

ECONOMIC COMMISSION FOR EUROPE

**MEETING OF THE PARTIES TO THE
CONVENTION ON THE PROTECTION
AND USE OF TRANSBOUNDARY
WATERCOURSES AND
INTERNATIONAL LAKES**

**CONFERENCE OF THE PARTIES TO
THE CONVENTION ON THE
TRANSBOUNDARY EFFECTS OF
INDUSTRIAL ACCIDENTS**

**Intergovernmental Working Group
on Civil Liability**

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FINANCIAL LIMITS

Prepared by the secretariat in consultation with Mr. Martin Schiess, Co-Chairman of
the joint ad hoc expert group on water and industrial accidents

Introduction

1. At its fourth meeting, the Working Group held a preliminary exchange of views on the proposed content of annex II to the draft Protocol, which sets out financial limits for liability under article 4, and which was prepared by the joint ad hoc expert group on water and industrial accidents at its third (extended) meeting on 4 July 2002 (see minutes of the expert group meeting, document JEG/5 of 10 July 2002). The Working Group decided to discuss it in detail at its fifth meeting after holding appropriate consultations in the capitals (see MP.WAT/AC.3/2002/11 - CP.TEIA/AC.1/2002/11, paragraphs 41-42).

2. At its fifth meeting, the Working Group held an exchange of views on the proposed limits, and in view of reservations made by several delegations decided to revisit annex II at its sixth meeting. The delegation of the Netherlands requested the secretariat to prepare a note containing further justification of the limits set out in the present draft document. The secretariat stressed that any further work in this area would require a substantial input from UNECE member countries and that it would approach delegations with such a request. It would then be in a position to prepare a note based on the information (see MP.WAT/AC.3/2002/14-CP.TEIA/AC.1/2002/14, paragraphs 28-29).

3. Noting that some countries (see chapter I.A below) had already informed the secretariat in spring 2001 about water/environmental pollution accidents, the secretariat circulated a new questionnaire only to a limited number of countries. An Internet search was also conducted and country information provided at the UNECE Seminar on the Prevention of Chemical Accidents and Limitation of their Impact on Transboundary Waters (Hamburg, 4-6 October 1999) was used, too.

I. INFORMATION SUBMITTED BY COUNTRIES

A. Replies to the 2001 questionnaire

4. In spring 2001 (see document MP.WAT/2002/2-CP.TEIA/2002/2 and Add.1), countries were requested through a questionnaire to provide information on the damage, if any, resulting from activities dangerous to the environment. Only some replies were received. In some cases, the information provided was incomplete:

- Austria reported that information on damages resulting from activities dangerous to the environment cannot be provided because the country does not have statistics or studies on it;
- Croatia provided a case study, but the documented case does not deal with an industrial accident that caused transboundary water pollution;
- Greece reported that there were no major incidents of environmental damage;
- The Netherlands provided information on a fire in a storage facility at Rotterdam harbor that occurred in 1996, however, the documented case does not deal with an industrial accident that caused transboundary water pollution;
- Norway reported that it was not in a position to provide information on this question. As far as Norway recalled, there has not been any major incidents in this field in the last decades;
- Spain reported that industrial accidents with a transboundary impact have not occurred in recent times;
- Sweden provided a case study, but the documented case does not deal with an industrial accident that caused transboundary water pollution;

- Switzerland informed that there was a well-known example of a damage resulting from activities dangerous to the environment. It is the one that resulted from a fire that occurred in 1986 in a storage facility of the company then called “Sandoz”, in Schweizerhalle. Information on this damage was in the public domain;
- Turkey provided two case studies, but the documented cases do not deal with industrial accidents that caused transboundary water pollution;
- United Kingdom reported that the country does not hold information in this form. It also provided a case study on environmental pollution; the documented case does however not deal with an industrial accident that caused transboundary water pollution.

B. Replies to the new questionnaire

5. Following the outcome of the fifth meeting of the Working Group, a new questionnaire was prepared to receive further information on damage as defined in article 2, paragraph 1 (b), of the draft Protocol.

6. By 8 January 2003, responses were received from five countries (Germany, Hungary, Netherlands, Romania, Switzerland) and the International Commission for the Protection of the Rhine as described below. In addition, Spain orally informed the secretariat that there were no industrial accidents that have caused transboundary damage.

Germany

7. For the period 1997-2001, Germany provided information on major accidents including explosions, fires and substance releases into the environment. The reported damage per accident varied between 1 and 6.5 million DEM. However, information regarding a possible impact on the aquatic environment in the country of origin or in downstream countries was not documented.

Hungary

8. Hungary provided narrative statements regarding the transboundary damage caused by the Baia Mare accident on Hungarian territory (see table 1). A quantification of the economic loss and damage to the environment was still not possible.¹

¹ See also the statements regarding the impacts of the accident, contained in chapter 2 of the “Report of the International Task Force for Assessing the Baia Mare Accident”. Brussels. December 2000.

Netherlands

9. The Netherlands informed the secretariat that the 1986 Sandoz accident was the only example of an accident of a transboundary nature on which information was available in the Ministry of Transport, Public Works and Water Management.

10. The figures provided in the Netherlands communication are in line with the communications by Switzerland, the Sandoz Company and the International Commission for the Protection of the Rhine (see paragraph 16 and table 2). Due to the fact that this accident took place 17 years ago, more detailed information could not be retrieved anymore.

Romania

11. Romania provided information on damage caused by the Baia Mare accident in 2000 on Romanian territory of about 1.7 million USD including the costs for decontamination of the waste waters in the area of the tailings pond as well as of the affected land (14 ha), costs of water supply for the affected population, costs of monitoring of surface waters and groundwaters and the costs of safety technology measures for installations taken by the AURUL company at Baia Mare.

13. Although these costs do not fall under the scope of the draft Protocol, a breakdown of damage as defined in article 2, paragraph 1 (b), of the Protocol is worthwhile mentioning (see table 1)

Switzerland and International Commission for the Protection of the Rhine

14. In addition to the information provided with the reply to the 2001 questionnaire and information provided during the above-mentioned third expert group meeting, Switzerland and the International Commission for the Protection of the Rhine specified information regarding the 1986 Sandoz accidents (see table 2).

15. According to the statistics of the Sandoz Company,² the total requests for damage compensation are in the order of 100,000 million CHF, of which 4.4 million CHF were claimed to compensate income loss of French and German fishermen and some 2 million CHF were claimed to compensate for impairment of water supply in downstream countries.

16. The figures provided by Switzerland to the International Rhine Commission³ provide more details as to the requests for damage compensation in Switzerland (except damage on the site of the company) and damage compensation in downstream countries. The requests for compensation of damage in downstream countries include:

² Schweizerhalle – The fire of 1 November 1986 and its consequences (in German). Sandoz AG, CH-4002 Basel, Documentation AIW.

³ Report No. 8 of the International Commission for the Protection of the Rhine on the compensation of damage after the fire accident at Schweizerhalle, Bonn, 10 October 1988 (in German).

- Material damage (shipping): 2,000 DEM in the Netherlands;
- Loss of income (fishing rights, fishery organizations, fishing-tackle trade, fishmongers, breweries, farming, hotels/restaurants, rights of water intake, miscellaneous): 7.739 million DEM in Germany; 2.277 million DEM in France; 1.315 million DEM in the Netherlands;
- Damage to water supply (cost of supply through alternative sources, costs of shutting down, water analyses, additional costs for treatment): 2.063 million DEM in Germany; 720,000 DEM in the Netherlands;
- Direct expenses by public authorities (monitoring programme, analyses and research, re-establishment of fish population and fish food chain, clean up of sediments, etc.): 18.900 million DEM in Germany; 10.287 million DEM in France; 115,000 DEM in the Netherlands;
- Administrative costs (staff and other expenses): 2.252 million DEM in Germany; 3.585 million DEM in France; 510,000 DEM in the Netherlands.

C. Other sources of information

17. Reference is made to the materials of the UNECE Seminar on the Prevention of Chemical Accidents and Limitation of their Impact on Transboundary Waters (Hamburg, 4-6 October 1999), which includes information about a tailings dam accidents in the former Moldavian Soviet Socialist Republic (see table 3), and describes potential risks associated with the operation of other industrial installations in that country (see the Seminar report MP.WAT/SEM.1/3).

18. In order to get general information on industrial accidents in the UNECE region, the Working Group may also wish to study Chapter 10 of the European Environment Agency's draft "Kiev report" on technological and natural hazards, which was compiled on the basis of replies by countries and international organizations.

II. INTERNET SEARCH

A. Industrial installations, except tailings dams

19. The web site of the Ministry of Environment, Latvia, reports on an accident in Novopolock, Belarus, which has caused damage to the River Daugava (see table 4).

20. Comprehensive information on accidents involving hazardous substances, subdivided by category of accidents, is contained in the UNEP APELL Disaster Database⁴. These include fires at industrial installations and agrochemical storage

⁴ www.uneptie.org/pc/apell/disasters/lists/disasterecat.html

facilities, and leakage of substances. With all likelihood these accidents had an adverse impact on the aquatic environment, however, the compilation does not provide details. Further clarifications were not yet requested as the secretariat was of the opinion that there was little evidence of an impact on downstream countries – except the reported accidents at the Sandoz Company.

21. The MARS database (Major Accidents Reporting System of the European Commission)⁵ contains information on approximately 450 accidents, among them accidents that affected the aquatic environment, which occurred in the period from 1980 onwards. Information on the accidents includes the description of damage (human death, human injuries, ecological harm, material loss). By the time of writing this paper, the search in the public domain of the database did not produce information on damage caused by water-related industrial accidents on countries that are downstream from the country of origin. However, the secretariat has contacted the MARS database manager who promised to specify information by the time of the meeting.

B. Tailings dams

22. Following a compilation by WISE Uranium Project⁶, 76 major tailings dam failures occurred worldwide between 1961 and autumn 2002. Among them, there were 45 major tailings dam failures in the UNECE region, two of them - Borsa and Baia Mare (Romania, 2000; see table 1) with impact on transboundary waters.

C. Cross-country pipelines (excluding pipelines at the site of the industrial installation)

23. Information on the potential risks of pipeline accidents in some countries in transition was provided during the 1999 UNECE Seminar on the prevention of chemical accidents and limitation of their impact on transboundary waters (MP.WAT/SEM.1/3). Consequently, the Parties to both the Water and Industrial Accidents Convention decided to deal with, inter alia, safety aspects of pipelines.⁷ Following the current work plan of the joint ad hoc expert group on water and

⁵ See <http://mahbsrv2.jrc.it/MARS/servlet/ShortReports>

⁶ Based on compilations by the U.S Committee on Large Dams, UNEP and the International Commission on Large Dams. See www.antenna.nl/wise/uranium/mdaf.html

⁷ Drawing up safety guidelines/best practices concerning installations or activities for which they are not available so far, such as: tailing dams, pipelines and the navigation of ships on rivers, to be used by UNECE member countries and/or joint bodies (for more details see the reports of the first and second meetings of the ad hoc expert group, available on the web site of the Industrial Accidents Convention).

industrial accidents, the Russian Federation is compiling information on such accidents in Russia, which will be considered by the ad hoc expert group at its meeting in spring 2003. It is also to be expected that information from other countries in transition will be available later in 2003.

24. As to the risks posed by oil and gas pipeline accidents on the environment and society in EU member States, Norway and Switzerland, the most recent report by CONCAWE⁸ states: “it should be recognized that a majority of the spillages recorded in the CONCAWE database are so small that they have been significant only in terms of local nuisance value”.

III. FINANCIAL LIMITS UNDER THE DRAFT PROTOCOL COMPARED TO FINANCIAL LIMITS ESTABLISHED UNDER OTHER INSTRUMENTS

25. Table 5 provides information regarding financial limits established under the draft Protocol and three other instruments that deal with loss of life, loss of property and damage to terrestrial environments: the Basel Protocol on liability and compensation for damage resulting from transboundary movements of hazardous wastes and their disposal (Basel Protocol), the 1989 Convention on civil liability for damage caused during carriage of dangerous goods by road, rail and inland navigation vessels (CRTD), and the 1993 Convention on civil liability for damage resulting from activities dangerous to the environment (Lugano Convention).

IV. CONCLUSIONS

26. Only the reported and most severe accident at the Sandoz Company has led to transboundary damage, which is in the upper range of the financial limits established for installations that fall under category B, namely 20 million units of account.

27. The draft Protocol only considers damage that occurs downstream from the country of origin; damage in the country of origin, which may exceed the financial limits established in annex II of the draft Protocol, does not fall under the scope of the Protocol.

28. The proposed financial limits under the draft Protocol are of the same order of magnitude as the financial limits established under the Basel Protocol and the CRTD. The exact figures cannot be closely compared due to differences in scope and classification systems⁹.

⁸ CONCAWE report 1/2002: Western European cross-country oil pipelines 30-year performance statistics. Prepared on behalf of CONCAWE Oil Pipeline Management Group (OPMG) by D. Lyons. CONCAWE. Brussels. February 2002.

⁹ The draft Protocol deals with accidents that occur at locally-fixed industrial installation, tailings dams and pipelines, whereas the Basel Protocol and the CRTD deal with accidents from a mobile source. The draft Protocol is the only existing instrument that introduces risk-based financial limits, considering both the toxicity and quantity of the hazardous substance. In other instruments, the financial limits are set according to different criteria: the quantity involved, not considering the hazard

V. PROPOSALS REGARDING ANNEX II TO THE DRAFT PROTOCOL

29. Given the above considerations and conclusions, the secretariat proposes to keep the financial limits as contained in annex II to the draft Protocol.

30. In order to allow the Parties to modify the financial limits on the basis of progress in research and development and future lessons learned from industrial accidents, the secretariat also proposes to insert in the main body of the draft Protocol, namely article 9 on financial limits, a new paragraph, which should read as follows:

“1bis. The financial limits specified in annex II shall be reviewed by the Meeting of the Parties on a regular basis taking into account the risks of the hazardous activities as well as the nature, quantity and properties of substances.”

of the waste (Basel Protocol) and the mode of transport (CRTD). Further details are provided in table 5.

Table 1. Accident at Baia Mare, Romania, January 2000.

Accident	Tailings dam accident ¹⁰
Involved very toxic substances, toxic substances and/or substances dangerous to the environment at the place of the accident	Release of 100,000 cubic meters of waste water containing between 50 – 100 tons of total cyanide (composed of free cyanides and complex cyanides) and heavy metals. In Romania, the pH of river was up to 7.0 and the pH of waste water was up to 8.5.
Involved petroleum products	None
Financial limits according to annex II	Category B with 20 million units of account
Total reported damage	Not yet assessed
Damage in Romania ¹¹	<p><u>Loss of life:</u> On Romanian territory no one was killed or became ill as a result of the accident.</p> <p><u>Loss of, or damage to, property:</u> There was local contamination of wells at the Bozanta Mare village, near to the accident site at Baia Mare, and the population was temporarily provided with bottled drinking water. Some 14 hectares of land near Bozanta Mare village were affected by the accident.</p> <p><u>Loss of income directly deriving from an economic interest in any use of the transboundary waters, incurred as a result of impairment of the transboundary waters, taking into account savings and costs:</u> For cyanide, the Romanian standard for drinking water is 5 times more stringent than the EU norms and 10 times more stringent than the WHO guidelines. Therefore the communities were not supplied with drinking waters from the Danube River, but from alternative sources.</p>

¹⁰ Report of the International Task Force for Assessing the Baia Mare Accident (Brussels, December 2000) and Report of UNEP/OCHA Assessment Mission on Cyanide Spill at Baia Mare.

¹¹ Information provided by the Ministry of Environment, Romania, in December 2002.

	<p><u>Cost of measures of reinstatement of the impaired transboundary waters, limited to the costs of measures actually taken or to be undertaken:</u> Such measures were not necessary taking into account that the aquatic ecosystem was not affected.</p> <p><u>Cost of response measures, including any loss or damage caused by such measures, to the extent that the damage results from the transboundary effects of an industrial accident on transboundary waters:</u> The costs for decontamination of the waste waters in the area of the tailings pond as well as of affected lands (14 ha), costs of water supply for the population, costs of monitoring of surface waters and groundwaters and the costs of safety technologies measures for installations taken by the AURUL-Baia Mare company are about 1.7 million USD.</p>
Damage in Hungary ¹²	<p>Mass fish death in the Szamos and Tisza rivers, massive death of organisms serving as food for fish, almost 100% death in terms of phyto- and zooplankton</p> <p>Interruption of drinking water supply from the Tisza for 11 hours and supply from alternative sources</p> <p>Impact on several protected and strictly protected nature protection areas, including Lake Tisza</p> <p>Hungarian experts expect that restoration of the original state of the aquatic environment will take years.</p>
Evaluation	Due to lacking data from Hungary and Yugoslavia, assessment not yet possible. ¹³

¹² Information provided by the Ministry of Environment and Water, Hungary, in December 2002 and January 2003 based on the report “Preliminary evaluation of the cyanide pollution in the rivers Szamos and Tisza”. Ministry for Environment, Hungary, February 2000.

¹³ See the above quoted “Report of the International Task Force for Assessing the Baia Mare Accident”. Brussels. December 2000.

Table 2. Accident at the Sandoz Company, Switzerland, 1986.

Accident	Fire at the store 956 of the Sandoz Company (Schweizerhalle, Switzerland) on 1 November 1986
Involved very toxic substances, toxic substances and/or substances dangerous to the environment at the place of the accident	859 tons organophosphates 73 tons DNOC 11 tons organic mercury compounds 5.6 tons different agro-chemicals
Involved petroleum products	None
Financial limits according to annex II	Category B with 20 million units of account
Total reported requests for compensation of damage ¹⁴	100,000 million CHF
Reported requests for compensation of damage in downstream countries ¹⁵	Germany: 31 million DEM France: 16 million DEM Netherlands: 2.7 million DEM
Evaluation	The damage in downstream countries of approximately 50 million DM is in the order of the financial limits according to annex II.

¹⁴ Schweizerhalle – The fire of 1 November 1986 and its consequences (in German). Sandoz AG, CH-4002 Basel, Documentation AIW.

¹⁵ Report No. 8 of the International Commission for the Protection of the Rhine on the compensation of damage after the fire accident at Schweizerhalle, Bonn, 10 October 1988 (in German).

Table 3. Tailings dam accident at the Stebnic potassium plant, the former Moldavian Soviet Socialist Republic (now Republic of Moldova), 1983.

Accident	Burst of tailings dam at the Stebnic potassium plant ¹⁶
Involved very toxic substances, toxic substances and/or substances dangerous to the environment at the place of the accident	4.5 million m ³ of salt solutions with a total salt concentration of 250 g/l discharged into the Dniester River
Involved petroleum products	None
Financial limits according to annex II	Not available; presumably the installation would fall under Category B with 20 million units of account
Total reported damage	Not available
Damage in downstream countries	Apart from economic loss and environmental damage (all aquatic life, including fish, perished on a stretch of the river for over 200 km) in the country of origin, damage to the water ecosystem and economic loss occurred in the former Ukraine Soviet Socialist Republic
Evaluation	<p>Information on the accident was released after the breakdown of the former Soviet Union. Although the report does not provide figures, one can conclude from the description that the damage was far below the financial limits according to annex II.</p> <p>The report also points to the fact that other chemical installations in the upper section of the river may cause accidents with a transboundary impact.</p>

¹⁶ Country report – Action by the Republic of Moldova to prevent industrial accidents and limit their impact on transboundary waters, prepared by Mr. V. Ropot and Mr. I. Apostol, 1999. UNECE Seminar on the Prevention of Chemical Accidents and Limitation of their Impact on Transboundary Waters, Hamburg, 4-6 October 1999.

Table 4. Accident at Novopolock, Belarus, November 1990.

Accident	Leakage of a very toxic substance into the transboundary Daugava River ¹⁷
Involved very toxic substances, toxic substances and/or substances dangerous to the environment at the place of the accident	128 tons of ACH and its decomposition product (cyanides)
Involved petroleum products	None
Financial limits according to annex II	Category B with 20 million units of account
Total reported damage	Unknown
Damage in downstream countries	Mass fish death reported in the Daugava River downstream the Belarus border. Interruption of water supply in Daugavpils (6-9 November 1990) and Riga (8-15 November 1990). Latvia claimed compensation of damage equal 13.3 million Roubles (in 1990 prices).
Evaluation	Obviously, the damage in the downstream country is far below the financial limits according to annex II.

¹⁷ All information taken from the Web site of the Ministry of Environment, Latvia, at www.vdc.lv/NEPP/512.htm

Table 5. Categories and financial limits under the UNECE draft civil liability Protocol and corresponding values in other instruments.

UNECE draft civil liability Protocol	Basel Protocol	CRTD	Lugano Convention
<p>Accidents at industrial installations, including tailings dams [and pipelines], causing damage to transboundary waters</p>	<p>Damage due to an incident occurring during a transboundary movement of hazardous wastes and other wastes and their disposal</p>	<p>Damage caused during carriage of dangerous goods by road, rail and inland navigation vessels</p>	<p>Adequate compensation for damage resulting from activities dangerous to the environment</p>
<p>Risk-based financial limits considering both toxicity and quantity of the hazardous substances</p>	<p>Financial limits based on quantity of the dangerous substances, only <u>a/</u></p>	<p>Financial limits according to mode of transport</p>	<p>Financial limits not established.</p>
<p>Category A: 5 million units of account for <80 tons of very toxic substances or <800 tons of toxic substances or substances dangerous for the environment</p> <p>Category B: 20 million units of account for ≥80 tons of very toxic substances or ≥800 tons of toxic substances or substances dangerous for the environment</p> <p>Category C: 20 million units of account for ≥ 25000 tons of petroleum products</p>	<p>6 million units of account for hazardous waste exceeding 50 tons up to and including 1,000 tons <u>b/</u></p> <p>10 million units of account for hazardous waste exceeding 1,000 tons up to and including 10,000 tons <u>b/</u></p> <p>10 million units of account plus an additional 1,000 units of account for each additional ton up to a maximum of 30 million units of account <u>b/</u></p>	<p>18 million and 12 million units of account for loss of life and for other damage, respectively, for carriage by road and rail <u>c/</u></p> <p>8 million and 7 million units of account for loss of life and for other damage, respectively, for carriage by inland navigation vessels <u>c/</u></p>	<p>Compulsory financial security regime up to a certain limit of such type and terms as specified by internal law to cover liability under the Convention</p>

- a/ This disadvantage is recognized in Annex B, paragraph 3, which puts the Contracting Parties under the obligation to review the limits on a regular basis, taking into account, the potential risks posed to the environment by the movement of hazardous wastes and other wastes and their disposal, recycling, and the nature and quantity and hazardous properties of the wastes.
- b/ Minimum limits of liability for the notifier, exporter or importer for any one incidents. For the disposer, the limits for any one incident shall not be less 2 million units of account.
- c/ These limits are currently under revision. The proposed new limits for loss of life or personal injury and other (property and environmental damage) are: 7 million and 5 million for road carriage; 12 million and 8 million for rail carriage; and 4 million and 3 million for carriage by inland navigation vessels.