

## REGIONAL AFFAIRS

## Danube Basin

## The Baia Mare and Baia Borsa Accidents: Cases of Severe Transboundary Water Pollution

by Cédric Lucas\*

### Introduction

A dam at the Aurul smelter of the Baia Mare goldmine at Sasar, Romania, broke on 30 January 2000 at around 20:00 GMT. This caused cyanide compounds to enter the Lapus river, a tributary of the Somes (Szamos) river, and from there enter the Tisza, one of Hungary's largest rivers, and the Danube upstream of Belgrade, and finally the Black Sea. The resulting acute transboundary pollution could have had a serious impact on biodiversity, the rivers' ecosystems, local drinking water supply and the socio-economic conditions of the local population. Just five weeks later, on 10 March 2000, torrential rains and melting snow from the slopes surrounding the Novat artificial reservoir at a mine in Baia Borsa, in Maramures County, where the town of Baia Mare is also located, led to an unmanageable rise in the reservoir's water level.

This article briefly describes these accidents and their aftermaths, and studies the relevant international legislation in such cases. This raises the following questions:

- What are the lessons to be learnt from this disaster?
- In the context of the accession of Hungary and Romania to the European Union (EU), is the EU well prepared to address such accidents with regard to its environmental legislation?

In the Danube river basin, due to the economic situation of the Central and Eastern European countries, several potential hotspots exist.<sup>1</sup> To prevent any similar accident from happening in the future, it is important to figure out how these accidents happened.

### The accidents and their aftermaths

Maramures County lies at Romania's northwestern border with Ukraine and Hungary. It has a long history gold, silver, lead, zinc, copper, manganese and salt mining. Waste at the county's seven key mining sites is stored in ponds and 215 waste ("tailings") dams. The county has high levels of chronic soil, water and air contamination, resulting from several pollutants that were released over decades of industrial activities using environmentally unsound technologies.<sup>2</sup>

Since May 1999, the Baia Mare plant has been oper-

ated by Aurul SA, a stock company jointly owned by Esmeralda Exploration Limited (Australia) and Remin SA (Romania). The tailings, originating from earlier mining activities, contain small amounts of precious metals, especially gold and silver. Aurul's process uses high concentrations of cyanide to remove precious metals from the tailings.<sup>3</sup> On 30 January 2000, an estimated 100,000 m<sup>3</sup> of mud and wastewater with a 126 mg/litre cyanide load entered the Lapus river due to a break in a dam encircling a tailings pond open to the elements. Heavy rains and runoff from melting snow combined to affect the stability of the dam. This subsequently developed into a breach of approximately 25 metres.<sup>4</sup>

Timely information exchange<sup>5</sup> and precautionary measures taken by the Romanian, Hungarian and Yugoslavian authorities, including a temporary closure of the Tisza lake dam, reduced the risk and impact of the spill.<sup>6</sup> The water supply of the two largest cities along the Tisza river, Szolnok (120,000 inhabitants) and Szeged (206,000 inhabitants) was not endangered due to the prompt action of the local authorities.<sup>7</sup> A 30-40 kilometre-long contaminated wave destroyed the flora and the fauna along and in the central Tisza river. Acute environmental effects, typical of cyanide, occurred along long stretches of the river system down to the confluence of the Tisza with the Danube: phyto- and zooplankton levels were at zero when the cyanide plume passed, and fish were killed in the plume or immediately afterward. The Hungarian authorities estimated that in excess of one thousand tons of fish were killed. According to the Yugoslavian authorities, a large number of dead fish appeared in the Yugoslavian part of the Tisza river. No major fish kills were reported from the Danube.<sup>8</sup> After the plume passed, however, plankton and aquatic microorganisms recovered relatively quickly (within a few days) due to unaffected water from upstream.<sup>9</sup> Then, progressively, the cyanide diluted in the Danube until the plume reached the Black Sea.

The second accident occurred at the Novat tailings management facility at Baia Borsa, which belongs to the state-owned mining company Remin SA. On 10 March 2000, a dam overflowed and burst, leading to 100,000 m<sup>3</sup> of water and 20,000 tons of tailings sludge containing heavy metals flowing out of the dam. While some mate-

\* Dept. of Environmental Engineering, Stanford University, USA.

rial was retained between two lower dams, the rest flowed downstream of the dam and into the Novat and Vasar rivers. Most of the mud has remained 6–10 km downstream of the Novat dam, with polluted water being washed downstream into the Viseu and Tisza rivers.<sup>10</sup>

The long-term impacts of these accidents are uncertain at this stage. They are unlikely to relate to cyanide, which has dispersed and does not bioaccumulate. Any impacts would be caused by the heavy metals leaching into the sediments and soils of the Tisza ecosystem. Over time, heavy metals can migrate slowly downstream during flood events and disperse throughout the river system. This residual threat of heavy metal contamination should be the subject of ongoing monitoring and research.<sup>11</sup> No one was killed or has become seriously ill because of these accidents. Prompt action by municipalities and water supply companies along the Tisza and Danube rivers ensured that no pollution entered the public drinking water supply. High groundwater levels also helped to minimize groundwater contamination.<sup>12</sup>

The international community reacted quickly. A mission to the affected areas, organized by the Joint United Nations Environment Programme/Office for the Co-ordination of Humanitarian Affairs (UNEP/OCHA) Environment Unit, was carried out by a team of 20 scientists between 23 February and 6 March 2000. It included sampling analysis and discussions with local authorities and non-governmental organizations (NGOs) in the affected areas.<sup>13</sup> Moreover, an international Task Force chaired by the European Commission was created, and held its first meeting in March 2000. The mission of the Task Force was to establish what happened, assess the damage and propose actions to remedy the negative impacts.<sup>14</sup> The Task Force made public its final report on 15 December 2000, and concluded that the accidents were caused first by the use of an inappropriate design of the tailings management facility (TMF), second by the acceptance of that design by the permitting authorities and third by inadequate monitoring and dam construction, operation and maintenance. The design of these TMFs in each case contained no provision for the emergency discharge of excess waters in overflow situations, bearing in mind that, at Baia Mare, waters with high concentrations of cyanide were used.<sup>15</sup> As a result, the Task Force insisted on the necessity of providing adequate emergency storage facilities. It recommended that new TMFs should not be allowed to store water/slurry containing cyanide in tailings ponds open to the elements.<sup>16</sup>

To understand the implications of these disasters, this article will now present the current relevant international legislation in such cases.

### The relevant legislation

On the night of 1 November 1986, fire broke out at an agrochemical warehouse at the Sandoz site, in MuttENZ, in the Schweizerhalle industrial area near Basel, Switzerland. The subsequent spill of toxic chemicals into the Rhine river had a disastrous impact on the Rhine's ecology. This accident was Western Europe's worst environmental dis-

aster in decades.<sup>17</sup> It served to kick-start a campaign within the international community to establish more clearly defined procedures and standards to govern state responsibility in the event of international disasters. Since 1986, international law principles in the area of transboundary disasters have made significant progress in areas such as notification,<sup>18</sup> co-operation and mitigation of damage.<sup>19</sup>

The pollution of the Danube is governed by international laws of transboundary river pollution and by several treaties that could be relevant in this type of accident. Under classical principles of international law, the obligation to prevent transnational pollution falls solely upon the State. The four approaches employed are limited territorial sovereignty,<sup>20</sup> absolute territorial sovereignty,<sup>21</sup> absolute territorial integrity,<sup>22</sup> and the community theory. Representing the most drastic view, the *community theory* demands that water in a drainage basin should be managed as a unit, without regard to national territorial boundaries. The various co-riparians should manage and develop the drainage basin jointly, and share the benefits derived therefrom. The community theory does not yet enjoy widespread acceptance in the Practice of States and is perhaps better thought of as an ideal toward which international law strives.<sup>23</sup>

In 1970, the General Assembly of the United Nations recommended that the International Law Commission of the United Nations (ILC) "take up the study of the law of the non-navigational uses of international watercourses with a view to its progressive development and codification".<sup>24</sup> Twenty-four years later, in 1994, the ILC adopted a set of draft articles on the non-navigational uses of international watercourses. Part II of the Draft Articles attempts to codify principles of international law that have evolved from the customary law regarding the use of international watercourses among States. It emphasizes the principle of equitable and reasonable utilization of shared natural resources and the duty to prevent appreciable harm to watercourse States. Eventually on 23 May 1997, the UN General Assembly adopted the Convention on the Law of the Non-Navigational Uses of International Watercourses.

Moreover, the Sandoz accident contributed to the adoption of two conventions relevant to the Baia Mare and Baia Borsa accidents:

- The Convention of the United Nations Economic Commission for Europe on the Protection and Use of Transboundary Watercourses and International Lakes was signed in Helsinki on 17 March 1992 and entered into force on 6 October 1996. This Convention is intended to strengthen national measures for the protection and sound management of transboundary surface waters and groundwater.<sup>25</sup>
- The Convention of the United Nations Economic Commission for Europe on the Transboundary Effects of Industrial Accidents was also signed in Helsinki on 18 March 1992. It aims to protect human beings and the environment against industrial accidents capable of causing transboundary effects and to promote active international co-operation among the Contracting Par-

ties before, during and after such accidents.<sup>26</sup> This Convention entered into force on 19 April 2000.

These two conventions emphasize the need for prevention, warning alarm systems and notification, mutual assistance, and the exchange of information, as well as public access to information. Such provisions are also included in the Convention on Co-operation for the Protection and Sustainable Use of the River Danube adopted on 29 June 1994 in Sofia, Bulgaria.<sup>27</sup>

Are these conventions really useful and efficient with regard to these accidents?

The main benefits of these conventions are their provisions for notification and co-operation. In the Sandoz accident, the Swiss government failed to notify its neighbouring Rhine States of the spill for over 24 hours, and this precluded European governments from pursuing preventive measures that could have potentially reduced the resulting damages.<sup>28</sup> In the Baia Mare accident, although ten hours were "wasted" by the local Environment Protection Agency of Baia Mare, the Hungarian authorities were warned early enough to take the necessary measures to ensure, for example, an adequate drinking water supply for the population.<sup>29</sup> Hungarian authorities confirmed that they were continuously informed about the event and the degree of pollution by Romanian authorities. Besides, on 3 February, Yugoslavia received official information about the spill from Hungary and co-operation with Hungary continued after the spill.

However, these conventions showed their limits. First, they could not prevent these disasters. Moreover, the UN/ECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes and the UN/ECE Convention on the Transboundary Effects of Industrial Accidents are complementary and should not be seen in isolation. Yet, only one of the affected countries – Hungary – has ratified the Convention on the Transboundary Effects of Industrial Accidents. Furthermore, Yugoslavia is not a party to the Convention for the Protection of the Danube. Therefore, more needs to be done to ensure that all riparian countries ratify and apply these conventions, and co-operate more closely to prevent such accidental water pollution in the future.

Finally, none of these conventions contain any explicit determination for liability or compensation for damages.<sup>30</sup> In the Sandoz case, the company received and paid substantial claims for damages. Nevertheless, it is not always possible to rely on the willingness of the polluter to compensate the downstream injured parties.<sup>31</sup>

We can learn several lessons from these disasters, in the context of international legislation.

### Lessons and possible solutions

Before the Baia Mare and Baia Borsa accidents, this region of the world had been damaged by years of chronic pollution (i.e. from heavy metals) and dam building. The World Health Organization (WHO) identifies Baia Mare as a health risk hotspot, with the population's exposure to lead being among the highest ever recorded. Lead in

the blood of some adults is 2.5 times above safety levels. In some children, it is six times above safety levels.<sup>32</sup>

Why are there so many environmental problems in this region?

In Central and Eastern European (CEE) countries, an open society emerged after the establishment of democratic governments in the last decade. Democratization of the political systems in CEE countries has instigated a liberal path in economic policy. The introduction of a liberal market-oriented economy has had environmental consequences. The decrease in physical output of heavy industry, due to competition and market constraints, caused, at the start of the 1990s, an overall reduction in pollution-causing discharges of about 20–30 per cent.<sup>33</sup> The restructuring of industrial sectors also resulted in a reduction in pollution due to the retrofitting of existing plants and replacement of obsolete production technologies. However, the positive environmental consequences of economic changes occurring in the region have been offset by a variety of adverse impacts resulting from these same changes. Indeed, environmental problems, perceived as isolated, have lost importance in comparison with more acute economic difficulties. Decreases in real wages, high inflation rates, unemployment, and other social and economic problems have pushed environmental issues down on nearly all agendas.<sup>34</sup> Hence, development poses challenges for environmental protection in CEE countries.

Maramures County, rich in mining and related industries, is of key economic importance to Romania. However, activities carried out there can create environmental problems downstream in areas dependent on the environment for fishing, tourism, agriculture and other economic activities. As the UNEP/OCHA mission recommends in its report, there is, therefore, a strong need for a broad, longer-term environmental management strategy for both Maramures County and the entire water catchment area of the Tisza river.<sup>35</sup>

A key issue highlighted by the accident has been the influence of ineffective permitting and enforcement procedures. According to the UNEP/OCHA report, the Baia Mare plant had received 22 individual environmental and public health permits before operations were allowed to start in May 1999. These permits took a total of seven years to obtain.<sup>36</sup> Furthermore, in the case of the Novat pond, the Task Force failed to understand how this facility could have been brought into operation at all, as the local Environmental Protection Agency did not accept the Environmental Impact Assessment submitted by the operators Remin SA, and refused to issue an operating permit.<sup>37</sup> In Romania, there is currently no effective overall co-ordination between the many different bodies involved in issuing permits, and no single organization oversees overall regulatory and technical aspects. As a result, there is an urgent need to improve permitting procedures and to increase the resources and capabilities of the relevant regulatory agencies.<sup>38</sup>

Romania and Hungary, and the other CEE countries, need international support to adopt and implement a sustainable development strategy and to solve their environ-

mental problems. This support has to be financial, technical and political. Moreover, the countries in this region should expand their co-operation to prevent and respond adequately to transboundary water pollution. Therefore, Romania should accede to the UN/ECE Convention on Transboundary Effects of Industrial Accidents and the role of the International Commission for the Protection of the Danube River, established by the Convention for the Protection of the Danube, should be strengthened.<sup>39</sup>

One solution seems to be the accession of these countries to the EU. Negotiations between the EU and Hungary, Slovenia, the Czech Republic, Cyprus, Poland and Estonia began on 10 November 1998. The objective is the accession of these countries to the EU on 1 January 2002. Romania started negotiations with the EU on 15 February 2000, just two weeks after the Baia Mare accident. The target date for Romania's accession is 1 January 2007. Financial and technical assistance from the EU to help these countries to enhance environmental protection in this part of the world could thus be considered. For instance, Hungary, Romania, Slovakia, Ukraine and the Federal Republic of Yugoslavia are currently discussing proposals for a joint "Environmental Programme for the Tisza River Basin".<sup>40</sup> The EU could provide financial support to this Programme. Such technical and financial assistance, as pre-accession aid instruments, would allow Romania and Hungary to restore their damaged eco-

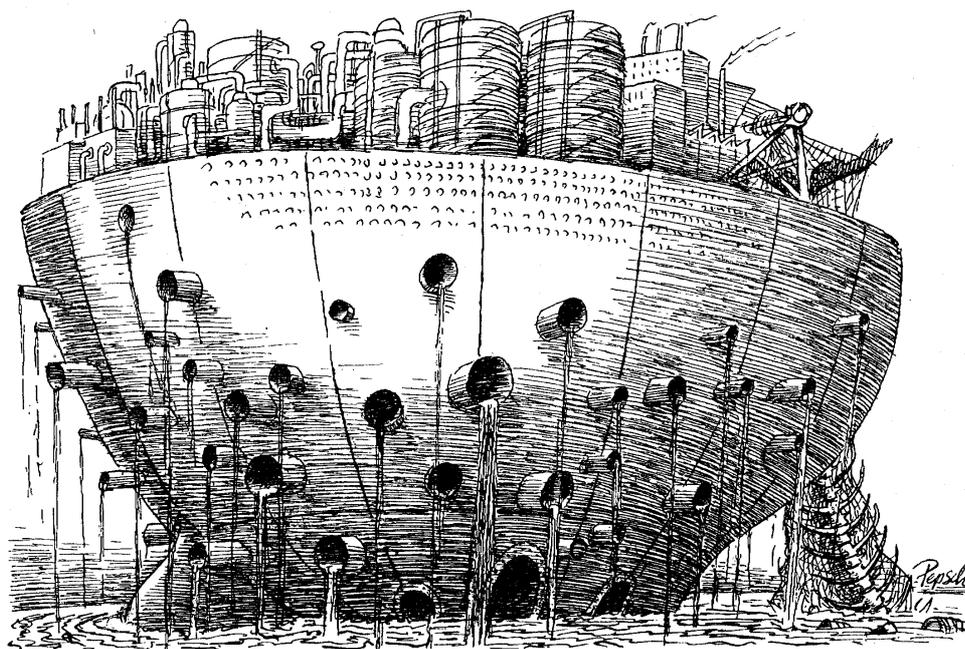
### The EU and existing and potential European environmental legislation

There are several existing EU legal instruments that are relevant to these accidents, as mentioned by the European Commission in its Communication *Safe operation of mining activities: a follow-up to recent mining accidents*, which was made public on 23 October 2000.

Directive 75/442/EEC<sup>41</sup> on waste as amended by Directive 91/156/EEC<sup>42</sup> applies to waste from extractive industries, such as mining. Moreover, this Directive establishes that Member States must take the necessary measures to ensure that waste is recovered or disposed of without endangering human health and without using processes or methods that could harm the environment. The deposit of waste in a pond is a waste disposal operation covered by Directive 99/31/EC on waste landfills.<sup>43</sup> Although this Directive is not yet applicable, there are a number of requirements that would have helped to prevent the accident: For instance, the location of the landfill must take into consideration the distance from groundwater or superficial water and the risk of flooding, subsidence, landslides or avalanches.<sup>44</sup>

Installations of "chemical concentrations of metals from ore" are considered by annex I of the IPPC Directive (Directive 96/61/EC).<sup>45</sup> Such activities must use Best Available Techniques, to help control and prevent accidental pollution. Furthermore, the Water Framework Directive, recently adopted by the Council and the European Parliament, calls for measures at watershed level including "measures required to prevent significant leakage of pollutants from technical installations, and reduce the impact of accidental pollution incidents", and "systems to detect or give warning of such events".<sup>46</sup> In addition, in 2001, the European Commission will propose amendments to an existing law aimed at preventing industrial accidents involving dangerous substances – the Seveso II Directive of 1996 – to cover "tailings" ponds and dams used to store highly polluted water from mining activities.<sup>47</sup> However, the

Task Force concluded that there is a clear need for a central Industry Guidance Document to set out and clarify the many different regulatory requirements relating to mining, extractive and ore-processing industries contained in the range of EU and national legislation.<sup>48</sup>



Courtesy: Süddeutsche Zeitung

systems as well as to harmonize their standards with the EU's standards.

The EU seems to have an adequate framework in place to prevent and respond to accidents such as those at Baia Mare and Baia Borsa.

Finally, the European Union has decided to adopt an environmental liability regime, the absence of which is one of the main weaknesses of the present international conventions. The European Community treaty requires Community policy on the environment to contribute to preserving, protecting and improving the quality of the environment, and to protecting human health (Article 174(1)). This policy is based on the precautionary principle and on the principle that preventive action should be taken, that environmental damage should be rectified at source and that the polluter should pay (Article 174(2)). In the White Paper on environmental liability made public on 9 February 2000, the European Commission prescribed the structure for a future European environmental liability regime that aims at implementing this "polluter pays" principle. It describes the key elements needed to make such a regime effective and practicable.<sup>49</sup>

First, since the area of biodiversity damage is not generally covered by Member State liability rules, a European liability regime could start by covering this kind of damage within the limits of existing European biodiversity legislation, namely damage to biodiversity which is protected in Natura 2000 areas, based on the wild birds<sup>50</sup> and habitats Directives.<sup>51</sup> It should cover traditional damage, such as damage to health or property, if caused by a dangerous activity, since in many cases traditional damage and environmental damage result from the same event.<sup>52</sup> In its communication to the Council and Parliament entitled "Implementing Community environmental law", the European Commission has referred to the need for an enhanced access to justice.<sup>53,54</sup> In urgent cases, interest groups should have the right to ask the court directly for an injunction in order to make the (potential) polluter act or abstain from action, to prevent significant damage or to avoid further damage to the environment.<sup>55</sup>

The European Commission considers a framework Directive as the most appropriate way to implement such an environmental liability regime.<sup>56</sup> The European Directives are very powerful regulations since they are legally binding. The Member States have to implement adequate domestic laws to comply with these Directives. Therefore, the accession of the CEE countries to the EU means that they would adopt and enforce higher environmental standards. These countries will succeed in this task if they receive adequate technical and financial support now, and if they have the strong political will necessary to address these issues.

## Conclusion

The Baia Mare and Baia Borsa accidents are symptomatic of the environmental problems in the Central and Eastern European countries. In this region, high concentrations of pollutants, especially heavy metals, due to chronic pollution, can be detected in many rivers.

Several international conventions have been drawn up to prevent accidents similar to Baia Mare and Baia Borsa. However, in many cases, either the countries involved in such an accident have not ratified all the relevant conventions, or some countries do not have the necessary

financial or technical resources or the means to apply them. Hence, the accession of countries such as Romania or Hungary to the EU would be the opportunity for them to deal seriously with these problems, since the EU has the appropriate legal instruments to prevent and respond to ecological disasters. Moreover, the EU has the will to implement an environmental liability regime. Such a regime results in internalization of environmental costs for polluters. It may also lead to the application of more precaution, resulting in avoidance of risk and damage, and may encourage investment in research and development (R&D) for improving knowledge and technologies.<sup>57</sup>

However, EU accession is not a panacea and these countries can effectively deal with serious environmental problems only if they demonstrate a strong political will to do so. A first step, for instance, would be the ratification of major conventions such as the UN/ECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes and the UN/ECE Convention on the Transboundary Effects of Industrial Accidents. Indeed, it is crucial for these countries to strengthen their co-operation and work towards such goals. Before EU accession, during the interim period, these countries and the EU, providing technical and financial assistance, have to work together to address these issues in the most sustainable way.



## Notes:

1 The Permanent Secretariat of the International Commission for the Protection of the Danube River (ICPDR), *Regional Inventory of Potential Accidental Risk Spots in the Tisa catchment area of Romania, Hungary, Ukraine & Slovakia*, Vienna, August 2000. This inventory is available at <http://europa.eu.int/comm/environment/enlarg/home.htm>.

2 United Nations Environment Programme, UNEP/Office for the Co-ordination of Humanitarian Affairs, OCHA, Assessment Mission, *Report on the cyanide spill at Baia Mare, Romania*, March 2000, p. 8.

3 *Id.*, p. 6.

4 The European Commission, *Safe operation of mining activities: a follow-up to recent mining accidents*, COM(2000) 664 of 10.23.2000, pp. 5, 10.

5 However, some time (about ten hours) was lost between the time the local Environment Protection Agency of Baia Mare received notification of the spill from Aurul S.A. and the time the local Romanian Waters Authority (Water Resources Management Baia Mare) was informed. The reasons for this delay are not known. The establishment of a good operational and prompt early warning system is essential.

*Supra* n. 2, p. 18.

6 *Id.*, p. 45.

7 The European Commission, *supra* n. 4, p. 5.

8 *Supra* n. 2, p. 45.

9 However, environmental experts fear that some rare and unique species of flora and fauna have been endangered, e.g. the five ospreys living in the Hortobagy National park in Hungary. The European Commission, *supra* n. 4, p. 5.

10 *Report of the International Task Force for Assessing the Baia Mare Accident*, December 2000, pp. 7–11. This report is available at <http://europa.eu.int/comm/environment/enlarg/home.htm>.

11 *Id.*, pp. 12–15.

12 *Id.*, p. 12.

13 *Supra* n. 2, pp. 3–4.

14 The European Commission, *supra* n. 4, pp. 6–7.

15 *Supra* n. 10, p. 10.

16 *Id.*, pp. 22–23.

17 Astrid Boos-Hersberger, *Transboundary water pollution and state responsibility: the Sandoz spill*, in *Golden Gate University School of Law – Annual Survey of International & Comparative Law*, Volume IV, Fall 1997, pp. 104–105.

18 The duty of notification is expressly mandated by the Rio Declaration. Principle 18 requires States to "immediately notify other States of any natural disas-

ters or other emergencies that are likely to produce sudden harmful effects to the environment of those States." Principle 19 demands that "States shall provide prior and timely notification and relevant information to potentially affected States on activities that may have a significant adverse transboundary environmental effect and shall consult with those States at an early stage and in good faith."

Rio de Janeiro Declaration on Environment and Development, June 13, 1992, Principle 18 and Principle 19.

19 Boos-Hersberger, *supra* n. 17, p. 131.

20 The *limited territorial sovereignty* principle points out that a State has an affirmative obligation not to allow major pollution to cross its borders.

Boos-Hersberger, *supra* n. 17, p. 112.

21 The *absolute territorial sovereignty* theory is more appealing to upstream states than to downstream states. It holds that a riparian state is free to do as it chooses with the water within its territory, without regard for any effects on the downstream states. *Id.*, p. 113.

22 The principle of absolute territorial integrity declares that a downstream state may demand the continuation of the full flow of the river from an upper riparian state, free from any diminution in quantity or quality.

23 *Id.*, pp. 113–114.

24 G.A. Res. 2669, U.N. GAOR, 25th Session, Supp. No. 28, at 127, 1, UN Doc. A/8202 (1970).

25 The full text of the Convention is available at the UN/ECE's website <http://www.unece.org>.

The first Conference of the Parties to the Convention on the Transboundary Effects of Industrial Accidents was held on 22–24 November 2000 in Brussels at the invitation of the European Commission. Convention secretary Sergiusz Ludwiczak admitted that eight years between the Convention's agreement and entry into force was a long time, but claimed a new impetus for implementation following Baia Mare. Parties agreed to create a joint working group on preventing accidental water pollution incidents together with the UN/ECE Convention on the Protection and Use of Transboundary Watercourses and International Lakes. Parties welcomed the proposal first made by Switzerland in February for a civil liability protocol to be developed jointly under the two conventions. Other developments at the meeting included agreement on an international accident early warning system. Parties also promised collaboration to identify industrial installations handling hazardous substances.

26 *Id.*

27 The full text of the Convention is available at <http://europa.eu.int>.

28 Boos-Hersberger, *supra* n. 17, pp. 126–127.

29 *Supra* n. 2, pp. 17–18.

30 The Convention for the Protection of the Danube addresses the settlement of disputes under Article 24: "If the parties to the dispute are not able to settle the dispute ... by negotiation ... the dispute shall be submitted for compulsory decision to one of the following means of peaceful settlement:

- The International Court of Justice
- Arbitration in accordance with Annex V to this Convention"

Annex V states the conditions for the composition of the Arbitral Tribunal. But in this Convention, there is no mention of environmental liability or the "polluter pays" principle.

31 (Source: Agence France Presse) Hungary said on 5 September 2000 that it was ready to settle with the Australian mining company Esmeralda Exploration Ltd following the Baia Mare disaster, while the firm denied it was seeking an out-of-court settlement with the Hungarian government:

"We are in no position to seek a settlement," said Hall Chadwick, administrator of Esmeralda. The problem is that, following the accident, Esmeralda has been put into administration. Administration is a form of bankruptcy under which a company or its creditors appoint administrators to establish if the company can emerge from its difficulties or should be liquidated.

On 15 December 2000 the Hungarian government commissioner Janos Gonczy told reporters that the EU-led report released would provide a reference point for Hungary's 29.3 billion forints (\$97.89 million) case against Esmeralda Exploration Ltd. The legal proceedings began in January 2001 and the Hungarian representative on the EU task force said that the report was accurate.

32 *Supra* n. 2, p. 9.

33 The Regional Environmental Centre for Central and Eastern Europe, *Stra-*

*tegic Environmental Issues in Central and Eastern Europe*, Volume 1, Regional Report, Budapest, August 1994, p. 9.

34 *Id.*

35 *Supra* n. 2, p. 49.

36 *Id.*, pp. 10–11.

37 *Supra* n. 10, p. 10.

38 The European Commission, *supra* n. 4, p. 11.

39 *Supra* n. 10, p. 30.

40 *Id.*, p. 28.

41 Official Journal (OJ) L 194 of 25 July 1975, p. 39.

42 OJ L 78 of 26 March 1991.

43 This Directive came into force on 16 July 1999 and will be effective by 16 July 2001. OJ L 182 of 16 July 1999, p. 1.

44 Other requirements which would have helped to prevent the accident:

- Appropriate measures must be taken to control precipitation and prevent it from entering the landfill body.
- The storage of waste on the site must be done in such a way to ensure the stability of the waste and the associated structures, particularly to avoid slippages.
- The landfill of liquid waste is forbidden. All liquid waste must be pre-treated before being landfilled.
- A monitoring programme for the control of water and gas is laid down. The monitoring results must be reported to the competent authorities.

45 OJ L 257 of 10 October 1996.

46 The European Commission, *supra* n. 4, p. 15.

47 *Id.*, p. 16.

48 *Supra* n. 10, p. 2.

49 The European Commission, *White paper on environmental liability*, COM(2000) 66 of 02.09.2000, p. 5.

50 Directive 79/409/EEC establishes a general system of protection for all species of birds that can be found living in the wild in the European territory of the Member States which is covered by the Treaty. The purpose of the Directive is to protect and manage these species and to regulate the hunting and capture of such species. OJ L 103, 4.25.1979, p. 1.

51 Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.

Article 3: "1. A coherent European ecological network of special areas of conservation shall be set up under the title Natura 2000. This network, composed of sites hosting the natural habitat types listed in Annex I and habitats of the species listed in Annex II, shall enable the natural habitat types and the species' habitats concerned to be maintained or, where appropriate, restored at a favourable conservation status in their natural range.

The Natura 2000 network shall include the special protection areas classified by the Member States pursuant to Directive 79/409/EEC..." OJ L 206, 07.22.1992, pp. 7–50.

52 Covering only environmental damage under the European regime, while leaving liability for traditional damage entirely to the Member States, might result in inequitable results; for instance, no or less reparation for damage to health than for environmental damage caused by the same accident. The European Commission, *supra* n. 49, p. 16.

53 "Better access to courts for non-governmental organizations and individuals would have a number of helpful effects in relation to the implementation of Community environmental law. First, it will make it more likely that, where necessary, individual cases concerning problems of implementation of Community law are resolved in accordance with the requirements of Community law. Second, and probably more important, it will have the general effect of improving practical application and enforcement of Community environmental law, since potentially liable actors will tend to comply with its requirements in order to avoid the greater likelihood of litigation."

The European Commission, *Implementing Community environmental law*, COM(96) 500, p. 12.

54 In Aarhus, Denmark on 23–25 June 1998 at the "Environment for Europe" Conference, 35 countries and the European Union signed the Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters. The signature of this Convention shows the importance for European countries of a legal framework and effective and appropriate mechanisms to secure public access to environmental information, to facilitate and encourage public participation, *inter alia* through environmental impact assessment procedures, and to provide effective public access to judicial and administrative remedies for environmental harm. Katy Brady, *New Convention on Access to Information and Public Participation in Environmental Matters*, in *Environmental Policy and Law*, Volume 28, No. 2, 1998, pp. 69–75. Katy Brady, *Aarhus Convention Signed*, in *Environmental Policy and Law*, Volume 28, No. 3–4, 1998, pp. 171–190.

55 The European Commission, *supra* n. 49, p. 22.

56 *Id.*, p. 31.

57 *Id.*, p. 14.

