a wider public information policy targeting high pollution incidents. For instance, Annex I contains the limit levels for SO₂ which are to be complied with by 1 January 2005, but also establishes an 'alert threshold' that, when exceeded, should lead to the communication to the public of, at least, the following details: the date, hour and place of the occurrence and the reasons for the occurrence, where known; and, any forecasts of (i) changes in concentrations (improvement, stabilisation, or deterioration), together with the reasons for those changes, (ii) the geographical area concerned, (iii) the duration of the occurrence; (iv) the type of population potentially sensitive to the occurrence; and, (v) the precautions to be taken by the sensitive population concerned. The State provides no information on whether this or other rapid response measures have been adopted.

still, despite acknowledging the considerable lack of scientific studies, at no point did the State act upon the conclusion of the only existing study: namely to carry out further studies.

2.5.2. *Absence of mitigation policies*

58. The complainant has asserted that the State has failed to establish either long-term or urgency²⁷ mitigation policies to reduce health risks associated with the lignite cycle. In *SO-2*, the State does not respond in any way to the complainant's assertions and does not present any relevant information to refute them. However, one can easily conclude that without constant monitoring of the environmental conditions and without health assessment studies, it is impossible for the State to develop meaningful policies for mitigation of the impact of environmental pollution.

The State, throughout *SO-2*, has suggested a number of factors that might explain pollution and its health effects. It has alternatively blamed multiple factors – vehicular traffic, Chernobyl dust, Saharan dust, smoking habits, demographic ageing and others – for all the pollution and health problems, but has eloquently failed to provide a single example of mitigation policies it has adopted in order to protect its population from any of these risks.²⁸

59. The Complainant has shown that by failing to autonomously conduct population-wide health assessment and by failing to establish health risk mitigation policies, the State has failed in its obligation to prevent, as far as possible, diseases related to the lignite cycle.

Conclusion on
Article 11 §3

3. *Restatement of the case under Article 2 §4*

60. The complainant has argued that the State has failed to meet its obligations under Charter article 2§4 by denying lignite miners additional paid holidays or reduced working hours, in light of the inclusion, by the Committee, of lignite mining among the “dangerous and unhealthy activit[ies]”.

In its response regarding this article, the State repeats the same arguments it had presented in *SO-1*, already refuted by the complainant in its *Response*, demonstrating that it misreads the actual meaning and scope of the provision and, hence, fails to introduce laws and

²⁷ This obligation is *reactive* and *ex post* in nature – requires adoption of measures once damage to health *has* occurred –, whereas the obligation under Charter Article 11§2, discussed in §54 above, is *preventive*.

²⁸ The example of smoking habits is illustrative of the problem. Although the State alleges that smoking has probably caused additional mortality due to cancer, it fails to suggest what measures it has adopted to curb consumption of tobacco. It should be noted that the Committee, under the reporting procedure, had already held that Greece did not take appropriate measures to combat smoking: “The Committee considers that the policy of regulating tobacco sales is clearly inadequate to reduce tobacco consumption and lessen the extent of related health problems. It considers that this situation is not in conformity with Article 11 para. 3 of the Charter.” (*Conclusions XV-2* (Greece), adopted 01 January 2001, p.23).

measures to ensure compliance with it. The complainant reiterates that the information presented by the State to support its claim of compliance with its obligations under Charter article 2§4 is beside the point: granting lignite miners early retirement and monetary premiums for working night shifts or Sundays does not satisfy the requirements of Charter Article 2§4, as lignite miners are specifically entitled to reduced working hours or additional paid holidays regardless of other benefits they may be entitled to (*Res.*, §138-140; *Comment*, §§299-301).

61. The complainant has also demonstrated that the State fails to comply with its obligations under Article 2§4 both as a regulator, by not enacting laws to ensure compliance with the article, and as DEH's *de facto* operator, by not entering with lignite miners into collective agreements that would respect the standards established by the Charter (*Res.*, §141-142; *Comment*, §303). The complainant therefore invites the Committee to find that the State has not complied with its obligations under Article 2 paragraph 4 of the Charter.

4. Restatement of the case under Article 3

4.1. The obligation to issue health and safety regulations

4.1.1. Absence of a regulatory framework for occupational disease

62. The complainant alleged that an occupational disease tallying and compensation scheme is lacking, as Greek law does not distinguish between occupational and non-occupational diseases and accidents for the purpose of providing benefits and compensation accordingly (*Complaint*, §124; *Res.*, §§145-148). In *SO-1*, the State did not provide the Committee with any information whatsoever on the existing legal and practical framework and procedures or on occupational diseases (*Res.*, §145).

63. In *SO-2*, DEH presents its occupational disease scheme, based on an internal 'General Directive' (*SO-2*, §312). Nonetheless, the complainant's claims regarding the lack of appropriate occupational disease detection, tallying and compensation scheme do not concern DEH's employees exclusively. It is the lack of a *comprehensive national framework* for occupational diseases, clearly admitted by the State in its *17th Report* under the Committee's reporting procedure²⁹ that is the object of the Complaint. Moreover, even DEH recognizes the inexistence of a framework for the detection and compensation of occupational diseases, admitting that: "(...) [although] there is a *delay* of the recording of occupational diseases, the procedure has begun and, after its completion, *it is hoped* that there shall be both prevention and recognition of Occupational diseases" (*emphasis added*; *Comment*, §312).

DEH and
occupational
disease

²⁹ *17th Greek Report*, p. 27: "The field of occupational diseases is, however, the biggest thorn in the implementation of the targets for the promotion of health and safety at work in Greece."

In *SO-1*, DEH provided lists covering four pages describing medical examinations related to specific work posts. It at no point suggested that these were recently adopted measures. To the contrary, the Corporation alleged that: “Work doctors monitor the staff by referring them for *regular* medical check up to the Regional Staff Insurance Brackets” (*SO-1*, at p. 20 [emphasis added]).

DEH then claimed that “Medical examinations so far (...) proved that 200 of them suffered from lower respiratory diseases, and 100 of them suffered from upper respiratory system diseases” (*SO-1*, p. 45). It is this extremely imprecise statement that the complainant considered questionable (*Res.*, §§146-147). In *SO-2*, the State responds to this alleged misunderstanding clarifying that the medical examination of DEH’s staff began only in 2004 and that *now is being carried out but is not completed yet* (*SO-2*, §§314). There is no ‘misunderstanding’, but rather a misleading presentation of information by the State and DEH (*Comment*, §§314-315). Moreover, the figures in Tables 16 and 17, now presented are not in the least compatible with the two round numbers that the State presented in *SO-1*.

4.1.2. Inadequacy of the regulations concerning occupational doctors

64. The complainant alleged that the existing legal framework on the number of occupational doctors that an enterprise must employ does not provide for a *reasonable and adequate number* of doctors in the case of an enterprise dispersed in more than one municipality or prefecture (*Complaint*, §124; *Res.*, §149). The complainant did not allege that the case of enterprises such as DEH is *not at all* regulated by the law, as assumed by the State (*SO-2*, §310). As repeatedly asserted by the MFHR, the present Complaint is not about DEH’s compliance with the domestic legal framework on Occupational Doctors, but rather whether *the framework itself* complies, in the context of Article 3, with the Charter (*Comment*, §310-311[1,2]; *Res.*, §149).

65. More specifically, the complainant pointed out that the activities concerned (6 mines and 7 large combustion power plants) are dispersed in two very wide areas (Kozani and Arcadia Prefectures), so that *7 Work Doctors for 7.000 employees*, as declared by DEH (*SO-1*, p. 41), are very few to carry out all preventive and reactive care. DEH might indeed be allowed to operate in this manner, but this does not mean that 7 Work Doctors are *sufficient* for such large and expanded activities (*Comment*, §310; *Res.*, §149).

66. Furthermore, the State’s allegation that the original Complaint concerned only lignite miners and that the total number of occupational doctors employed in Greece was not requested (*SO-2*, §311) is inaccurate. The complainant made a clear allegation about the

insufficient number of Work Doctors required by law (*Complaint.*, §§ 120, 124, 132; *Res.*, §149) and asked that the Ministry of Employment provide the Committee with more precise data, that would be available from **the competent Inspectorates** on the number of occupational doctors and their exact responsibilities (*Res.*, §143). The Complaint referred as well to S.E.P.E. (*Complaint*, §126) and never limited its allegations to lignite miners; on the contrary, the number and frequency of accidents invoked did not concern the mines' section but it was indicative of the enforcement and monitoring system's inefficiency (*Complaint*, §127). If the complainant highlighted the particularly extreme resource limitations of the Mining Inspectorate it is because the problem there is so striking and patent that even the State acknowledged it (*SO-1*, p. 7; *Res.*, §§155-156; see also *Comment*, §§279, 280-281).

67. In order to further demonstrate the shortcomings of the safety system, the complainant presented Dr. Paraskevi Batra's statements on the matter³⁰(*Res.* §149, footnote 243). DEH protests strongly against this assessment of DEH's occupational safety scheme and, as a consequence, has requested disciplinary action both the academic and professional levels against this expert (*SO-2*, §320).

the issue
of safety
technicians

After describing the general function of its "Occupational Health and Safety Direction", DEH appends a list (*SO-2*, Table 19) of 17 occupational health and safety officers, all of them experienced and qualified, therefore, positioned in high ranks of the Direction³¹. Assuming that DEH is not suggesting that the list presents *all* safety personnel, there must be a considerable number of safety officers – those that are not heads of section, or their deputies – not listed. According to Ms. Batra's PhD thesis³², DEH employs 180 safety officers, 163 of which are not listed in *SO-2* Table 19, and are presumably less experienced (*Comment*, §320[1]).

68. The State informs the Committee that all the engineers listed in Table 19 of *SO-2* have complained to the Technical Chamber of Greece, of which they, as well as Ms. Batra, are members and that, additionally, "the National Technical University of Athens has been informed for the *irresponsible behaviour* of its collaborator" (*SO-2*, §320 [emphasis added]).

The complainant must underline the following: Associate Professor Batra is an independent researcher at the National Technical University of Athens. She is an engineer, holding a PhD *specifically* on occupational health and safety, focusing on *accidents in*

³⁰ They read as follows: "It is alleged DEH's Safety Officers do not receive extra wages for their safety responsibilities and are not required to have specific experience or scientific knowledge. Very often this post is delegated to the youngest worker or the worker that is considered as the most 'incompetent' or 'unproductive'."

³¹ The list includes the names, posting qualifications, and years of experience of those 17 safety officers; they are either head of sections or sub-section, or deputy heads.

³² Batra, Paraskevi, *Electric occupational accidents during generation, transport and distribution of electric energy in Greece*, PhD Thesis, National Technical University of Athens (Department of Applied Mathematics and Physics), 2000, 232 p. (at p. 65).

electricity generation in Greece. She has published extensively on this same subject in *international journals*, reason for which the complainant originally contacted her and obtained her statement (*Res. Annex 37*).

It is truly shocking that the State, or DEH, considers it appropriate to publicly threaten academic freedom and question the academic and moral integrity of this expert without providing serious reasons. That the State not only takes such unprecedented measures against an expert providing evidence in an international procedure, but actually finds it appropriate to inform the Committee of these measures and annex the complaint submitted to the NTUA (*SO-2 Annex 62*), is beyond understanding (*Comment, §320[2]*).

69. Based on the above observations, the complainant invites the Committee to find that Greece has not complied with Article 3§1 because: it has not established a framework for the detection, tallying and compensation of persons suffering from occupational disease; and, additionally, the existing legal requirements on occupational doctors fail to reasonably regulate situations where an enterprise's activity is dispersed in multiple autonomous geographical areas.

conclusions on
Article 3 §1

4.2. The obligation to provide for the enforcement of health and safety regulations

4.2.1 Inefficiency of monitoring

70. The complainant asserted that labour legislation is not efficiently monitored, as *demonstrated* by the high number of occupational accidents in Greece (*Complaint, §§125-131*). The complainant highlighted the incoherence existing in *SO-1* (p. 2), about fatal accidents trend (*Res., §152*) and challenged the lack of specific evidence, as the only table presented did not indicate its source or the activities it covered. The MFHR also underlined that according to Eurostat, data from Greece under-reports occupational accidents (*Res., §151 and footnote 235*), a fact that had already been observed by the Committee³³, and has yet to be addressed by the State.

71. The State has provided evidence of a *decrease of occupational accidents* within the IKA-insured population in both relative and absolute numbers (*SO-2, Figures 30 and 31*). This does not *per se* prove that the total number of work-accidents in Greece is decreasing, since: (i) IKA insures less than half of the active workforce³⁴; and, (ii) as is well known, the informal

trends in
occupational
accidents

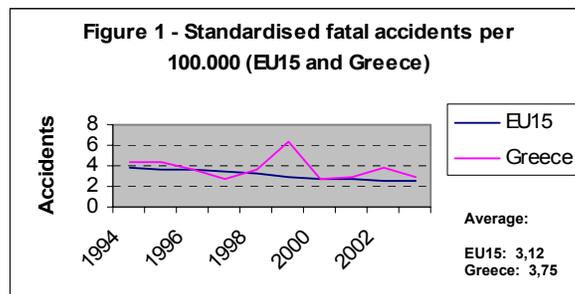
³³ The Committee in its *Conclusions, XVI-2*, for Greece, had asked for precisions from the State on the EU criticism of occupational accident monitoring in Greece. The Greek *17th Report* is absolutely silent on this point.

³⁴ The alleged increase in number of workers insured by IKA (*SO-2, Figure 32*) does not take into account that IKA does not insure self-employed workers, farmers, and family workers. In this sense, IKA data cannot be taken as representative of the whole labour force (*Comment, §284*).

labour market is increasing throughout all European countries. Particularly in areas where contractors operate (see also, *Comment*, §279), migrant workers are not registered under any social security system – at least until their regularization – which often results to a decrease in the number of reported accidents (*Res.* §§151-154).

72. With regard to *fatal accidents*, *SO-2* Figure 33 clearly shows that, after peaking in 2001, fatal accidents have returned to the same average level existing since 1977 (in between 100-120 accidents per year). According to the same figure, fatal occupational accidents have not really decreased as the State alleges. In reality, accidents reported to IKA have actually increased (from $\cong 80$ in 1977 to $\cong 100$ in 2003 and to almost 120 reported to S.E.P.E. in 2005). The only clear decrease is met concerning the accidents reported to the Ministry of Employment (from 140 in 1977 to $\cong 100$ in 1994, year that the Ministry’s data end) (*Comment*, §286[2]).

According to Eurostat, the *rate of fatal accidents per 100.000 workers* in Greece has regularly been above the EU average as can be seen (Figure 1; see also **Annex 40 reviewed**, Figure 1)



73. It should be noted that the State provided **no information** in *SO-2* on occupational accidents in mines, fatal or not. Nonetheless, the 17th *National Report* submitted by Greece to the Committee, presents the number of **fatal accidents in mines**, which averages 7 per year from 2001 to 2005 in an estimated workforce of 17.500 miners³⁵, which is at least eight times higher than the national average (*Comment*, §286[1]). The inefficiency of the Mining Inspectorate – attributed by the complainant to the extreme resource limitations (*Complaint*, §128) – has been avowed by the State (*SO-1*, p. 7), and was not further commented in *SO-2*.

fatal accidents in mines

74. No information regarding occupational health and safety presented in *SO-2* concerns the allegations of this *Complaint*, which, as regards monitoring and enforcement, is related *specifically* to the activities of mining and electricity generation (*Comment*, §288). The State puts considerable weight on the fact that according to un-referenced Eurelectric data on occupational accidents in the European Energy sector DEH “is in a medium level in terms of accident indexes”. The complainant observes that the reference point for valid statistical data on labour accidents should be the State or International competent organizations, and not the federation of industry of this specific activity branch (*Comment*, §313 and footnote 72; *Res.* §§153-154). As already stated, the issue at stake is not the current trend – increase or decrease

³⁵ This can be extrapolated to 40 fatal accidents per 100.000 mine workers, compared to a 5.1, 3.75 or 3.7 average in the general workforce in Greece (according to ILO Laborstat [averaged for 2000-2002], Eurostat or S.E.P.E data, respectively) (*Comment Annex 40 reviewed*).

– in occupational accidents, but the State’s failure to provide for adequate and effective monitoring and enforcement mechanisms (*Res.* §§154).

4.2.2. Inefficiency of enforcement

75. The complainant alleged that the overall high number of occupational accidents indicates the lack of effective inspections and sanctions, measures that should deter employers from breaching health and safety regulations (*Complaint*, §127; *Res.* §§157-161). It would be easy for the State to convince the Committee that enforcement mechanisms are indeed effective by providing information – requested repeatedly by the complainant – about the fines imposed on activities related to the Complaint (number of inspections carried out, violations found and specific amounts of fines imposed), information that is usually requested by the Committee under the reporting procedure.

76. Especially with regard to S.EP.E. (Labour Inspectorate Body), providing information would be even easier since statistical data are collected. According to the S.EP.E. 2005 report³⁶, with regard to activities related to electricity, natural gas, steam and hot water supply 169 inspections and 16 follow-up inspections were carried out, which represents 7% of the total inspections in 2005 for all activities combined³⁷, whereas with regard to coal, lignite and peat extraction activities [“εξόρυξη, άνθρακα, λιγνίτη και τύρφης”], only 3 inspections were carried out in 2005 by the Section competent for occupational health and safety³⁸. S.EP.E. has repeatedly stated that big enterprises, such as DEH, assign a large part of their activity to contractors in order to reduce costs, and that the Inspectorate’s aim is to intensify its activities in these workplaces³⁹, as already highlighted (*Complaint*, §130 and footnote 138; *Res.*, §161). Nonetheless, one cannot but admit that 3 inspections within a year do not constitute “intensive monitoring”, especially taking into account that in both Lignite Centres, around 10.000 employees work 24-hours a day, 7 days a week (*Comment*, §§279-282).

on S.EP.E
inspections

77. As regards *sanctions* imposed, for the first group of activities (see above), 29 complaints were lodged and 6 fines were imposed for a total value of €8.000⁴⁰, whereas for lignite extraction activities no complaints were lodged and **no fines were imposed**⁴¹. This would suggest that although fines can vary from €1.000 to €30.000, the average fine is very close to the minimum, i.e. €1333 on average (*Comment*, §279-282). Moreover, no information

weakness
of sanctions

³⁶ Labour Inspectorate Body (S.EP.E.), *Annual Report 2005*, available in Greek at <<http://www.ypakp.gr/members/docs/385i7.zip>>, last visited on 30.8.2006.

³⁷ *Ibid.*, p. 73.

³⁸ *Ibid.*, p. 74.

³⁹ *Ibid.*, p. 43.

⁴⁰ *Ibid.*, p. 76.

⁴¹ *Ibid.*, p. 77.

is provided for any criminal proceedings for cases of serious breaches of health and safety regulations.

The complainant suggested that a detailed ‘price-list’ correlating breaches with corresponding fines (with a minimum and a maximum fine for each violation), according to all criteria prescribed by legislation and the general principles of law, would contribute to a more objective and transparent system (*Res.*, §160; *Comment*, §283).

78. Moreover, the State does not mention and does not provide data about Mining Inspectorate enforcement actions in *SO-2*. The complainant must point out that, in the *17th Report* presented under the reporting procedure, Greece included disaggregated data for the Mining inspectorates (pp. 19-20, 22, 26). It is not clear why the State chose not to present at least the same data under the current complaint procedure. It should also be noted that in the *17th Report* data for mining inspections were incomplete: although data on the number of inspections and on the total amount of fines are presented, there is no indication of the number of fines and other pertinent parameters.

enforcement
activities
in mines

79. The MFHR asserts that, by not providing for the establishment of an adequate health and safety monitoring and enforcement mechanism – with adequate inspections, dissuasive sanctions and reliable information on occupational accidents and diseases –, Greece violates its obligations under Charter Article 3(2).

conclusions on
Article 3 §2

5. Concluding observations

80. As mentioned in the Response, and taking into account the complexity of the Complaint, the MFHR requests that, should the Committee find in its favour, it establish precise, discrete instances of non-compliance, thereby allowing a clear, principled and benchmarked follow-up to its recommendations. In light of this request, the complainant wishes to observe that, in its opinion, the following instances of non-compliance have been proved.

81. With respect to Article 11§1:

The State has failed to remove the causes of ill-health by:

- **Allowing the continuous operation of lignite mines without due regard to the environmental impacts of the operation of uncovered conveyor belts and unregulated dump- and solid waste management-sites; and by**
- **Allowing the continuous operation of lignite-fired power plants without due regard to the environmental impacts of: ineffective and arbitrary environmental licensing practices; the continuous use of outdated pollutant**

abatement technology in violation of best available technology requirements; ineffective environmental monitoring and enforcement mechanisms, allowing environmental regulations to be violated without any consequences; and, not ‘making demonstrable progress’ towards the reduction of emissions, and relying exclusively on flexible mechanisms, such as emissions trading, to comply with the Kyoto Protocol.

82. With respect to Article 11§2:

The State has failed to provide advisory and educational facilities and encourage individual responsibility in matters of health by:

- **Denying affected populations participation and access to information in environmental assessment;**
- **Denying affected populations effective participation in health assessment; and,**
- **Not providing an adequate health information policy for children and adults focused on the main health concerns in the areas affected.**

83. With respect to Article 11§3:

The State has failed to prevent diseases as far as possible by:

- **Not providing for regular and effective population-wide health assessment; and,**
- **Not establishing long-term and urgency public-health policies focused on mitigating the adverse effects of environmental pollution.**

84. With respect to Article 2§4:

- **The State has failed to ensure that lignite mine workers are given additional paid holidays or reduced working hours: in its capacity as *regulator*, by not adopting the appropriate legal framework; and, in its capacity as *operator*, by not compelling DEH to adopt a contractual and employment policy in line with the Charter’s requirements.**

85. With respect to Article 3§1:

The State has failed to issue health and safety regulations by:

- **Not adopting an adequate framework for the detection, tallying and compensation of occupational diseases; and,**
- **Not adopting effective regulations on the presence of occupational doctors regarding large enterprises dispersed in multiple areas.**

86. With respect to Article 3§2:

The State has failed to adopt enforcement measures in health and safety at work by:

- **Depriving the specialized Inspectorate of Mines of funds and staff required to conduct effective monitoring; and,**

- **Not establishing an efficient sanctions regime in both general and specialized enforcement mechanism, capable of applying sanctions severe enough to modify the infractor's behaviour.**

6. *Petition*

87. The Marangopoulos Foundation for Human Rights, having regard to the legal and factual arguments presented, once more invites the European Committee of Social Rights to find that the Hellenic Republic 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, both as operator and as regulator; and,
- (c) Failed to comply with its obligations under Article 3, paragraphs 1, and 2.

Athens, 11 September 2006.

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

LIST OF ANNEXES

- Annex 1** Paragraph by paragraph comment on the State’s further observations on the merits of Collective Complaint No. 30/2005 (hard copy and e-version)
- Annex 2** EPER data for Greek installations (hard copy and e-version)
- Annex 3** Triantafyllou (2000) “Patterns and Concentrations of PM10 in a Mountainous Basin Region”, *J. Air & Waste Management Assoc.*, **50**: 1017-1022 (hard copy and e-version)
- Annex 4** Highlighted fac-simile of pp. 126-127 of the Katsougiannopoulos 1999 study (hard copy and e-version)
- Annex 5** Climate change planning and projections in Greece – a critical assessment (hard copy and e-version)
- Annex 40 reviewed** Statistical Annex, reproducing the *Response’s Annex 40*, and additional materials [Tables 7-9, Fig. 1] (e-version)

LIST OF ABBREVIATIONS, ACRONYMS AND CONVENTIONS

BAT	Best available technology
BaU	Business as usual scenario
BREF	Reference document on best available technology
CB	Conveyor belt
CITL	Community Independent Transaction Log
CO₂eq	Carbon dioxide equivalent
Com.	Complaint
Comment	comment of the State’s further observations on the merits of Collective Complaint No. 30/2005
DEH	Public Power Corporation S.A.
EEA	European Environment Agency
EPA	United States Federal Environmental Protection Agency
ESP	Electrostatic Precipitator
EU ETS	European Union Emissions trading scheme
FGD	Flue gas desulphurization
GHG	Greenhouse Gases
IDR (#)	UNFCCC In-depth review of national communications
IPPC	Integrated prevention of pollution control

JMD	Joint ministersial decision
LCP	Large combustion plants
LUCF	Land use change and forestry
NAP	National Allocation Plan
NAP1	Greece's National Allocation Plan for the period 2005-2007
NAP2	Greece's National Allocation Plan for the period 2008-2012
NC (#)	National Communication to the UNFCCC secretariat
NO_x	Nitrogen Oxides
PM_{2,5}	Particulate matter <2,5µm
PM₁₀	Particulate matter <10µm
Res.	Response to the State's first observations on the Merits of Collective Complaint No. 30/2005
S.E.P.E.	Greek Labour Inspectorate Body
UNFCCC	United Nations Framework Convention on Climate Change
SO₂	Sulphur dioxide
SO-1	State's first observations on the merits of Collective Complaint No. 30/2005
SO-2	State's second observations on the merits of Collective Complaint No. 30/2005
TSP	Total suspended particles