EUROPEAN COMMITTEE OF SOCIAL RIGHTS
COMITÉ EUROPÉEN DES DROITS SOCIAUX

26 July 2011

Case Document No 1

International Federation of Human Rights (FIDH)
v. Greece
Complaint No 72/2011

COMPLAINT

Registered at Secretariat on 8 July 2011

TO THE EUROPEAN COMMITTEE

OF SOCIAL RIGHTS

Council of Europe, Strasbourg

F r a n c e

COLLECTIVE COMPLAINT

lodged in accordance with the Additional Protocol of 1995 providing for a system of collective complaints and with Rules 23 and 24 of the Committee's Rules of Procedure

International Federation for Human rights

(Hellenic League of Human Rights)

v.

Greece

8 July 2011

Contents

I. THE PARTIES

A. The complainant organisation

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and its national section,
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B. The high contracting party

Hellenic Republic

(Greece)

II. THE MAIN ISSUE

The main subject of this complaint is the harmful impact of large-scale environmental pollution on the health of people living in the catchment area of the River Asopos and near the industrial area of Oinofyta, 50 km north of Athens. It also relates to the fact that the Greek state has not taken enough steps to eliminate or reduce these harmful effects and ensure that people can fully enjoy their right to protection of health.

III. ADMISSIBILITY REQUIREMENTS

a. Jurisdiction *ratione personae*

1. The International Federation for Human Rights (FIDH) is an organisation whose aim is to ensure that the principles enshrined in the Universal Declaration of Human Rights are properly implemented and that unfair laws are abolished. One of its major concerns is the promotion of economic, social and cultural rights, including the right to health and a healthy environment.

2. In accordance with Article 4 of the Additional Protocol to the European Social Charter providing for a system of collective complaints, which was ratified by Greece on 18 June 1998 and came into effect with regard to Greece on 1 August 1998, the complaint is lodged in writing and relates to Article 11 of the European Social Charter, which was accepted by Greece on 6 June 1984, when it ratified the Charter.

3. In accordance also with Articles 1 b) and 3 of the Protocol, the FIDH is an international non-governmental organisation which holds consultative status with the Council of Europe. The FIDH is entitled to take part in collective complaint procedures and is currently registered for the period from 1 July 2010 to 30 June 2014 on the list of INGOs authorised to lodge collective complaints.

4. The complaint lodged on behalf of the FIDH is signed by its President, who, according to the organisation's statutes, represents it in all aspects of

civil life and has full power to do so. Consequently, the condition set by Rule 20 of the Committee's Rules of Procedure is satisfied.

b. Jurisdiction *ratione temporis*

5. Since the Asopos was recognised as a receptacle for liquid industrial waste, the region's environmental deterioration has continued without interruption. As a result the population groups concerned have been exposed to the polluted water in the river for several decades. For some people the effects of the long term exposure to pollution emerged straight away whereas for others it arose several years after exposure.

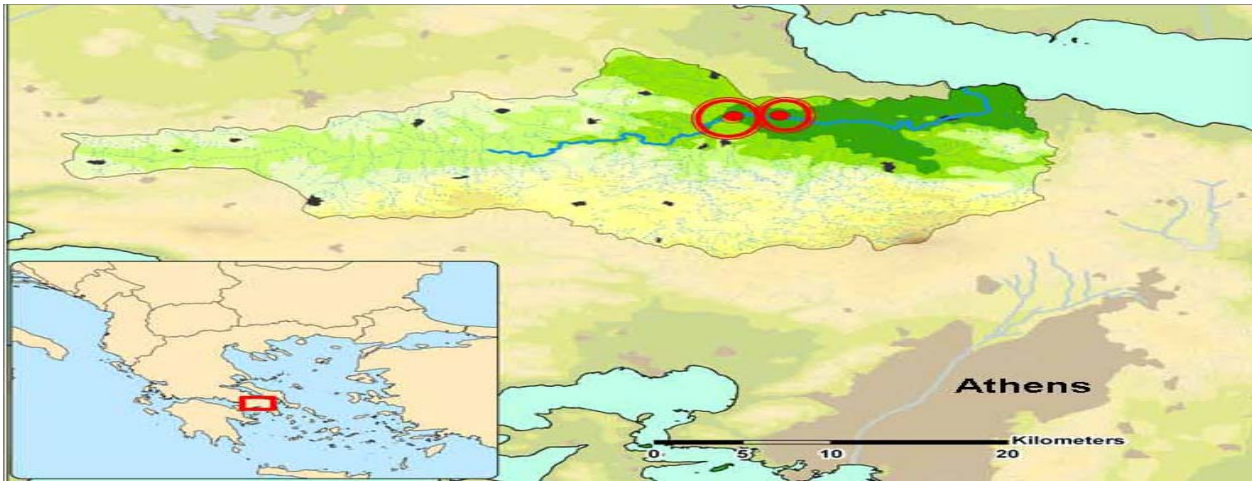
Greece has been bound by the provisions of the European Social Charter concerning the right to protection of health since July 1984 and signed the Additional Protocol providing for a system of collective complaints in 1998.

As the Committee has already stated, in the event of a continuing violation, it is competent to consider facts prior to the entry into force of the collective complaints system. More specifically, it has held that "there may be a breach of the obligation to prevent damage arising from … pollution for as long as the pollution continues and the breach may even be progressively compounded if sufficient measures are not taken to put an end to it"[1]. Consequently, the Committee is competent to examine this complaint.

[1] Marangopoulos Foundation for Human Rights (MFHR) v. Greece, Complaint No. 30/2005, decision on the merits, §193.

IV. STATEMENT OF THE FACTS

6. The Asopos (or Asopus) is a river in Boeotia (Voiotia), which rises on Mount Kithairon to the south-east of Thebes and crosses Boeotia from west to east. It passes to the north of the ancient city of Plataea then of Parnitha and Attica before flowing into the Euboean Gulf at Chalkoutsi in eastern Attica. At 80 km long, it is the second longest river in Boeotia. It has several tributaries including the Thermidonas, the Spilia, the Patitsiona and the Bithiako. It is also called the Oropos or Vourienis.



Asopos river[2].

7. In Greek mythology, Asopos was a river god. The River Asopos in Boeotia is often confused in legends with the river of the same name in

[2] Dr Yorgos Chatzinikolaou. Culprit wanted for two environmental crimes: Asopos River and Lake Coronia. In: The Greens/European Free Alliance in the European Parliament. Unsustainable water and industrial waste management in Greece: The cases of Asopos River Basin, Lake Koronia and Korinthiakos Gulf, 15 April 2009, Brussels (**Appendix 1)**.

Phleiasia and Sikyonia. Depending on which author one believes[3], Asopos was the son of Poseidon and Pero, Zeus and Eurynome or Oceanus and Tethys. Rivers including the Asopos figured prominently among the divinities worshiped by the Greeks. People believed that rivers were the first kings of the flood plains or even the fathers of the peoples living on their banks. According to the accounts of Pausanias, the Plataians regarded Asopos as their first king, who gave his name to the river. Water courses were worshiped both as beneficial forces of nature and sources of life, both literally and metaphorically, in keeping with the belief that they impregnated young women who would come to bathe in the river at dawn.

a. The legal framework for discharging liquid industrial waste into the River Asopos and the groundwater in the region of Oinofyta

8. Situated in the Asopos valley is the industrial area of Oinofyta. This area has grown up in a haphazard manner as industries began to establish themselves there from 1968 onwards without the Greek authorities conducting any prior planning or introducing any regional development measures. In other words, until now this has been an informal, unplanned industrial area of 39 000 sq. m[4]. At the time the two reasons which prompted the industries to settle in Oinofyta were its location only a few hundred metres from the boundary of the region of Attica[5] and right next to the major national road link between Athens and Thessaloniki (only fifty kilometres away from Athens) and the fact that the Asopos River could be used as a free natural receptacle for waste, which would then flow down to the sea. That is what happened. In 1969 the river Asopos was officially

[3] Theoi Greek Mythology. Asopos (on line). Available on http://www.theoi.com/Potamos/PotamosAsopos.html (consulted on 7 September 2010).

[4] Statements by the Minister of the Environment, Energy and Climate Change of 8 February 2010. See below, paragraph 14.

[5] The government at the time of the colonels' dictatorship in Greece had announced industrial decentralisation, forcing industries to move away from Attica.

designated in a ministerial decision as a "site for the discharge of treated industrial waste"[6]. Ten years later, in 1979, a further joint prefectural decision was issued, again naming the Asopos River as a "site for the discharge of treated industrial waste"[7]. Clearly, as the number of industrial plants s in Oinofyta rose (there are now over a thousand[8]), the more serious the waste problem became. However, the authorities failed to organise the Oinofyta industrial area, establish environmental standards or regulate the discharge of liquid waste. When the Environmental Protection Act (No. 1650/1986)[9] was adopted, setting out industries' environmental obligations for the first time, the authorities avoided the issue of the unregulated dumping of liquid industrial waste. They even continued to grant licences to industry on the basis of a health regulation of 1965 which authorised the surface or underground dumping of industrial waste after minor chemical treatment and with outdated limits on the levels of dangerous substances that such waste could contain[10]. In conclusion, the health regulation of 1965 authorising the legal dumping of liquid industrial waste in surface water, combined with the Ministerial Decision of 1969 and the Joint Prefectural Decision of 1979, which officially designated the Asopos as a site for the discharge of such waste, formed the legal framework which has enabled the thousand or so industrial plants in the region of Oinofyta to operate without supervision for all these years[11].

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6 Joint Ministerial Decision No. Γ1/1806/7-3-1969, Official Gazette ("ΦΕΚ") Β' 200 of 20 March 1969 (**Appendix 2**).

7 Decision No. 19640/14/11.1979, Official Gazette Β' 1136 of 27 December 1979 (**Appendix 3**)

8 According to initial information provided by the Oinofyta fire service, over one thousand plants and workshops are based in the region of Avlona-Avlida-Schimatari with Oinofyta at its centre. 80% of them are located along the main Oinofyta-Schimatari road (an area 6.5 km long by 3.5 km wide) and 33% (some 270 of them) produce carcinogenic liquid waste [http://oikomargarita.blogspot.com/ (consulted on 24 May 2009)]. An aerial view of the town of Oinofyta shows how close the factories are to residential areas and the Asopos and how disordered the distribution of the various types of industry is (see **Appendix 4**).

9 Official Gazette Α΄ 160 of 16 October 1986.

10 Health regulation Ε1β/221/1965 (Official Gazette Β΄ 138/24.02.1965) on the dumping of industrial waste. This regulation was adopted under Act No. 2520/1940 on health regulations and amended subsequently by Γ1/17831/1971 (Official Gazette Β΄ 986/10.12.1971) and Γ4/1305/1974 (Official Gazette Β΄ 801/09.08.1974).

11 See the Reuters Agency's video (**Appendix 5**).

10. In November 2007, following strong protests from Oinofyta's inhabitants, the Ministry of the Environment imposed fines totalling €1.4 million on 20 companies based in the vicinity of the River Asopos because of pollution caused by the dumping of liquid waste deriving from their manufacturing processes, detected during checks by environmental inspectors[12].

11. Following the press release of 7 November 2007, the General Inspector of Administration decided, of his own accord, to verify that the documents entitling the industries concerned to discharge liquid waste into the river were lawful and complete. In March 2008, he filed his report[13]. Of the 19 companies inspected, five discharged liquid waste into the river after obtaining authorisation. Two only had temporary authorisation and the three others had permanent authorisation. In particular:

12 Press release by the Ministry of the Environment, Regional Planning and Public Works, 7 November 2007 (**Appendix 6**).

13 General Inspector of Administration, report of March 2008 (**Appendix 7**).

- one of the companies had already held an operating licence for one year before receiving its temporary discharge authorisation; in other words, it had been operating for a year without the requisite discharge authorisation[14].
- another company had been operating for a long time without an operating licence[15].
- eight companies had been discharging their liquid waste into the groundwater without holding a discharge authorisation whereas this authorisation is needed to be entitled to an operating licence[16].
- seven companies handling dangerous waste were failing to observe the regulations concerning authorisations relating to environmental standards[17].
- none of the companies inspected which were handling or disposing of dangerous waste had official authorisation to handle dangerous waste[18].
- the Prefecture's Directorate of Development issued operating licences to companies which were intending to discharge waste into the groundwater without demanding that the Directorate of the Environment issue them with waste discharge authorisations beforehand[19].

The report concludes among other things that there are gaps and overlaps in the legislation on the management of dangerous or toxic industrial waste and, in particular, that this legislation does not seem to be applied by the relevant authorities or by the industries concerned. Furthermore, no river

14 General Inspector of Administration, report of March 2008, p. 27 (**Appendix 7**).
15 *Ibid.* p. 27 (**Appendix 7**).
16 *Ibid.* p. 27 (**Appendix 7**).
17 *Ibid.* p. 28 (**Appendix 7**).
18 *Ibid.* p. 29 (**Appendix 7**).
19 *Ibid.* p. 31 (**Appendix 7**).

basin management plan has been adopted for the Asopos, as provided for by Directive 2000/60/EC[20].

12. Another systemic failing stems from the fact that several different government departments deal with the question[21]. The General Inspector of Administration's report highlights a lack of co-ordination between the relevant government departments, which is reflected in the fact that there is no agreed interpretation of the rules which prevail and must be applied[22].

13. The inspector's report also concludes that disciplinary proceedings should be initiated against the persons who issued authorisations relating to environmental standards without applying the relevant legislation and those who issued operating licences before authorisation to discharge waste was granted, in particular the department heads concerned, and that criminal proceedings should be initiated against the companies concerned[23]. The Inspector also expresses the fear that other industries are operating illegally in the Oinofyta area – as authorisation would have been issued by the same authorities, adopting the same approach – and in the rest of Greece[24].

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20 General Inspector of Administration's report, pp. 32 and 33 (**Appendix 7**).

21 As Yannis Zabetakis, Assistant Professor of Food Chemistry at the University of Athens, points out, water in rivers and lakes is controlled by the environmental inspectors (ΕΥΕΠ), who answer to the Ministry of the Environment, Regional Development and Public Works (ΥΠΕΧΩΔΕ) and the Ministry of Development's Institute of Geological Studies (ΙΓΜΕ). When the same water enters a food industry, it is controlled by the Food Inspection Agency (ΕΦΕΤ), under the Ministry of Agriculture and Food. And when the same water is bottled, it is checked by the Ministry of Health. See Yannis Zabetakis, *How many Hinkleys are there in Greece ?*, Athens News, 29 May 2009, p. 18 (**Appendix 8**).

22 General Inspector of Administration's report, p. 34 (**Appendix 7**).

23 *Ibid.* pp. 39-40 (**Appendix 7**).

24 General Inspector of Administration's report, p. 37, paragraph 6 (**Appendix 7**).

14. On 8 February 2010, the Minister of the Environment, Energy and Climate Change expressly recognised the responsibility of the Greek state for its indifference when faced with the pollution in the Asopos and the groundwater under Oinofyta. At a press conference given precisely for this purpose in Oinofyta, she made the following statements:

> *"We recognise that, unfortunately, the serious and complex problem of pollution in the Asopos valley and the groundwater in this area by hexavalent chromium, other polluting heavy metals and alloys has spread and increased as a result of the unpardonable indifference of the Greek state in recent years and, in particular, since 2007, when hexavalent chromium was detected in drinking water and groundwater"*[25].

During this press conference, the Minister announced "top priority" measures (safeguarding public health and reducing and eliminating pollution) and "medium and long-term" measures (spatial planning of the Oinofyta industrial zone and guarantees that measures will be implemented). On the issue of spatial planning the Minister made the following statement:

> *"The unplanned Oinofyta industrial zone will be organised in accordance with the guidelines of the special urban planning programme for industry, using land use management plans and/or general development plans and industrial zoning (the matter is being dealt with by a working group co-ordinated by the Secretariat General for the Development and Rehabilitation of Urban Areas)"*[26].

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25 Ministry of the Environment, Ecology and Climate Change. Speech by the Minister of the Environment, Energy and Climate Change, Tina Birbili, Oinofyta, 8 February 2010, A ray of hope for the Asopos (on line). Available at http://www.ypeka.gr/Default.aspx?tabid=389&sni[524]=70 (consulted on 7 September 2010).

26 *Ibid*.

15. In a press release of 27 August 2010, the Ministry of the Environment repeated that it recognised how dangerous hexavalent chromium was and that there was a need to differentiate it from total chromium[27]. It would ensure that the necessary action was taken to achieve the goals of the joint ministerial decision. It also announced that since April 2010, specific action had been taken to ensure that the region's inhabitants would be supplied with clean drinking water. As a result, Oinofyta's water supply now comes from the River Mornos and the water company EYDAP has started pipe-laying work to link the villages of Elaionas and Neochoraki to the water supply network in the town of Thebes, which also takes its water from the Mornos.

b. National case-law on industrial waste

16. In response to this situation in the Asopos river basin, civil society organisations have taken all sorts of steps including judicial action to alert the national authorities and demand that they react[28].

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[27] Ministry of the Environment, Ecology and Climate Change. Press release "Actions of the Ministry of the Environment, Energy and Climate Change for the Asopos", 27 August 2010 [on line]. Available at http://www.ypeka.gr/Default.aspx?tabid=389&sni[524]=502 (consulted on 7 September 2010) (**Appendix 9**).

[28] Several associations have been set up and there are many sites and blogs relating to the issue on the Internet. There has been a great deal of correspondence between the inhabitants and between local associations, and with the Ministry of the Environment, the European Health and Environment Commissioners, the national ombudsman and the European ombudsman.

In addition, many written and oral questions have been tabled in the European Parliament relating either to pollution in the Asopos River in general or to more specific points such as the presence of hexavalent chromium in the drinking water (see, for example, parliamentary questions H-0196/09, E-5250/08 and E-4197/08). In one of its replies, the European Commission said that it was very concerned by the extent of hexavalent chromium pollution in the Asopos River.

Conferences have also been held at both local and European level. The one which attracted the most media coverage was that of 15 April 2009 at the European Parliament in Brussels (a study day entitled "Unsustainable patterns of water and industrial waste management in Greece: the cases of Asopos River Basin, Lake Koronia and Korinthiakos Gulf").

17. In July 2008, the Thebes Court of First Instance, sitting with a single judge, authorised the interim protective measures requested by the non-profit making association EKPIZO (the "Quality of Life" consumers union)[29]. The Court found that "the water supplied in the region of Dilesi through Oinofyta's municipal supply system, which comes from local wells, is neither healthy nor safe and poses serious threats to the 6 000 local users". The court ordered Oinofyta municipality to deliver safe water to the 6 000 inhabitants of Dilesi using tankers until a new supply system was operating in Dilesi. The court also ordered the municipality to provide more information to inhabitants about the risks of using the municipal water supply network, which was in bad repair and full of hexavalent chromium.

18. In May 2008, in response to an application by Oropos municipality, a local association and local residents, the Supreme Administrative Court gave a ruling[30] in which it partly set aside the ministerial decision of 3 July 2007. This decision designated an area of 201.6 hectares on the edge of Tanagra and Oinofyta municipalities as an industrial zone and approved an environmental impact study which authorised the dumping of waste from the Tanagra industrial zone in the River Asopos.

29 Decision 923/2008 of the Thebes Court of First Instance (**Appendix 10**).

30 Judgment 1543/2008 of the combined Supreme Administrative Court of 15 May 2008 (**Appendix 11**).

19. In late 2008, two highly active local NGOs[31], led by Oinofyta's priest, Father Yannis Ikonomidis, lodged several applications with Boeotia Prefecture for the withdrawal of the launch and operating permits and other forms of authorisation issued to five companies[32] on which fines had been imposed following inspections by environmental officers. The prefecture refused to withdraw the permits and the NGOs appealed to the Supreme Administrative Court for it to set aside the prefecture's decision. The Supreme Administrative Court examined the appeals concerning all five companies[33] on 2 December 2009 and gave its judgments on each, all of which were very similar, on 8 December 2010[34]. According to the Supreme Administrative Court, although the Prefect of Boeotia has the power (a non-discretionary power) to take measures to halt the pollution, he failed to take the appropriate steps. It made the following observations on the pollution of the Asopos in particular:

> *"As emerges from the report by the Technical Chamber of Greece (TEE) of July 2009 and judgment 1543/2008 of the combined Supreme Administrative Court, there have been complaints about pollution in the River Asopos and its deterioration for a long time. From the 1960s onwards, industries were set up in the area of Oinofyta; currently some 700 companies working in the industrial processing sector are operating in the area of Oinofyta and Schimatari. The problems arising from these are mainly connected with the uncontrolled dumping in the Asopos River – owing to the lack of a central waste processing unit – of waste (some of which is dangerous because of its high nickel or chromium content) by some of these companies, especially those in the metal-working*

31 The Institute of Local Development and Civilisation (ITAΠ) and the NGO, Citizens for Sustainable Development, Health and Civilisation.

32 Europa Profil Alouminio, Aluminco, Europa, ELVAL, Maïllis and EAB.

33 Europa Profil Alouminio, Aluminco, Europa, Maïllis, EAB and EPALME.

34 Judgments of the Supreme Administrative Court Nos. 3975/2010 (Europa Profil Alouminio), 3976/2010 (EPALME), 3981/2010 (EPALME), 3977/2010 (EAB), 3979/2010 (EAB), 3978/2010 (Maïllis), 3980/2010 (Maïllis) and 3974/2010 (Aluminco).

sector. One of the main problems is the high level of chromium in the area's drinking water"[35].

20. In the meantime, at the beginning of January 2010, following press articles and accusations from the ecologist party, Boeotia Prefecture decided – belatedly – to shut down two of the five companies in question, namely EAB and Maïllis, because they did not have a licence to treat dangerous waste[36]. The companies applied to the Supreme Administrative Court for the prefecture's decision to be set aside and for its execution to be stayed. The hearing on EAB's application is scheduled for 28 September 2011; Maïllis has withdrawn its application. The two local NGOs referred to above, along with Father Yannis Ikonomidis, have also intervened in the proceedings in support of the prefecture's decisions (against the two companies). The Supreme Administrative Court's decisions on the applications for a stay of execution were published on 6 August 2010[37]. These set out, at last, the arrangements for the uncontrolled underground and surface dumping of industrial waste to be halted. They required the companies, in particular, to (a) seal in and map out their water networks and (b) install reliable water counters with data recording systems along with permanent monitoring instruments measuring the basic quality parameters. The Court stated as follows:

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35 Judgment 3977/2010 of the Supreme Administrative Court of 8 December 2010 (**Appendix 12**).

36 The decisions in question were no. 106/18-1-2010 on the temporary suspension of EAB's activities (see **Appendix 13**) and no. 4590/31-12-2009 on the temporary suspension of Maïllis's activities (see **Appendix 14**).

37 Decisions 845/2010 and 846/2010 of the Supreme Administrative Court (see **Appendices 15 and 16**).

> *"the immediate resolution of the problem connected with the deterioration of the natural environment in the area of the River Asopos and its catchment basin, which has taken on alarming proportions and has become a threat to the local population's health and lives, is a matter of urgent public concern which must be dealt with without delay"*[38].

These decisions were valid up to 30 November 2010. They were reviewed by the Court on 21 February 2011 but it has not yet given its judgment.

21. Following the General Inspector of Administration's report of March 2008[39], legal action is currently being taken against fifteen companies[40] in the criminal courts. The investigating judge at the Thebes Court of First Instance committed these companies for trial before the Thebes Court of First Instance on charges of serious bodily harm and threats to life in addition to those of pollution and environmental damage[41]. The perpetrators are liable to up to ten years' imprisonment. Judgment, which was initially scheduled for 24 June 2009, was postponed twice (to 27 January 2010 then 27 October 2010); the next hearing is scheduled for 26 October 2011.

21. The European Commission has also brought infringement proceedings against Greece which were connected more or less directly to the pollution

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38 Decisions 845/2010 and 846/2010 of the Supreme Administrative Court, paragraph 9.

39 See above, paragraphs 11 et seq.

40 Europa Profil Aluminium S.A. ("Europa Profil Αλουμίνιο A.B.E.", http://www.profil.gr/), Aluminco SA ("Aluminco A.E.", http://www.aluminco.com/fr/Aluminium_Systems_gr.aspx), ICR Ioannou SA ("ICR Ιωάννου", http://www.icr-ioannou.gr/?section=category&cat=77&id=156&lang=fr), Protal SA ("ΠΡΟΤΑΛ A.B.E.E."), Greek galvanising plants ("Γαλβανιστήρια Ελλάδος A.B.E.E..", http://www.galvanistiria.gr/), Berling-K. G. Konstantinidis SA ("Berling A.B.E.E-Κυριάκος Γ. Κωνσταντινίδης", http://www.berling.gr/profil.html), Viometale ("Βιομετάλ A.B.E.E.", http://www.viometale.gr/default.htm), ELVAL SA ("ΕΛΒΑΛ A.E.", http://www.elval.gr/), M.J. Maïllis SA ("M.I Μαίλλης A.E.B.E.", http://www.maillis.com/ecpage.asp?id=167&nt=19&lang=2), VAFIKI (ΒΑΦΙΚΗ ΑΕ), NIKOLAOS PETR. STERYIOU ("ΝΙΚΟΛΑΟΣ ΠΕΤΡ. ΣΤΕΡΓΙΟΥ"), PROFILCO SA ("PROFILCO AE", http://www.profilco.gr/gr/index_gr.html), MASTEROSOL-N. Houstoulakis EPE (ΜΑΣΤΕΡΟΣΟΛ-Ν.Χουστουλάκης ΕΠΕ), Greek Air Industries SA (ΕΑΒ ΑΕ, Ελληνική Αεροπορική Βιομηχανία, http://www.haicorp.com/html/en/en-index.htm), BLK Aluminium SA (BLK Βιομηχανία Αλουμινίου ΑΕ, http://www.balkan.gr/).

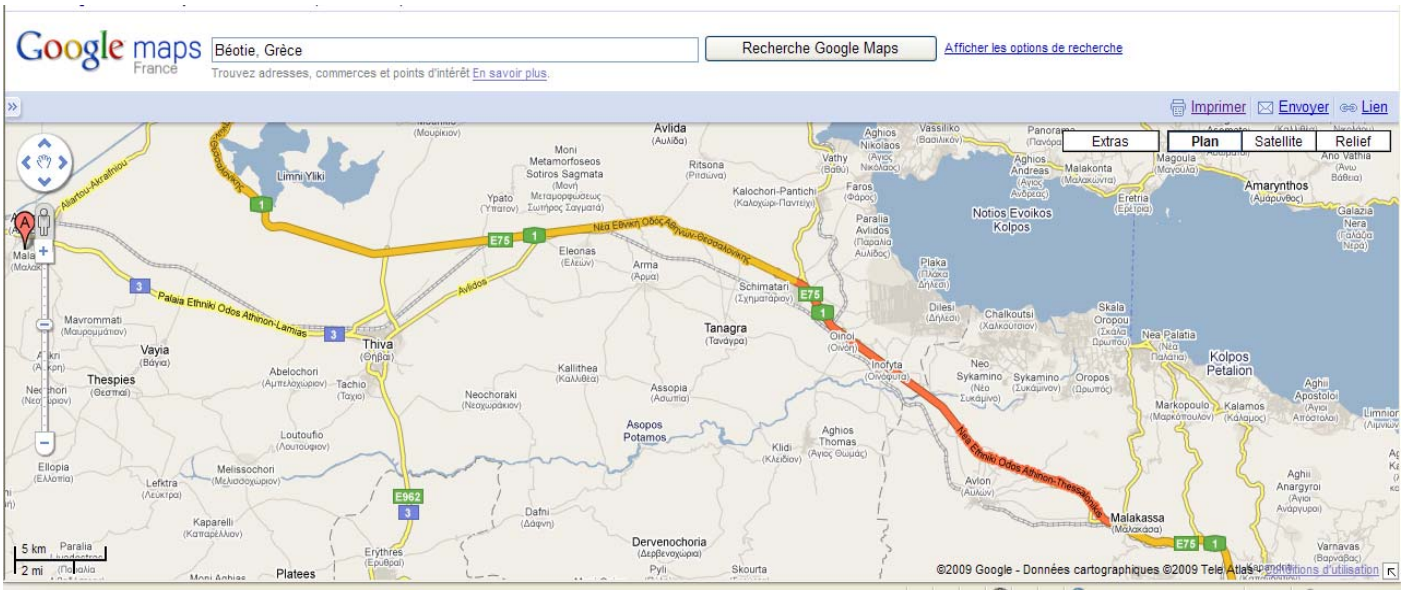
41 Committal for trial before the Thebes Court of First Instance (**Appendix 17**).

in the Asopos River. In a judgment of 10 September 2009 (case C-286/08), the European Court of Justice found that Greece had failed "to draw up and adopt within a reasonable period a hazardous-waste management plan that accords with the requirements of the relevant Community legislation". It added that Greece had failed "to establish an integrated and adequate network of disposal installations for hazardous waste characterised by the most appropriate methods in order to ensure a high level of protection for the environment and public health"[42].

c. The presence of hexavalent chromium (Cr(VI)) in the surface water of the Asopos and the groundwater around Oinofyta

22. Several municipalities are directly affected by the pollution of the Asopos, namely those of Oinofyta, Tanagra, Schimatari, Avlida, Sykamino, Oropos and Avlona (which appear on the map below). They have a total population of 200 000 – and somewhat more in the summer when the holiday-makers and tourists arrive – and over 18 000 people work in the Oinofyta industrial area.

42 Judgment of the Court of Justice of the European Communities of 10 September 2009, Commission v. Greece, case C-286/08 [on line]. Available at http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2009:267:0021:0021:EN:PDF (consulted on 7 September 2010).



Map of the Asopos valley

23. Surveys carried out in various municipalities have shown that the water in the Asopos (surface water and groundwater) contains heavy metals such as hexavalent chromium, cobalt, nickel, barium, manganese and arsenic[43]. It should be noted that Greek legislation only sets a limit on total chromium in drinking water - 50 μg/l[44] - whereas no limit has been placed on hexavalent chromium. In a study by the Department of Economic Geology and Geochemistry of the University of Athens[45] based on the analysis of 63 samples taken between September and December 2008, it was found that there were concentrations close to or higher than the maximum acceptable level of total chromium in the drinking water (50 μg/l) and major concentrations of hexavalent chromium in the Thiva-Tanagra-Malakasa area. Concentrations of hexavalent chromium in the municipal water supply

43 See the photos of the River Asopos (**Appendix 18**).

44 Directive 98/83/EC of 3 November 1998 on the quality of water intended for human consumption (**Appendix 19**) as transposed into Greek domestic law by Ministerial Decision No. Y2/2600/2001, Official Gazette B' 892 of 11 July 2001 (**Appendix 20**).

45 Charalampos Vasilatos, Ifigenia Megremi, Maria Economou-Eliopoulos & Ioannis Mitsis (Department of Economic Geology & Geochemistry, Faculty of Geology & Geoenvironment, University of Athens) Hexavalent Chromium and other toxic elements in natural waters in the Thiva – Tanagra – Malakasa Basin, Hellenic Journal of Geosciences, 2008, No. 43, pp. 57-66 (**Appendix 21**)

wells were between 41 and 53 μg/l in Oinofyta, 5 to 33 μg/l in Thebes, 3 to 80 μg/l in Oropos and up to 40 μg/l in Schimatari, where there are also high concentrations of arsenic (up to 34 μg/l). The study states that the water analysed in Schimatari is unfit for human consumption[46].

24. Analysis of samples of surface water from the Asopos showed concentrations of total chromium of between 1 and 13 μg/l and of hexavalent chromium of 5 mg/l, which is "below the detection threshold". The study by the Department of Economic Geology and Geochemistry[47] states that these concentrations suggest a link with the region's industrial activity. The lower concentrations of hexavalent chromium in the surface water of the river than in the groundwater would tend to indicate that industrial waste containing hexavalent chromium has probably been discharged directly into the aquifer. The ratio of hexavalent to total chromium was 0.7 to 1, which shows that hexavalent chromium is the main form of dissolved chromium detected in the samples.

25. In February 2008, the Institute of Geological Studies, which is the state institution responsible for research on Greece's groundwater, submitted a study to the Ministry of the Environment, Regional Planning and Public Works[48]. It identified major concentrations of hexavalent chromium in several samples, namely those taken from near the river bed to the north of Aghios Thomas (156 μg/l), around Avlida (140 μg/l) and near Avlona (108

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46 Charalampos Vasilatos, Ifigenia Megremi, Maria Economou-Eliopoulos & Ioannis Mitsis. Hexavalent Chromium and other toxic elements in natural waters in the Thiva – Tanagra – Malakasa Basin (**Appendix 21**).

47 *Ibid.* (**Appendix 21**).

48 P. Yannoulopoulos, Hydrogeological and hydrochemical study of the groundwater in the Asopos valley of Boeotia, Institute of Geological Studies, Athens, February 2008 [Αναγνωριστική υδρογεωλογική – υδροχημική έρευνα ποιοτικής επιβάρυνσης των υπογείων νερών της ευρύτερης περιοχής της λεκάνης του Ασωπού Ν. Βοιωτίας, ΙΓΜΕ] (**Appendix 22**).

μg/l)[49]. According to the study it is certain that these concentrations of hexavalent chromium are the result of pollution from an industrial source.

26. Major concentrations of total iron were identified to the west of Oropos, in Avlona, south of Oinofyta and between Schimatari and Avlida, reaching levels of 2000 μg/l, whereas the authorised limit is 200 μg/l[50]. Except in the case of Avlona, these concentrations are thought to stem mainly from industrial pollution because they are combined with other evidence of pollution and substantial concentrations of metals.

27. Nickel was detected in major concentrations (up to 54 μg/l, whereas the limit is 20 μg/l) to the south-west of Inoï and on both banks of the River Asopos[51]. According to the study, it is certain that the presence of nickel and its spread are directly linked with sources of industrial pollution. High concentrations of arsenic and lead have been detected near the river and in Schimatari, Oinofyta and Avlona. They are also linked to industrial pollution.

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49 P. Yannoulopoulos, Hydrogeological and hydrochemical study of the groundwater of the Asopos valley in Boeotia, map no. 18 and table no. 4 (**Appendix 22, p. 45 and pp. 41-43**).

50 *Ibid.*, map no. 19 and table no. 4 (**Appendix 22**, pp. 41-43 and 46).

51 *Ibid.*, map no. 20 and table no. 4 (**Appendix 22**, pp. 41-43 and 47).

28. In previous surveys carried out by the State Chemistry Laboratory between 2004 and 2007, it was found that levels of total chromium in drinking water were higher than or close to the threshold set by Greek legislation and hexavalent chromium levels were very high[52].

29. As mentioned above, the Ministry of Health has not yet set a limit on hexavalent chromium levels in drinking water. The authorities persist in applying the threshold that is used for total chromium, which the legislation limits to 50μg/l[53]. However, there is a judicial decision which establishes a limit on the concentration of hexavalent chromium. In decision No. 1158/2010, the Chalkida Court of First Instance found that the concentration of hexavalent chromium in drinking water should be limited to 2 μg/l[54]. It is based in particular on Joint Ministerial Decision No. 20488 of 31 May 2010, which sets limits of 3 μg/l on the average annual concentration and 11 μg/l on the maximum concentration at any one time of hexavalent chromium in the surface water of the Asopos River (appendix A, table 2)[55]. In this connection it is worth noting that the Californian environmental protection agency has now set a limit on hexavalent chromium of 0.02 μg/l (as a "public health goal") having taken account of its impact on young children and vulnerable people, particularly the risk of cancer in the event of early exposure.

30. At international level, the UN Committee on Economic, Social and Cultural Rights states that *"The water required for each personal or domestic use must*

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52 See State Chemistry Laboratory, summary table of the surveys from 2004 to 2007 (**Appendix 23**).

53 Article 18, Appendix I, of Joint Ministerial Decision Y2/2600/21.6.2001, Official Gazette B' 892 of 11 July 2001 (**Appendix 20**).

54 See Appendix 24.

55 See Appendix 25.

be safe, therefore free from … chemical substances… that constitute a threat to a person's health"[56]. Similarly, with regard to the right to health, particularly the right to a healthy natural and working environment, the UN Committee recommends that measures are taken to prevent and reduce exposure to some threats such as toxic chemical products which directly affect human health[57].

d. Hexavalent chromium (Cr(VI)): a highly toxic molecule for living organisms

31. Most of the hexavalent chromium (Cr(VI)) found in the environment is of human, industrial origin. Chromium is widely used in industry (particularly the metal-working, chemical and textile industries). It is one of the components of stainless steels, special steels and alloys. It makes metals harder and more resistant to corrosion. It is used to make dyes, catalysts, colouring agents for ceramics and pigments. It is also used in the manufacture of magnetic tape, chrome, pigments and wood preserving products. In the metallurgical sector, hexavalent chromium compounds are used to manufacture chromium metal and alloys and for chrome plating. In the chemical industry they are used as oxidising agents and in the production of other chromium compounds. They are also used in tanneries and the textile industry.

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56 Committee on Economic, Social and Cultural Rights, The right to water (Articles 11 and 12 of the International Covenant on Economic, Social and Cultural Rights), General Comment No. 15 (2002), E/C.12/2002/11, paragraph 12.

57 Committee on Economic, Social and Cultural Rights, The right to the highest attainable standard of health (Article 12 of the International Covenant on Economic, Social and Cultural Rights), General Comment No. 14 (2000), E/C.12/2000/4, paragraph 15.

32. Unlike trivalent chromium (Cr(III)), which occurs in nature and is harmless or even essential for the human organism, hexavalent chromium (Cr(VI)) is a highly toxic molecule for living organisms. It is thought to be carcinogenic[58]. Exposure through the oral route has a much greater effect than inhalation or dermal exposure. Skin reactions are observed following dermal exposure, consisting of eczematous dermatitis or ulceration. Through inhalation, it can cause lung cancer[59]. Therefore, there is a very high risk for employees working in industries using chromium, stemming mostly from particulate matter. The substance is also dangerous if it is ingested. There should not be any in drinking water, not even at trace levels[60]. Depending on the amount ingested, its effects range from disorders of the stomach and digestive system to cancer[61]. Chromium and its derivatives can have a sensitising effect which is manifested by asthma or

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58 "When it enters cells, hexavalent chromium reacts with the reductive substances in the cell and is converted into trivalent chromium, which seems to pose the 'real threat' (Environmental Health Perspectives, 2000). On the other hand, the components of trivalent chromium only seem to pass through cell walls slowly if at all (Fan et al., 1987) with the result that hexavalent chromium is the dangerous form of chromium, not trivalent chromium. Bridgewater et al. (1994), Xu et al. (1996), De Flora et al. (1997), and Voitkun et al. (1998) refer to reaction mechanisms in chromium VI once it has entered cells and the fact that chromium III is produced in cells through the conversion of chromium VI. The conversion of chromium VI into chromium III within cells can cause the destruction of DNA in various forms", Technical Chamber of Greece, The problem of the River Asopos – suggested solutions, July 2009, Athens, p. 42 (**Appendix 26**).

59 For inhalation exposure, the International Agency for Research on Cancer (IARC) has classified hexavalent chromium in Group 1 (carcinogenic to humans). See also the Scientific Committee on Occupational Exposure Limits (a committee set up by a decision of the European Commission (95/320/EC)), in its "Risk Assessment for Hexavalent Chromium" (SCOEL/SUM/86 rev. final), December 2004; the International Labour Organisation in its Encyclopaedia of Occupational Health and Safety, Part I, chapter 10, point 17, on respiratory cancers, and Part IX, chapter 63, point 10, on chromium, and P. Hoet, Chrome et composés, *Encyclopédie médico-chirurgicale*, Toxicologie-Pathologie professionnelle, 1st quarter, 2007, No. 154, 11p.

60 On this point the Office of Environmental Health Hazard Assessment (OEHHA), which is an independent authority in California, noted in December 2010 that concentrations of hexavalent chromium should not exceed 0.02 µg/l. See the California Environmental Protection Agency, Public Health Goal for Hexavalent Chromium in Drinking Water (draft) [on line]. Available at: http://oehha.ca.gov/water/phg/pdf/123110Chrom6.pdf (consulted on 5 January 2011) (**Appendix 27**).

61 See the press release by the Thebes medical association, 1 November 2007 (**Appendix 28**).

dermatitis. Studies have also shown an increase in the frequency of complications during pregnancy and childbirth[62].

33. There is no international limit on hexavalent chromium concentrations although it is acknowledged to be carcinogenic. The only international limit for chromium is that of 50 µg/l in drinking water for total chromium (in other words all forms of chromium combined including chromium (III) and chromium (VI)), in accordance with the recommendations of the World Health Organisation – although these are criticised by most of the scientists who have looked into the pollution in the Asopos valley[63]/[64]. Whether it is breathed in or ingested, hexavalent chromium is very much more dangerous than trivalent chromium[65]. It is for this reason that separate limits should be set and that, in more general terms, hexavalent chromium should be dealt with differently to trivalent chromium.

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62 European Commission's Joint Research Centre, European Chemicals Bureau, European Union Risk Assessment Report (chromium trioxide, sodium chromate, sodium dichromate, ammonium dichromate and potassium dichromate), 2005, p. 200. Raj Kamal Kanojia, Mohammad Junaid and Ramesh Chandra Murthy, Embryo and fetotoxicity of hexavalent chromium: a long-term study, Toxicology Letters Volume 95, Issue 3, May 1998, pages 165-172.

63 See paragraph 35.

64 World Health Organization, Guidelines for drinking-water quality, third edition, incorporating first and second addenda, Geneva, 2008, 12.30 (p. 334) [on line]. Available at http://www.who.int/water_sanitation_health/dwq/fulltext.pdf (consulted on 7 September 2010), (**Appendix 29**).

65 Technical Chamber of Greece, The problem of the River Asopos – suggested solutions, July 2009, Athens, p. 47 (**Appendix 26**).

34. As outlined above, Greek legislation does not set a separate limit for hexavalent chromium, but merely applies the limit of 50 μg/l for total chromium in drinking water. In the absence of such a limit, the Chalkida Court of First Instance held in 2010 that the concentration of hexavalent chromium in drinking water should not exceed 2 μg/l,, basing itself on Joint Ministerial Decision No. 20488/31.5.2010 on the Asopos[66]. At all events, it should be noted that in this decision, the authorities set the authorised annual average concentration of hexavalent chromium (Cr(VI)) in the industrial waste dumped in the Asopos at 30 μg/l[67].

35. On the matter of what the maximum authorised concentration of hexavalent chromium should be, a Professor of Medicine at the University of Athens, Polyxeni Nikolopoulo-Stamati, has stated that *"there is no such thing as a safety level for substances which are linked to disruption of the endocrine system and carcinogenesis. … It is impossible to establish an 'acceptable dose' when it is probable that hexavalent chromium also enters the body through the skin and through the inhalation of droplets[68]. The limit is arbitrary as it takes account neither of the quantities of other heavy metals which may be present in the groundwater nor of the way in which they interact. … The World Health Organisation should review its recommended levels"*[69].

In a study in July 2009 on the problem of the Asopos River and potential solutions, the Technical Chamber of Greece also concludes that the limit of 50 μg/l for total chromium is excessively high and must be radically

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66 See paragraph 29.

67 See below, paragraph 52.

68 See paragraph 45.

69 Interview in the daily newspaper Kathimerini of 2 August 2010 [on line], available at http://www.kathimerini.gr/4dcgi/_w_articles_oiko1_100072_02/08/2010_1292313 (consulted on 7 September 2010).

reduced[70]. It points out that several universities[71] and scientific bodies[72] and many individual scientists who have investigated the pollution in the River Asopos agree on this point. Similarly, the Technical Chamber of Greece considers that this limit of 50 µg/l for hexavalent chromium in drinking water adopted by Greek and European legislation[73] is far above its proposed minimal risk level of 1µg/kg/day for all the hexavalent chromium ingested over an exposure period of more than one year. It is even more of a problem where people are exposed for ten years or their whole lives. Account should also be taken of the fact that hexavalent chromium is also ingested through food[74]. In 1999 Italy established a limit of 5µg/l on hexavalent chromium in groundwater[75].

36. The geological features of the Asopos river bed make the situation worse. The rock under the river is porous, with the result that some of the water percolates through the ground into the groundwater. Water is lost in this way at a rate of 300 litres per minute in the section between the Aghios Thomas bridge and the bridge carrying the main Athens-Lamia road. This is where the most harmful waste is dumped and "enriches" the groundwater.

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70 Technical Chamber of Greece, The problem of the River Asopos – suggested solutions, July 2009, Athens, p. 47 (**Appendix 26**).

71 The National and Kapodistrian University of Athens, the Agricultural University of Athens and the National Technical University of Athens.

72 The Institute of Geological Studies, the Union of Greek Chemists, the Pan-Hellenic Association of Public Health Physicians.

73 A limit of 3 and 11 µg/l was adopted but related only to the Asopos valley, see paragraph 29.

74 Technical Chamber of Greece, The problem of the River Asopos – suggested solutions, July 2009, Athens, p. 47 (**Appendix 26**). http://library.tee.gr/digital/m2433/m2433.pdf

75 Ministerial decree no. 471 of 25 October 1999, Appendix 1 (**Appendix 30**).

If, for instance, a concentration of 148 μg/l is measured in the river, "*it can be considered that 100 μg/l will reach the groundwater*"[76].

37. After some consideration, scientists have ruled out the possibility that such a large quantity of hexavalent chromium in the river water can be accounted for by the region's geology, having compared it with the similar region of Euboea[77].

38. Another problem is that too much water has been drawn from the ground, so the level of the groundwater has dropped considerably over the years and is currently below sea level. In the 1960s water could be found at a depth of 30 to 40 metres. By 2000, it was necessary to go down to a depth of 180 to 200 metres. As a result sea water makes its way into the groundwater and is found in the water supply network. Large quantities of chlorine are used to eliminate micro-organisms in the water and ensure that it meets high microbiological standards, leading to high levels of chlorine in the area's drinking water. Studies have shown, however, that the standard way of disinfecting drinking water using chlorine actually stimulates the oxidation of trivalent chromium into hexavalent chromium[78]. Furthermore, although it acts as a disinfectant, when chlorine is added to drinking water, it

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76 As stated by Dr Theologos Mimides, associate professor at the Agricultural University of Athens, in an article in the daily newspaper TA NEA, 24 September 2008 [on line]. Available at http://www.tanea.gr/default.asp?pid=2&ct=1&artid=1400652 (consulted on 7 September 2010).

77 Comments by Professor Oikonomou, geology professor, to the journalist Prokopis Doukas, co-ordinator of the study day on "The state of the Asopos", 3 April 2009, Environment Committee of the University of Athens [on line]. Available at http://prokopisdoukas.blogspot.com/2009/04/h.html (consulted on 7 September 2010).

78 Han Lai and Laurie S. McNeill, Chromium Redox Chemistry in Drinking Water Systems Journal of Environmental Engineering, 2006, Volume 132, Issue 8, Technical Papers, p. 842. Dennis Clifford and Jimmy Man Chau, The Fate of Chromium (III) in Chlorinated Water, US EPA, 1988.

produces dangerous by-products[79]. It is worth noting that in Greece disinfection of drinking water by chlorine is compulsory in law[80].

39. Water surveys have also revealed nitrate pollution in the river. In general, nitrates in water stem mostly from agriculture and to a lesser extent from industry. When they are ingested in too large a quantity, nitrates have toxic effects on human health[81]. They also hasten changes in biological balances in aquatic habitats by triggering processes of eutrophication[82].

40. Analyses show high concentrations of chlorides and phosphates in the river, which can be attributed to industrial pollution. They also show that the water is very hard, containing large quantities of calcium and magnesium ions. Very hard water causes problems when it is used[83].

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79 Halogenated by-products (in other words those containing chlorine or bromine) such as trihalomethanes (THM) or haloacetic acids.

80 Regulation on the disinfection of water in the drinking water supply network, YM/5673/57, Official Gazette 5/58 B, **Appendix 31**.

81 "Beyond a certain level of concentration, nitrates can cause a type of blood poisoning called methaemoglobinaemia or blue baby syndrome, affecting children and, in particular, babies, who are very sensitive to excessive absorption. Nitrates are not harmful to health in themselves. However, under the action of a bacteria which is present in the human body, they are transformed into nitrites. These oxidise the haemoglobin in the blood so that it can no longer bind oxygen and cellular respiration is disrupted. Even at low concentrations, they can also cause cancers in adults in the long term when they are combined with certain pesticides, with which they form carcinogenic compounds". CNRS (the French national scientific research institute), in an article entitled "*Eau potable: toxicité de polluants chimiques*" ("Drinking water: the toxicity of chemical pollutants").

82 An imbalance in an ecosystem owing to excess nutrients and resulting in the excessive growth of algae and a depletion of dissolved oxygen. Ultimately, excess eutrophication can lead to the death of aquatic ecosystems (a process called hypereutrophication).

83 "Hard water reduces the detergent properties of washing powders and soaps, which need to be used in greater quantities. Its use in agriculture increases the concentration of salts in the soil and hastens their sterilisation. Lastly, some salts, particularly limestone, can be deposited in the form of solids called scale on the inner surfaces of pipes, hot water tanks and boilers". CNRS, article entitled "*Eau potable: l'eau dure, l'eau douce*" ("Drinking water: hard water and soft water").

41. Water with a chemical composition of this type poses a serious threat to people's health. It raises questions about the quality of the drinking water in the area, which is ingested directly by the local inhabitants.

42. It follows that the systematic epidemiological monitoring of those concerned is crucial. Yet, in the case of the Asopos, the state has failed to organise an epidemiological survey for nearly forty years. In the absence of such a survey, it is difficult to demonstrate precisely how the poor water quality in the area correlates with its inhabitants' health. The only source of information available is the register of deaths in Oinofyta parish, which shows an increase in deaths caused by cancer[84]. Over the last fifteen years, the proportion of deaths in Oinofyta caused by cancer has risen from 6% to 30%.

43. It was only in August 2010 that the initial results of a study on mortality in Oinofyta finally became available[85]. The study, carried out by the NGO, the Oinofyta Health Monitor, and financed by the Disease Control and Prevention Centre, covered six thousand people over the period from 1999 to 2009 and compared them with the inhabitants of Boeotia as a whole. It showed that cancer is the principal cause of death in Oinofyta. Over the period from 1999 to 2009 the cancer mortality rate was 14% higher in Oinofyta than in the region of Boeotia. In 2009, there were 90% more deaths as a result of cancer than in the rest of the region, which is statistically significant. There has also been a major, statistically significant

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84 See Athanasios Panteloglu, *Sustainable viable development at regional level*, Institute of Local Development and Civilisation, September 2006, p. 1 (**Appendix 32**).

85 Epidemiological study on mortality in Oinofyta carried out by the NGO, the Oinofyta Health Monitor, August 2010 (**Appendix 33**).

increase in the number of liver, lung and kidney cancers as well as bladder cancers among women living in Oinofyta.

44. As the NGO states, the next stage of the epidemiological survey will be interviews with the friends and family of cancer victims. The researchers also consider it worth extending the study beyond 2010 and to neighbouring areas or areas with similar types of pollution[86].

e. Food safety issues

45. The Institute of Geological Studies concludes in its study of February 2008 that in several places the concentrations of certain hydrochemical parameters are so great that most of the samples analysed are unfit for human consumption[87]. Similarly, the Union of Greek Chemists concludes that the water is unsuitable for any purpose, whether it be drinking, cooking or personal and domestic hygiene, because it causes dermatological problems wherever there is contact with the skin[88].

The Union of Greek Chemists also highlights the fact that if water full of hexavalent chromium is used to water crops in fields and greenhouses using methods which spread very fine particles in the air, protective measures should be taken to ensure that the persons working on such crops or any other groups of individuals who may be exposed to these particles do

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86 Press release by Athina Linou, the head of the NGO, the Oinofyta Health Monitor, August 2010 (**Appendix 34**).

87 **Appendix 22**, p. 59, paragraph 4.1.

88 Union of Greek Chemists, Scientific Department on the Environment and Occupational Health and Safety, Views on the dangers associated with hexavalent chromium in groundwater, October 2007 (in Greek) (**Appendix 35**).

not inhale them[89]. Yet, as can be seen on the aerial photos appended, the crops in question are very close to the town's residential areas[90].

46. Besides the fact that it is unfit for human consumption and domestic use, the water is also unsuitable for irrigating agricultural land. This is not just because of the problem that particles may be inhaled during watering but also – and primarily – because of the issue of the safety of the food grown and produced in the region. In the Asopos valley crops are grown over 35 140 hectares of land. The study by the Institute of Geochemical Studies mentioned above detected significant quantities of hexavalent chromium here, at levels of up to 156 μg/l. In addition, measurements taken in the wells used for agriculture in Oropos revealed quantities ranging between 3 and 80 μg/l[91]. Surveys have also detected quantities above the authorised limits (where such limits exist) of nickel (38 μg/l), cobalt (9 μg/l), iron (2500 μg/l), manganese (360 μg/l) and barium (150 μg/l)[92].

47. The study by the Institute of Geological Studies states that samples containing a concentration of total chromium of over 100 μg/l must be

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89 Union of Greek Chemists, 2007 study, pp. 8 and 9 (**Appendix 35**).

90 See **Appendix 4**.

91 Charalampos Vasilatos, Ifigenia Megremi, Maria Economou-Eliopoulos & Ioannis Mitsis, Hexavalent Chromium and other toxic elements in natural waters in the Thiva – Tanagra – Malakasa Basin, Department of Economic Geology & Geochemistry, Faculty of Geology & Geoenvironment, University of Athens, p. 60 (**Appendix 21**).

92 A study by the environmental management department of the Agricultural University of Athens dating from 2008, which is unavailable but whose results were quoted in the article in the TA NEA newspaper of 24 September 2008, also detected high concentrations of nickel (31 μg/l), cobalt (30 μg/l), iron (420 μg/l), manganese (157 μg/l) and barium (18 000 μg/l). This study concluded that "the water is unsuitable for irrigation in the industrial area between Oinofyta and Oropos because of its high heavy metal content" and, in particular, in view of the fact that "the industrial waste dumped in the river amounts to 13 000 m³/day during the wet season" (i.e. from October to April).

considered unfit for use in irrigation[93]. It also mentions that samples containing large concentrations of manganese (>50 μg/l) and nitrates (>100 μg/l) are considered unfit for livestock breeding[94].

48. The water in the Asopos is unfit for the irrigation of agricultural land as the heavy metals contained in the water are transferred to food products – and in this specific case to root vegetables (onions, carrots and potatoes). Several studies have shown that the carrots and potatoes grown in the area contain high levels of nickel and chromium. More specifically, a study by the University of Athens into the link between environmental pollution in the Asopos and concentrations of certain metals (Ni, Cr, Cd, Cu, Pb and As) in the vegetables produced in the area showed that potatoes from the area contain on average 800 μg/kg of nickel, which is nine times higher than the concentrations of 78 μg/kg found in control samples. In addition, carrots contain 474 μg/kg of nickel, compared with 93 μg/kg in the control samples, and 43 μg/kg of chromium, compared with 20 μg/kg in the control samples, in other words twice as much[95]. In a study carried out by the private laboratory Agrolab, authorised by a public body (the national accreditation system) levels of nickel in carrots were 0.08 mg/kg to 1.6

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93 See P. Yannoulopoulos, Hydrogeological and hydrochemical study of the groundwater in the Asopos valley of Boeotia, Institute of Geological Studies, op. cit., table No. 6, p. 62, outlining the maximum concentrations suggested for water to be used for irrigation (Ayers and Westcot (1994), Water quality for agriculture. FAO Irrigation and Drainage Paper 29. Rev. 1) (**Appendix 22**).

94 *Ibid.* p. 61 (**Appendix 22**).

95 Study to be published in Analytical Letters: Chrysostomos G. Kirkillis, Ioannis N. Pasias, Sofia Miniadis- Meimaroglou, Nikolaos S. Thomaidis and Ioannis Zabetakis, Concentration levels of trace elements in carrots, onions and potatoes cultivated in Asopos Region, ed. David J. Butcher, Taylor & Francis.

mg/kg (whereas the maximum level reported at international level is 0.16 mg/kg). The concentration of chromium was 0.03 to 0.21 mg/kg[96].

49. In other surveys conducted at the beginning of 2009 in the Oinofyta-Asopos area by the University of Athens Chemistry Department, large quantities of total chromium were detected in rocket roots (1.36 mg/kg of dried product), stems (0.58 mg) and leaves (0.4 mg), and in carrots (0.35 mg), green salad (0.15 mg), green beans (0.11 mg) and potatoes and courgettes (upwards of 0.09 mg)[97].

50. A very recent study by the University of Athens, the results of which were presented at the end of September 2010 by the assistant professor of food chemistry, Yannis Zabetakis, also reports large concentrations of heavy metals in bulb vegetables grown in the areas of Oinofyta and Thebes. Nickel concentrations in vegetables were five times higher than in similar products from unpolluted regions and chromium levels were two to three times higher. This study is particularly important as it was the first to investigate the link between the environmental pollution of the Asopos, the high concentrations of heavy metals and food supplies. It should be emphasised that the samples from the region's crops were taken from supermarkets in Athens, not directly from the fields, as the farmers concerned refused to allow this[98].

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96 Article from the daily newspaper Eleftherotypia of 17 May 2009. See also the results of the study carried out by the Department of Food Chemistry and Analytical Chemistry of the University of Athens in the RealPlanet article of 22 February 2009, p.5.

97 Article in Eleftherotypia, 5 April 2009.

98 Article from the daily paper, Proto Thema, 7 September 2010.

51. As the water is also used by food industries in the region to manufacture drinks (such as fruit juices and fizzy drinks) and to water and clean fruit and vegetables, the final products they sell also pose a health risk. The risk is not confined to the Asopos valley, as the products grown and produced by the food industry are sold not only in local shops but also and for the most part in shops throughout Attica – as witnessed by the fact that samples were taken from supermarkets in Athens[99] – and are exported to other parts of Greece and abroad.

f. Applicable measures?

52. Joint Ministerial Decision No. 20488 on the establishment of environmental standards for the River Asopos and threshold values for the emission of liquid industrial waste into the Asopos catchment basin was finally published on 31 May 2010[100]. This decision:

- **a.** set environmental standards and threshold values for the discharge of liquid waste from industries and other activities located within the catchment area of the River Asopos, in accordance with the relevant EU legislation (such as Directive 105/2008) on priority substances and other pollutants;
- **b.** repealed Joint Ministerial Decision No. Γ1/1806/7-3-1969[101]. It is worth noting that under the new Joint Ministerial Decision, underground dumping of liquid industrial waste is now banned

99 See paragraph 50.
100 Official Gazette B΄ 749. See **Appendix 25**.
101 See paragraph 8 above and **Appendix 2**.

and any existing permits authorising such practices have been withdrawn;

c. provided that existing industrial and other undertakings which discharged their liquid waste into the Asopos River could continue to do so but were required to file an application for the review of the decisions validating their compliance with environmental standards during 2010 so that they could receive new environmental standards from the relevant services in the same year or by the end of June 2011 at the latest, the aim being that they should meet the conditions set by the new decision by the end of 2011;

d. set up the Oinofyta Environmental Inspectors Office, whose aim is to step up environmental controls and improve the system to supervise the application of the environmental legislation in force in areas facing serious environmental problems, as is the case with the area of the Asopos River and the tributaries and streams located within its hydrogeological basin.

53. The Institute of Local Sustainable Development and Culture (a local NGO) has commented, however, that the new joint ministerial decision "is a step in the right direction but an effort will have to be made to set up essential supervisory bodies and ensure that it is complied with". It also points out that it is unclear when the Oinofyta Environmental Inspectors Office will open. At the same time, the decision provides that all the region's industries should have been issued with new environmental standards "by the end of June 2011 at the latest". It is reasonable to ask in

this connection how these new standards can possibly be validated for hundreds of industries within the time set by the joint ministerial decision[102].

54. Attention should also be drawn to an event which illustrates the way in which the Greek authorities intend to apply the new legal framework. A few days before it came into force, the Ministry of the Environment, Energy and Climate Change itself renewed the environmental standards to be applied to the region's largest industrial concern, the publicly-owned company EAB, on the basis of the old legal framework[103]. This was despite the fact that in early 2010, (a) Boeotia prefecture had noted that this company did not have a permit to emit dangerous waste and had closed down the site[104], (b) the Special Environmental Inspectors Office had conducted an inspection and noted a series of infringements of environmental legislation, prompting it to ask for explanations[105] and (c) a case concerning the company's polluting activities is due to be heard in the Supreme Administrative Court[106].

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102 Statement by the representative of the Institute to the Athenian daily newspaper Eleftherotypia, 19 May 2010 [on line]. Available at http://www.enet.gr/?i=news.el.article&id=163770 (consulted on 7 September 2010).

103 On 14 May 2010, a new environmental standards permit was awarded to EAB by the Ministry of the Environment, Energy and Climate Change (no. 165422/14.5.2010).

104 Decision No. 106/18-1-2010 of Boeotia Prefecture on the temporary suspension of EAB's activities (**Appendix 13**).

105 Special Environmental Inspectors Office (ΕΥΕΠ), No. 3102/30/7.2010 (**Appendix 36**).

106 See above, paragraph 20.

V. THE VIOLATIONS OF THE CHARTER ON WHICH THE COMPLAINT IS BASED

55. The complainant organisation submits that Greece has failed to comply with its obligations under Article 11 of the Charter, which guarantees the right to protection of health. Article 11 of the Charter reads:

> Article 11 – The right to protection of health
>
> *With a view to ensuring the effective exercise of the right to protection of health, the Contracting Parties undertake, either directly or in co-operation with public or private organisations, to take appropriate measures designed* inter alia*:*
>
> *1. to remove as far as possible the causes of ill-health;*
>
> *2. to provide advisory and educational facilities for the promotion of health and the encouragement of individual responsibility in matters of health;*
>
> *3. to prevent as far as possible epidemic, endemic and other diseases.*

56. According to the Committee[107], the national authorities must take the following measures in order to fulfil their obligations:

- develop and regularly update sufficiently comprehensive environmental legislation and regulations; (see Conclusions XV-2, Addendum, Slovakia, pp. 201-205)
- take specific steps, such as modifying equipment and introducing threshold values to prevent environmental pollution; (see Conclusions 2005, Moldova, Article 11§3, pp. 452-457)
- ensure that environmental standards and rules are properly applied, through appropriate supervisory machinery; (see, *mutatis mutandis*, International Commission of Jurists v. Portugal, § 33)

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[107] Marangopoulos Foundation v. Greece, Complaint No. 30/2005, decision on the merits of 6 December 2006, §203.

- inform and educate the public, including pupils and students at school, about both general and local environmental problems;

  The Committee has pointed out that national regulations must provide for information and education for the public, and their participation in the process, to foster a sense of individual responsibility for health (Conclusions 2009, Moldova).. Governments must also show, through practical measures, that they have an effective health education policy for the population at large and for groups affected by specific problems (Marangopoulos Foundation for Human Rights (MFHR) v. Greece, Complaint No. 30/2005, decision on the merits of 6 December 2006, §§ 216 and 219).

  The Committee has also pointed out that informing the public, particularly through awareness-raising campaigns, must be a public health priority (Conclusions 2007, Albania). Measures should be taken to prevent activities that are damaging to health (smoking, alcohol, drugs) and to promote the development of a sense of individual responsibility (healthy eating, sex education, environment) (Conclusions 2005, Moldova). Activities may be more or less developed in accordance with the nature of the public health problems in the countries (Conclusions XV-2, Belgium).

- adopt statutory food hygiene standards which take account of the relevant scientific data and set up machinery to monitor compliance with these food standards throughout the food chain; (see Conclusions XV-2, Addendum, Cyprus, p. 30)
- assess health risks through epidemiological monitoring of the groups concerned.

57. In the case of the Asopos, the complainant organisation submits that the Greek authorities – at both central government and prefectural and municipal level – have failed to fulfil any of the above obligations. More specifically:

a. Central government's responsibility

58. To date, central government has failed to take any steps to protect the River Asopos or the health of Oinofyta's inhabitants. For example,

(i) Oinofyta's industrial area, which covers some 39 000 sq. m,, is still informal and unplanned. Since 1968, no statutory measure has been introduced for the planning of the area or the environmental or any other type of organisation of the companies that have set up in the area, which number over a thousand[108];

(ii) until 31 May 2010, when a new joint decision was published[109], the regulation which applied in the area was the joint ministerial decision of 1969, which officially designated the River Asopos as a "site for the discharge of treated industrial waste"[110]. In other words, for 41 years no legislation was introduced to deal with the rapidly increasing volume of industrial waste discharged into the Asopos;

(iii) despite certain court decisions on safety limits, the Ministry of Health has not yet set a limit on hexavalent chromium levels in drinking water;

(iv) no river basin management plan has been adopted for the Asopos, as is provided for by Directive 2000/60/EC[111] and as the

108 See above, paragraph 8.
109 See above, paragraph 8.
110 Joint Ministerial Decision No. 20488/31.5.2010 on the Asopos. See above, paragraph 52.
111 General Inspector of Administration, report of March 2008. See above, paragraph 11.

government was required to do by 31 December 2009[112]. This infringement of European law by the Greek authorities is a clear sign of their failure to meet their obligations under Article 11 of the Charter;

(v) to date, the authorities have failed to solve the systemic failure arising from the fact that several different government departments are responsible for protecting the Asopos. There has been a lack of co-ordination between the relevant government departments, which has led to the lack of any generally accepted interpretation of the rules which prevail and must be applied[113].

(vi) lastly, the European Court of Justice has found that Greece had failed "to draw up and adopt within a reasonable period a hazardous-waste management plan that accords with the requirements of the relevant Community legislation"[114].

59. Furthermore, central government has failed up until now to take any steps to protect the River Asopos or the health of Oinofyta's inhabitants. According to the European Court of Justice, Greece has failed "to establish an integrated and adequate network of disposal installations for hazardous waste characterised by the most appropriate methods in order to ensure a high level of protection for the environment and public health"[115]. A new joint ministerial decision came into force on 31 May 2010, setting out

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112 Article 13§6 of the Directive provides: "river basin management plans shall be published at the latest nine years after the date of entry into force of this Directive".

113 General Inspector of Administration, report of March 2008. See above, paragraph 12. See also Committee on Economic, Social and Cultural Rights, General Comment No. 15 (2002), paragraph 51: "Steps should be taken to ensure there is sufficient coordination between the national ministries … in order to reconcile water-related policies".

114 See above, paragraph 21.

115 See above, paragraph 21.

preventive measures for the Asopos for the first time[116]; however, these measures are not scheduled to be implemented until the end of 2011. Local NGOs have doubts not only about whether the timetable set for the implementation of these measures is realistic[117] in view of the scale of the task involved and the lack of human and financial resources available but also about how sincere the government is about solving the problem, bearing in mind that two days before the expiry of the time-limit set by this timetable, which is 1 July 2011, very few companies have sent in a complete environmental standards file[118]. In a similar context, the Committee has stated that it is not enough for a law to exist and for it comply with the principles of the Charter for a situation to be in conformity; the law also needs to be applied in practice[119].

60. The central government also took until 31 May 2010 to set up a special environmental inspectors' office which would enable it to ensure the effective implementation of environmental standards through appropriate supervisory machinery. Setting up an office of this kind was warranted both by the extent of the ecological disaster and by the excessive number of industries in the area (over a thousand). The ministerial decision of 31 May 2010 does provide for such an office to be established but the opening date has not been announced and still less is known about how the staff will be

116 See above, paragraph 52.
117 See above, paragraphs 52-53.
118 See above, paragraphs 52-53.
119 International Commission of Jurists v. Portugal, complaint No. 1/1998, decision on the merits of 9 September 1999, paragraph 32.

appointed[120].

61. Central government has taken no steps to date to inform and educate the public, including school pupils, about local environmental problems. Furthermore, the Ministry of the Environment failed to disseminate – in fact, kept secret – a study by the Institute of Geological Studies completed in February 2008 which reported serious pollution in the Asopos valley and was presented to the Ministry of the Environment's Central Water Service. It was only a long time afterwards (over one year later) that it was forwarded to the Prefecture of Eastern Attica, which had attempted in vain to obtain a copy for five months, and to the European Commission[121]. The argument given by the Ministry was that the conclusions in this study were not sufficiently documented. In this connection, it is worth noting the position of the UN Committee on Economic, Social and Cultural Rights: *"Water ... [has] to be accessible to everyone without discrimination, within the jurisdiction of the State party. … accessibility includes the right to seek, receive and impart information concerning water issues"*[122].

62. Lastly, the government has not yet taken any step to organise epidemiological monitoring of the groups concerned to assess health risks.

120 See above, paragraph 52.

121 Article in Ta Nea, 19 February 2009.

122 Committee on Economic, Social and Cultural Rights, The right to water (Articles 11 and 12 of the International Covenant on Economic, Social and Cultural Rights), General Comment No. 15 (2002), E/C.12/2002/11, paragraphs 12 and 48.

a. The responsibility of the (former) Prefecture of Boeotia[123]

63. Boeotia Prefecture (now known as Boeotia prefectural unit), whose jurisdiction covers the River Asopos and Oinofyta and its surrounding area, has failed to introduce any regulations to protect the river or the inhabitants of Oinofyta. More specifically, the prefectural authorities have not repealed the prefectural decision of 1979, which officially designated the river Asopos as a "site for the discharge of treated industrial waste"[124].

64. Nor have the prefectural authorities taken any effective preventive measures. According to the report by the General Inspector of Administration, the Prefecture's Directorate of Development issued operating licences to companies which were intending to dump waste underground without demanding that the Directorate of the Environment issue them with waste discharge authorisations beforehand[125].

65. Boeotia Prefecture has a specific department for the environment (Department D of the Development Directorate). Despite this, it has never yet organised any on-site visits or other types of supervision of the industries in the Asopos valley. However, under section 30§2 of Act No.

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123 Under Act No. 3852/2010 (Official Gazette A' 87 of 7.6.2010) on the new set-up for local and regional authorities and devolved government under the Kallikratis Programme, which fully came into force in on 1 January 2011, the boundaries of local and regional authorities and their names were changed. Since 1 January 2011, the former prefectures (*nomarchia*) have become prefectural units while the former municipalities have been assembled into new municipalities (often referred to as Kallikratis municipalities).

124 See above, paragraph 8.

125 See above, paragraph 11.

1650/1986, the prefect is obliged to take every necessary measure against industries which are damaging the environment[126].

66. In addition, the prefecture has never taken any measures (such as holding information meetings or producing leaflets) to inform the inhabitants or the general public about the environmental issues raised by the Asopos case such as the pollution of the water by heavy metals or the impact of this pollution at all levels.

67. Lastly, Boeotia Prefecture has a specific department for environmental health (the Public Health Directorate's Department of Environmental Health and Health Monitoring). Despite this, it has not yet taken any step to assess health risks through epidemiological monitoring of the groups concerned.

c. The responsibility of the Municipality of Oinofyta in Boeotia

68. The Municipality of Oinofyta, or what is now the Municipality of Tanagra[127], has been particularly reluctant to prevent companies from dumping their liquid waste into the River Asopos and has shown this reluctance on several occasions. Although it runs the water supply network,

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126 Section 30§2 of Act No. 1650/1986 reads:

"If a company or an operation causes pollution or some other form of damage to the environment, a temporary ban on operations shall be imposed until appropriate measures have been taken to stop the pollution or damage. A permanent suspension of activities may also be imposed if the company or the operation fails to comply with the measures recommended or it is impossible for effective measures to be taken. The decision to suspend operations shall be taken by the prefect concerned".

127 In accordance with Act No. 3852/2010. See note 122 above.

it did not suspend the water supply when it was found to be non-potable and unfit for consumption[128]. In addition, the Municipality only informed the inhabitants of the situation belatedly, leaving them to drink water that was unfit for consumption. Although it was entitled to grants for works to improve the municipal water supply network, particularly under the 3rd regional operational programme and the Thyseas development programme, it failed to apply for any of these[129].

69. One of the measures taken by the Municipality of Oinofyta following the analyses conducted in November 2004 by the State Chemistry Laboratory[130] showing a high level of total chromium in the water supply network was to mix together all the water from the municipality's groundwater wells. In other words, it decided to mix the highly polluted water from one well with the less polluted water from the others to obtain an average concentration of chromium which no longer exceeded the authorised level. This is confirmed by the following reply by the Deputy Minister of Health, Mr Giannopoulos, to a question in parliament: "On the basis of surveys conducted by the Prefecture's Health Directorate, it was concluded that concentrations in nitrates, chromium and chlorine are higher than the authorised levels when the sample from each collection point is taken separately. However, if the water from all three collection points is mixed together, these limits are no longer exceeded"[131].

70. Oinofyta should have taken a number of measures, as requested by various government authorities and the inhabitants themselves, including

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128 See above, paragraph 17.

129 Letter from the Prefecture, 31 March 2005 (**Appendix 37**).

130 State Chemistry Laboratory, analyses of 19 November 2004 (**Appendix 38**).

131 Reply from the Deputy Minister of Health to a parliamentary question, 3 January 2006 (**Appendix 39**).

regular water surveys focusing on concentrations of nitrates and chromium and covering the municipality's entire supply network; analysing water taken not only from collection points (when drinking water is produced) and from the public water supply network but also from taps (as the network is in bad repair and water quality is even worse at its exit point); conducting a hydrogeological study on the quality of the groundwater in the municipality to determine what steps could be taken to treat or decontaminate the water[132]; carrying out an epidemiological survey and informing the inhabitants of developments.

There is good reason to condemn the lack of information that has been passed on to the local inhabitants and the fact that access to information on the environment has been refused to citizens who have requested it from the relevant services. For instance, when a member of the public asked to see the analyses of the water in Oinofyta and the Municipality's technical services had forwarded the documents requested to the mayor for him to pass on, Oinofyta Municipality categorically refused to let the person have them[133]. In the Marangopoulos Foundation v. Greece case, the Committee has already noted a tendency on the part of the Greek authorities not to pass on information even when they are requested to do so[134].

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132 Committee on Economic, Social and Cultural Rights, General Comment No. 15 (2002), paragraph 28: "States parties should adopt comprehensive and integrated strategies and programmes to ensure that there is sufficient and safe water for present and future generations. Such strategies and programmes may include: … reducing and eliminating contamination of watersheds and water-related eco-systems by substances such as radiation [and] harmful chemicals …".

133 Correspondence between a member of the public and the municipal authorities, 1 June 2009 to September 2009 (**Appendices 40 to 43**).

134 Marangopoulos Foundation v. Greece, decision on the merits, §218.

d. Conclusions

71. In conclusion, the authorities should have taken action, particularly to suspend the supply of this water, which was unfit for any use (human consumption, domestic use, use in the farm-produce industry, irrigation of agricultural land and livestock rearing) and take the necessary measures to treat and eliminate dangerous industrial waste in accordance with environmental standards and the current legislation on dangerous waste and to set up a central industrial waste treatment plant for the Asopos valley and a biological and chemical water treatment facility.

VI. CONCLUSION

72. In the light of the legal and factual arguments it has presented, the International Federation for Human Rights (FIDH) invites the European Committee of Social Rights to take the following action:

i. declare this complaint admissible;

ii. declare that the Greek state has failed to fulfil its obligations under Article 11 of the European Social Charter;

iii. recommend that the Greek authorities:

– adopt and implement effective preventive measures (such as improving equipment and setting maximum emission levels);

– ensure that the preventive measures provided for by the latest joint ministerial decision are applied within the time-limits laid down (the end of 2011);

– ensure that environmental standards are properly applied through appropriate supervisory machinery (in particular the Oinofyta Environmental Inspectors Office, once it begins operating);

– plan and organise Oinofyta's industrial area;

– adopt a river basin management plan for the Asopos, as provided for by Directive 2000/60/EC;

– ensure that the contamination of the Asopos river basin by harmful chemical products is reduced and eliminated;

– hold information and awareness-raising campaigns designed to alert the public to the environmental problem of the pollution of the Asopos;

– assess health risks through epidemiological monitoring of the groups concerned.

VII. DECLARATION AND SIGNATURE

We hereby declare that, to the best of our knowledge and belief, the information we have given in the present application form is correct.

Paris and Athens, 30 June 2011

VIII. APPENDED DOCUMENTS

1. Dr Yorgos Chatzinikolaou, Culprit wanted for two environmental crimes: Asopos River and Lake Koronia, European Parliament, Brussels, 15 April 2009.
2. Joint Ministerial Decision No. Γ1/1806/7-3-1969, Official Gazette ("ΦΕΚ") B' 200 of 20 March 1969.
3. Decision No. 19640/14.11.1979, Official Gazette B' 1136 of 27 December 1979.
4. Aerial view of the town of Oinofyta and the nearby industries.
5. Video, extract from a TV news report on the Asopos (in English).
6. Press release by the Ministry of the Environment, Regional Planning and Public Works, 7 November 2007.
7. General Inspector of Administration, report of March 2008.
8. Yannis Zabetakis, "How many Hinkleys are there in Greece ?", Athens News, 29 May 2009.
9. Press release by the Ministry of the Environment, Energy and Climate Change, 27 August 2010.
10. Decision No. 923/2008 of the Thebes Court of First Instance.
11. Judgment No. 1543/2008, combined Supreme Administrative Court.
12. Judgment No. 3977/2010 of the Supreme Administrative Court of 8 December 2010.
13. Decision No. 106/18-1-2010 of Boeotia Prefecture on the temporary suspension of EAB's activities.
14. Decision No. 4590/31-12-2009 of Boeotia Prefecture on the temporary suspension of Maïllis's activities.
15. Decision No. 845/2010 of the Supreme Administrative Court of 6 August 2010.

16. Decision No. 846/2010 of the Supreme Administrative Court of 6 August 2010.
17. Committal for trial before the Thebes Court of First Instance.
18. Photos of the River Asopos
19. Directive 98/83/EC of 3 November 1998 on the quality of water intended for human consumption
20. Joint Ministerial Decision No. Υ2/2600/21.6.2001, Official Gazette B' 892 of 11 July 2001.
21. Charalampos Vasilatos, Ifigenia Megremi, Maria Economou-Eliopoulos & Ioannis Mitsis, Hexavalent Chromium and other toxic elements in natural waters in the Thiva – Tanagra – Malakasa Basin, Department of Economic Geology & Geochemistry, Faculty of Geology & Geoenvironment, University of Athens.
22. P. Yannoulopoulos, Hydrogeological and hydrochemical study of the groundwater in the Asopos valley of Boeotia, Institute of Geological Studies, Athens, February 2008 [Αναγνωριστική υδρογεωλογική – υδροχημική έρευνα ποιοτικής επιβάρυνσης των υπογείων νερών της ευρύτερης περιοχής της λεκάνης του Ασωπού Ν. Βοιωτίας, ΙΓΜΕ].
23. Letter from Oinofyta Municipality to the Ministry of the Environment, Regional Planning and Public Works, 9 November 2007, on the quality of drinking water in Oinofyta's water supply network, summary table of surveys from 2004 to 2007.
24. Decision No. 1158/2010 of the Chalkida Court of First Instance.
25. Joint Ministerial Decision No. 20488 of 31 May 2010.
26. Technical Chamber of Greece, The problem of the River Asopos – suggested solutions, July 2009, Athens.
27. Office of Environmental Health Hazard Assessment, Public Health Goal for Hexavalent Chromium in Drinking Water, draft, December 2010.

28. Press release by the Thebes medical association, 1 November 2007.

29. World Health Organization, Guidelines for drinking-water quality, third edition, incorporating first and second addenda, Geneva, 2008.

30. Ministerial Decree No. 471 of 25 October 1999.

31. Regulation on the disinfection of water in the drinking water supply network, YM/5673/57, Official Gazette 5/58 B.

32. Athanasios Panteloglu, Sustainable viable development at regional level, Institute of Local Development and Civilisation, September 2006.

33. Epidemiological study by the NGO, the Oinofyta Health Monitor, August 2010.

34. Press release by the head of the Oinofyta Health Monitor, 26 August 2010.

35. Union of Greek Chemists, Scientific Department on the Environment and Occupational Health and Safety, Views on the dangers associated with hexavalent chromium in groundwater, October 2007.

36. Special Environmental Inspectors Office, No. 3102/30.7.2010.

37. Letter from the Prefecture, 31 March 2005.

38. State Chemistry Laboratory, analyses of 19 November 2004.

39. Reply by the Deputy Minister of Health to a parliamentary question, 3 January 2006.

40. Application for access to analyses and reports on water in Oinofyta, 1 June 2005.

41. Internal letter of 23 August 2005 from Oinofyta Municipality's technical services to the Mayor of Oinofyta, forwarding the documents requested to the Mayor and asking him to pass them on to the member of the public who had asked for them.

42. Letter of complaint to Boeotia Prefecture concerning the refusal to allow access to the documents, 7 September 2005.

43. Letter from Boeotia Prefecture to the Mayor of Oinofyta instructing him to forward the documents requested, 19 September 2005.