Limitations of liability and compulsory insurance under the Protocol on liability for transboundary movements of hazardous waste and other waste.

Report prepared at the request of the Secretariate of the Basel Convention in connection with the preparation of the Protocol on liability and compensation for damage resulting from the transboundary movement of hazardous wastes and their disposal.

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Introduction

The present report has been prepared at the request of the Secretariate of the Basel convention in connection with the negotiations on the draft Protocol on liability and compensation for damage resulting from the transboundary movement of hazardous wastes and their disposal. It deals with the limitation of the liability arising under the Protocol and the nature and level of financial guarantees which are to cover that liability. The objective of the report is not to propose one comprehensive solution for the problems at stake, but to provide information on the main issues and to highlite the possible policy choices.
It examines more particularly the following topics:
(I) the factors to be taken into account in determining the potential liabilities for which guarantees have to be established;
(II) the relationship between the Protocol and the transportation treaties;
(III) the relationship between the level of liability and the limit of the financial guarantees;
(IV) the liability and compulsory financial guarantees in connection with the transportation of goods or waste and the disposal of waste in international conventions and domestic law;
(V) the availability of liability insurance and other financial guarantees for liabilities arising from transportation of waste;
(VI) the limitations of the liability insurance; the conditions under which it can be an effective tool for the protection of potential victims..

The authors have been able to rely on information provided by:
- various authorities and national delegates from Argentinia, Australia, Belgium, Colombia, Cyprus, Czech Republic, El Salvador, Ecuador, Federated States of Micronesia, Finland, FR Yougoslavia, France, Hong Kong (China), Hungary, Luxemburg, Mexico, Nepal, Netherlands, New Zealand, Republic of Korea, Romania, Saint Lucia, Sweden, Switzerland, Thailand, United Kingdom, United States, Vietnam;
- Belgian missions in Argentinia, Brasil, Canada, India, Japan, Republic of Korea, South Africa;
- members of the AIDA (International Association of Insurance Law) Working Party on Liability and Insurance for pollution, products and new technologies and of various national chapters of AIDA (International Association of Insurance Law) from Belgium, Brasil, Czech Republic, Denmark, Finland, Germany, Greece, Italy, Japan, Netherlands, Norway, Poland, Spain, Sweden, Switzerland;
- associations of insurance companies, insurers, reinsurers and insurance brokers from Argentinia, Austria, Bahamas, Bahrain, Belgium, Bolivia, Brasil, Canada, China, Colombia, Denmark, Egypt, Finland, France, Germany, Greece, Hong Kong (China), Iceland, India, Indonesia, Ireland, Israël, Italy, Japan, Kuwait, Lebanon, Luxemburg, Malta, Mexico, Morocco, Netherlands, Norway, Poland, Russian Federation, South Africa, Spain, Switzerland, Syria, Thailand, Ukraine, United Kingdom, United States, Vietnam;
- experts from universities in Austria, Belgium, Denmark, Germany, South Africa, Switzerland.

A list of correspondents is presented at the end of this report (annex III).

I. The factors to be taken into account in determining the potential liabilities for which guarantees have to be established.

1. In determining the amount up to which financial guarantees are required, one will try to take into account as much as possible, the actual risks and potential liabilities involved in the operation. The possibility to do this in a general formula is limited. It is however necessary as the Ad Hoc Working Group who has prepared the draft Protocol, has, at the least implicitly, rejected the idea of delegating the duty of establishing the amounts of the guarantees to the national authorities. Here a distinction could be made between guarantees for response costs in the event of abandonment or improper treatment of wastes, and other damages.

A. Response costs

2. With respect to the obligations which have to be guaranteed, a distinction can be made between the costs of enforcing by safety measures the rules on transportation and on disposal of the waste on the one hand and the costs and losses caused to the public in general (including the authorities), mainly as a result of accidents on the other hand. Both categories fall within the scope of application of the protocol.
If the waste is not properly dealt with, the authorities will have to finance the transportation back to the point of origin and the disposal of the wastes. These expenses may better be backed up by a more unconditional guarantee than the general liability insurance for damages. The implications of the distinction at the level of financial guarantees is explicitly recognised in e.g. Australia[1] China (Hong Kong) [2] and the UK. [34] It is implicitly recognised in the EU and

[1] Art. 22 of the Hazardous Waste (regulation of exports and imports) Act of 1989 states that a Basel permit may be granted subject to a condition relating to the giving of (a) one or more guarantees; or (b) one or more security deposits *in respect of compliance by the permit holder with the permit holders' obligations under, or arising out of, this act.* Sect 17 (1) d. Sect. 18 states that the Minister must grant the permit if the minister is satisfied that the applicant has appropriate insurance *against the risks that might arise* in relation to the hazardous waste.

[2] In accordance with the Hong Kong Waste disposal Ordinance, section 20A, 4, a permit will not be issued unless the authority is satisfied that there is in force or there will be in force at the time of the import of the waste (i) liability insurance to cover claims arising out of damage tot human health, property and the environment which may result from the import operation and (ii) a bond, or other financial guarantee acceptable to the waste disposal authority providing for payment to the waste disposal authority of the cost of any seizure or disposal of the waste that may occur.

[3] In the UK, the Transfrontier Shipment of Waste Regulations 1994 SI 1994/1137 requires financial guarantees for the transportation of controlled waste from Great Britain to another country or imported from another country. The Environment Agency assesses each notification of a transfrontier movement and advises the applicant of the minimum amount of financial guarantee required before the waste can be transported. The minimum fixed amount is based on the cost of transporting back the waste to an identified place (assuming it cannot be received for one reason or another), in addition to the cost of disposing it somewhere other than intended recipient. To this amount the Environment Agency add a contingency fee of about 40%-50% of the above cumulative cost and this is to allow for means to deal with unforeseen circumstances. The agency advise the applicant of this amount and the applicant must then provide financial guarantee for this (minimum) amount. Financial guarantees are only required if the transportation of the waste is transfrontier. They are provided by banks in the form of a letter. Under the Regulations, insurance cover for third party liability during transportation is required, whether the movement is transfrontier or internal. This is provided by the main transport insurance companies.

[4] In Belgium, the distinction is also used in the regulations implementing the Flemish soil clean up legislation (Decree of 22 February 1995).

in many European countries as Council regulation nr. 259/93/EEC of February 1, 1993[5] and the domestic legislation of many European countries[6] require guarantees to cover cost incurred by the authorities but do not deal with liability in the traditional sense (see e.g. the legislation in Ireland[7], Italy[8]).[9]

A number of reasons justify a separate treatment of the guarantees allowing safety and other measures to be taken in the event of non performance of the statutory obligations and the guarantees for the payment of damages resulting from accidents. The money for the safety measures must be immediately available; compensation for damages, only as soon as the tort system will allow. Although response costs constitute costs of "preventive measures" in the sense of art. 2 (e) of the Protocol, it is not desirable to deal with them in the same way as other damages. The benefits received from liability insurance may only be available after lengthy tort procedures and may be limited by the application of complex concepts such as causation law. [10] The usefulness of a traditional liability insurance in itself will often be doubtful with respect to the reimbursement of the costs of remedying the violation of the statutory obligations with respect to the waste. Indeed, if the waste is abandoned intentionally or as a result of a violation of a statutory obligation, coverage will be excluded under most policies. An inquiry with the Flemish competent authorities has shown that in the great majority of cases of movements under the EU regulation, guarantees are in fact used rather than liability insurance. Insurers however can play a role.[11]

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[5] According to Council Regulation nr. 295/93/EEC, every Shipment of waste must be covered by the provision of a financial guarantee or equivalent insurance. This guarantee is intended to cover the costs of shipment, of any necessary reshipment, and of alternative disposal or recovery in the event that the consignment cannot be completed by the parties concerned in the terms of the original note.

[6] Various EU countries such as Belgium, Denmark, Luxemburg, Ireland provide that the amounts of the guarantees required are determined on the basis of a formula taking into account estimated transportation and the removal costs for the type of waste involved.

[7] In Ireland, the movement of waste is controlled by licence, issued by the Government Department or the local Council and the transporter is required to produce a bond or a financial guarantee for an amount equal to the double of the cost of transport or the cost of disposal of waste on recovery and/or the cost of transporting the waste back to Ireland.

[8] Article 18 of Law n°349/1986 provides financial guarantees for environmental damages; everyone who gives rise to events which cause damages to the Italian State is liable to refund these damages. Waste transportation enterprises must submit to the Ministry of Environment appropriate financial guarantees in connection with the cleaningup, restoration, transportation and recovery or disposal of the wastes, as well as covering the refund of any further damages regarding the environment (Environment Minister Decree of 8 October 1996, published in the Official Gazette of 2 January 1997). The limits of the guarantees range from 100 million Italian Liras to 10 billion Italian Liras.

[9] See also the legislation of the Czech Republic (Waste Act no. 125/1997 Coll. which states that the person running the waste dump has to create financial reserves for restoration, aftercare and final decontamination of the waste dump) and El Salvador (according to El Salvador Environmental Law any institution regardless of being public or private that generates or manages substances, residues or hazardous wastes, must present a bond that guarantees the establishment of an Institutional Prevention and Contingency Plan; the law does not establish upper and minimum limits to be covered by bonds).

[10] In Belgium e.g., the courts have under certain circumstances decided that there is no causal relationship between expenses made by government authorities and the fault of the defendant which made their intervention necessary on the grounds that the authorities were acting pursuant to their statutory duties.

[11] In Germany, insurance companies offer a so called "Waste disposal insurance". This insurance covers the costs mentioned in article 27 EU Waste Disposal Regulation.

It would be possible narrowly to define the types of guarantees which are accepted to cover the response costs related to transportation and to require, as is the case in Australia, China (Hong Kong) and the U.K., bonds, guarantees or security deposits.
If one, however, does not want to exclude the development of new insurance products in this respect, one may be satisfied with a broader term such as "financial guarantee or equivalent insurance" as used in EU council regulation (EEC). This solution seems preferable

3. With respect to landfills and other permanent deposits of waste, a comparable approach is advisable. If they are not properly operated, there will be costs to remove and properly dispose of the waste, to monitor and to restore the site. An example of a rule requiring financial guarantees in this connection can be found in the EU directive on landfills 1999/31/EC of 26 April 1999. [12] It provides that a financial security is required covering the estimated costs of operation and after-care of landfills[13]. The French law n° 76-663 of July 1976[14] requires in connection with certain installations for the deposit of waste, a guarantee covering the monitoring of the site, the government response in the event of accidents during or after closure of the installation and the restoration of the site after closure of the installation.

B. Damages in general

4. In the second place, there is the risk of accidents. Here the size and the nature of the damages to be covered is much less easily predictable. Only a case by case analysis of the dangers presented by the nature and volume of the waste, the transportation modus, the number of transhipments, the packaging, the qualifications of the operator and various other relevant factors can lead here to a reliable risk assessment. We know of no legislation which sets out a general formula determining (without further delegation of authority to an administrative body) the financial guarantees necessary while taking into account the specific risks an operation actually presents. When the national legislator imposes the requirement of a financial security, he generally uses a fairly broad formula and provides for further implementation by administrative regulation or by the body delivering permits. An example is found in art. 19 of the German UmwelthaftungsGesetz[15].

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[12] The relevant provision (art. 8) of the Council directive 1999/31/EC of 26 April 1999 on the landfill of waste reads as follows:
Conditions of the permit
(iv) adequate provisions, by way of a financial security or any other equivalent, on the basis of modalities to be decided by Member States, has been or will be made by the applicant prior to the commencement of disposal operations to ensure that the obligation (including after-care provisions) arising under the permit issued under the provisions of this Directive are discharged and that the closure procedures required by Article 13 are followed. This security or its equivalent shall be kept as long as required by maintenance and after-care operation of the site in accordance with Article 13(d). Member States may declare, at their own option, that point does not apply to landfills for inert waste.

[13] The member states can waive this obligation with respect to landfills of inert waste.

[14] Art. 4-2, introduced by Law nr 93-3 of January 4, 1993 which modifies Law nr. 76-663 of July 19, 1976.

[15] Umwelthaftungsgesetz of 10 December 1990. This statute imposes strict liability limited to 160 million DM for personal damages and 160 million DM for property damages (art. 15). The relevant provision reads:

§ 19. Security to Cover Liability
(1) The operators of installations as specified at Appendix 2 shall ensure that they will be able to comply with their legal obligations to compensate for damage which arises from a person being killed or suffering injuries to body or health, or from property being damaged, as a result of an effect on the environment caused by the

Elaborating regulations to implement provisions of this nature while establishing sufficiently sophisticated criteria reflecting the risks posed by e.g. different types of fixed industrial installations has proven to be a very difficult task.[16]
In the context of the Protocol which does not accept a delegation of legislative authority in this respect, the possibility to reflect in the limits for the financial guarantees the exact nature of the risks involved in the transboundary movement or disposal of waste, is limited. Some elements however do play a predominant role and have in any case to be taken into account: the nature of the wastes, the modus of transportation, the volume of the shipment, the nature of the disposal operation.

1. The nature of the waste

International and national legislations which elaborate liability systems for hazardous substances, generally do not set up a sophisticated system of risk assessment. The International Convention on Civil Liability for Oil Pollution Damage (CLC, Brussels 1969), the International Convention on Liability and Compensation for damages in Connection with the Carriage of Hazardous and Noxious Substances by Sea (HNS, London, 1996) and the Convention on Civil Liability for Damage Caused during Carriage of Dangerous Goods by

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installation ('security to cover liability'). If any special hazard emanates from an installation which is no longer in operation, the competent authority may order that the person who operated the installation at the time of its shutdown shall continue to provide adequate insurance or other financial security to cover the pertinent liability for a maximum period of up to ten years.
(2) Such security may be provided
1. through a third party insurance with an insurance company licensed to operate a business within the area of application of this Act; or
2. by an indemnification guarantee or a warranty undertaking by the Federation or one of the Federal States; or
3. by an indemnification guarantee or a warranty undertaking by a credit institution licensed to operate a business within the area of application of this Act, if it is ensured that financial security comparable with a third-party insurance is provided.
(3) the categories specified in § 2 Paragraph (1) Figs. 1 to 5 of the Act on Statutory Insurance, in the version promulgated on 5 April 1965 (BGBI. I, p. 213 as amended last on 22 March 1988, BGBI. I, p. 358), are exempted from the obligation to provide financial security.
The competent authority may prohibit either all or part of the operation of an installation as specified at Appendix 2, if the operator does not comply with his obligation to provide financial security and if proof of such security is not furnished within a reasonable period to be determined by the competent authority.

§ 20 Authorization to Issue Ordinances.
(1) The Federal Government, with the consent of the Bundesrat, will enact provisions by issuing ordinances with regard to:
1. the time from which the operator of an installation must comply with the obligation to provide financial security pursuant to § 19 above;
2. The extent and amount of such financial security;
3. Requirements to be imposed which regard to indemnification guarantees and warranty undertakings by credit institutions;
4. The procedures and powers of the authority responsible for the supervisions of the financial security;
5. The competent authority under § 158c Paragraph 2 of the Insurance Contracts Act, and the notification as required by the provisions of § 158c Paragraph 2 of the forementioned Act;

The duties, vis-à-vis the authority responsible for supervising financial security, of the operator of the installation, of the insurance company and of any person having provided an indemnification guarantee or a warranty undertaking.

[16] It has not been possible to adopt the administrative regulations for making operational art. 19 of the German UmwelthaftungsGesetz. It is said that most installations referred to, have voluntary insurance.

Road, Rail and Inland Navigation Vessels (CRTD, Geneva 1989) which impose liability in connection with the transportation of hydrocarbons and hazardous substances, as well as many national laws[17], generally use two classes: substances which fall within the system and those that do not. Whether a substance falls within the area of application of the liability system is further not determined in the liability rule itself, but by reference to classifications used in administrative control systems.
It is preferable to reflect in the provision on financial guarantees in the Protocol the hazardous or non hazardous nature of the waste. Not doing so would impose useless costs for obtaining insurance or other guarantees and would without effect absorb the (not un)limited capacity of the insurance market for environmental liability insurance.
Establishing a further distinction according to the more or less hazardous nature of the waste is a technical question which cannot be solved here. A fairly simple, yet meaningfull solution would be only to set lower ceilings for solid and inert waste and for household waste than for other categories of waste.

2. The transportation modus

5. Both international and national liability systems with respect to damage caused during the transportation of goods, distinguish according to the transportation modus used. There are indeed separate liability rules for marine transportation, transportation by air, transportation by road, transportation by rail and navigable waters. Only the CRTD covers multi-modi transportation.
It is necessary to take into account the existence of these different rules in establishing the system of financial guarantees under the protocol. Their implications can however only be seen after having examined the relationship between the Protocol and the transportation treaties (II) and after having described the contents of the latter (IV).

3. The volume of the shipments

6. The HNS and CLC conventions do take into account the volume of the shipment in establishing the amounts of the guarantees; the CRTD does not (see herafter nr. 27, 29, 31). Unless there are reasons not to do so, it would seem logical to take the volume of the wastes into account in the Protocol as well. Again, the implications of this factor for the present protocol can be seen only after having examined the relationship between the Protocol and the transportation treaties (II) and after having described the contents of the latter (IV).

4. The nature of the disposal operation

7. With respect to disposal operations, the nature and volume of the waste certainly are relevant. One could make, with respect to accidental damages, a further distinction between final disposal (Annex IV A to the Basel Convention) and final recovery (annex IV B to the Basel Convention). The former may be deemed to entail higher risks of (especially environmental) damages than the latter. For practical purposes, however, it seems not indicated to use this additional distinction for establishing the limits of the financial guarantees in the Protocol. The more important distinction indeed seems that between more hazardous and less hazardous waste. Making an additional distinction on the basis of the type of disposal operation would make the system unduly complicated as it would lead to four

[17] E.g. domestic legislation in Belgium, France, UK.

different subcategories.

8. The initial responsibility in deciding how the response costs should be estimated and whether or not the waste is more or less hazardous lies with the notifier. National legislation will have to provide for mechanisms to control the adequacy of the financial guarantees.[18] It is indicated to introduce a sanction in the Protocol itself. This could e.g. be done by denying the notifier or disposer who has not established the guarantees up to the amount required, to invoke the limitation of liability.[19]

II. The relationship between the Protocol and the transportation treaties.

9. The potential conflict between the Protocol and other treaties is dealt with in art.12 of the draft.[20] It provides that "whenever the provisions of this Protocol and the provisions of a bilateral, multilateral or regional agreement apply to liability and compensation for damages caused by an incident arising during the same portion of a transboundary movement, this Protocol shall not apply provided the other agreement is in force... ".

The consequence of this provision is that other multilateral agreements relating to damage caused during the transportation of the waste take precedence over the Protocol. During the negotiations reference was especially made to HNS and CRTD, but the conclusion applies also to other transportation treaties. The rules of the Protocol thus do only apply for sections of the transboundary movement for which the transportation treaties are not in force.
The same cannot be said of agreements regarding to the disposal of the waste as disposal of waste is defined separately and is not part of the transboundary movement itself (see art. 2, 3 and 4 of the Protocol). The Protocol thus would take precedence over e.g. the Lugano Convention which also deals with disposal of waste.
The foregoing suggests that a possible solution for the determination of the financial ceilings for transportation can be found in a harmonisation with the transportation treaties. This solution is obviously not available in connection with the disposal of waste.

A. Transportation

1. Harmonisation with the ceilings in the transportation treaties

10. As indicated, the foregoing leads to the suggestion to transpose into the Protocol the financial limits from the transportation treaties rather than to establish autonomous ones. Given the precedence of the transportation treaties in the event both the Protocol and the transportation treaties apply, it seems logical to transpose the solution of the transportation treaties in the Protocol for the case the said treaties do not apply and the Protocol does. These limits have been previously accepted by the international community and waste by itself does not pose an intrinsically higher threat of accidental damages than raw materials or goods with

[18] Cf. article 14 of the CRTD Convention: "*each Party tot the Convention has the obligation to designate one or several competent authorities to issue or approve certificates attesting that carriers have a valid insurance or other financial guarantee in accordance with the provisions of the Convention"*.

[19] Cf. article 6 of the HNS Convention; article VI of the CLC Convention.

[20] Article 11 of the final version of the Protocol, as adopted by COP-5.

identical chemical composition and characteristics[21].
Whether or not the transportation treaties correspond to the reality of the insurance market, will be evaluated later.
Adopting in the Protocol the financial limits from the transportation treaties, has the advantage of harmonising the level of protection[22] applicable to a given section of the movement of the waste, irrespective of whether the countries where it occurs have adopted the Protocol only or both the Protocol and the transportation treaties. This would probably facilitate the administrative and financial arrangements with insurers and banks.

11. It appears that a number of States have already aligned their liability rules for the various transportation segments - or part thereof - on the treaties applicable for each of them, without distinguishing between waste and raw materials. The Netherlands are the best example; the limits of liability used for various modes of transport in the Netherlands are partly based on international conventions. [23]
In the UK, schedule 4 of the Merchant Shipping Act 1995 implements the provisions of the CLC 1992; schedule 5A of this Act recites the articles of the HNS convention.[24]

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[21] Waste does require a special treatment by reason of the fact that it generally has no value and that its disposal may be costly so that there is a danger of it being abandonned or improperly disposed off. The response costs which may occur as a consequence of abandonment of improper treatment during transportation have been dealt with separately.

[22] The harmonisation of the applicable rules certainly is not total. Indeed, other parties are liable: the transporter under the transportation treaties and the notifier under the Protocol. There are also differences between the substances which are to be considered dangerous under the transportation treaties and under the Protocol. The latter difficulty may probably be reduced in function of a further gradual harmonisation of the various systems of control over hazardous substances.

[23] Transport legislation in the Netherlands:
Sea transport (article 8:750 Civil Code): the liability of the shipowner is based on the HNS Convention; the limits of liability however are based on the LLMC, as long as the HNS Convention is not yet in force (167.000 to 40 million SDR).
Inland navigation (article 8:1065 Civil Code, executed by Royal Decree of 29 November 1996): liability of the shipowner is limited to 1-4 million SDR for personal injury and 750.000-3 million SDR for property and environmental damage. One may expect that in the future the draft CLNI Convention will be used as a guideline to determine the liability limits.
Road transport (article 8:1218 Civil Code, executed by Royal Decree of 15 December 1994): the national limits are fixed at 7.2 million SDR for personal injury and 4.8 million SDR for property and environmental damage. CRTD is used as a guidance, but this convention is not yet in force, because the limits therein mentioned were considered to be to high.
Rail transport (article 8:1678 Civil Code, executed by Royal Decree of 15 December 1994): the CRTD limits are in force at the national level; 18 million SDR for personal injury and 12 million SDR for property and environmental damage.
Despite the fact that the liability for damages is limited for each transport modus, there are no special financial guarantees required for damages which may be caused to third parties, except for the financial guarantee based on the law on motor vehicle insurance (WAM). The minimum limit of insurance according to this act is 6.25 million SDR (article 8:1219 Civil Code).

[24] According to Sect. 163-164 of Schedule 4 of the UK Merchant Shipping Act 1995, the owner of a ship carrying in bulk a cargo of more than 2,000 tonnes of oil, is required to maintain insurance or other financial security, such as a guarantee of a bank or a similar financial institution, to cover liablity for damage. A certificate must be issued to the shipowner attesting that such insurance or other financial security is in force. No ship is permitted to enter or leave a port in the UK territory, or to arrive at or leave an offshore facility in the UK, unless a certificate is in force attesting that the required financial guarantee is in force. The same obligation is imposed on the owner of a ship carrying hazardous and noxious substances (Schedule 5A of the Merchant Shipping Act 1995).

12. If the above reasoning is adopted, the question is what treaties would function as a point of reference for the Protocol.
The general liability rule which is presently applicable to liability arising during maritime transportation is provided by the Convention for limitation of Maritime Claims, London, 1976 (LLMC), amended by a London Protocol of 1996. The Convention is in force; the Protocol is not.
For maritime transportation, a rule generally applicable to hazardous substances is provided by the International Convention on Liability and Compensation for damage in connection with the carriage of hazardous and noxious substances by sea (HNS) London, 1996. This convention is not yet in force. If it were, it could be applied as the general rule for maritime transportation of waste with hazardous characteristics, with the exception of hydrocarbons. The International Convention on Civil liability for Oil Pollution damages (Brussels 1969) applies to damages caused by hydrocarbons. It seems not to apply to hydrocarbon waste but could provide the rules applicable to them. Subject to verification by technical experts, this appears to be the wastes listed in Annex I to the Basel Convention (under Y8 and Y).

13. The maritime treaties take into account the tonnage of the vessel. In the context of waste shipments, one should of course, refer to the volume of the waste itself rather than that of the vessel.

14. For transportation of hazardous wastes by road, rail and inland navigation vessel, the Convention on civil Liability for damages caused during carriage of dangerous goods by road, rail and inland navigation vessels, Geneva, 1989 (CRTD) imposes limited liability on the carrier of the goods. It does not distinguish between goods and waste. It is not in force. It could be the point of reference for establishing the limits for the financial guarantees.

Objections could be made against referring to the CRTD limits. This convention does not take into account the volume of the shipment in determining the limits of liability and financial guarantees. One may be reluctant to accept the CRTD limitations of liability as in many countries liability for damages arising during land transport (road and rail) of non hazardous substances, including waste, is at present generally unlimited. This objection is however not decisive: the new liability imposed on the notifier does not take away the recourse which the victim may have against the transporter under present law but does impose a new liability on the notifier. Furthermore, the limits of CRTD are probably sufficient, as the volume of the individual waste shipments is generally fairly limited[25]. The CRTD limits having been accepted by the Parties for the event both CRTD and the Protocol are in force, they must also be accepted for the case where only the protocol applies.

15. For air transportation, there is the Convention on damage caused by foreign aircraft to third parties on the surface of Rome, 1952 and the protocol of Montreal of 1978. The convention is in force. It is applicable to damages from accidents with aircraft, regardless of the nature of the cargo. In fact waste is seldom or never transported by air.

16. If one follows the reasoning that the Protocol should apply the rules provided for by the transportation treaties, to incidents occurring during various transportation modi, the result would be the following.
-Maritime transportation: reference is to be made to LLMC in general and to CLC for

[25] Only scrap metal and household wastes seem to be shipped in large volumes.

hydrocarbon waste. If HNS becomes applicable, it will provide the general rule for hazardous waste.
-Transportation by air: reference is to be made to the Rome convention.
-Road, rail, inland navigation vessel: no convention in force provides an example. Here the Protocol has to adopt a rule by itself. It can be modelled after the liability provisions of the CRTD.

2. Autonomous ceilings

17. Objections can be raised against the solutions provided by some of the transportation treaties. Harmonising the limits applicable to a given transport modus might not be sufficient to set aside doubts over the substantive merits of the solution provided by some of the transportation treaties. In that case a substantive rule has to be developed by the Protocol itself, taking into account, together with the factors mentioned under section I, the potential size of the damages, the relationship between liability and financial guarantees and the availability of insurance cover.

B. Disposal.

18. Contrary to what is the case for transportation, there is no treaty establishing limits of liability and insurance one can turn to with respect to the limits for the liability of the disposer of waste. The Lugano Treaty of 1993 and the 1991 EU Draft Directive on Waste deal with disposal of waste but do not mention any financial limits. International treaties thus provide little or no inspiration in this respect, except maybe for the following consideration. The protocol applies to damages caused during disposal of individualised shipments of waste. Thus a prudent solution is to take as point of reference for accidents during disposal the highest financial limit imposed by any of the transportation treaties. Thus one would turn to CLC for waste oil and to HNS for other wastes with hazardous characteristics. Both take into account the volume of the shipment.

19. Under the Protocol, financial guarantees are only required for the disposal of a given waste shipment, not for the operation of a waste disposal site in general. Coverage of individual shipments is not unfeasable. Experts in charge of a major waste treatment plant have indicated that it is generally, in properly managed disposal installations, possible to trace an incident to a specific shipment of waste.
One may query whether the fact that a disposal installation is covered by a blanket insurance for all its operations, should influence the necessity of obtaining financial guarantees for a specific shipment under the Protocol. As it is not possible to guarantee in the Protocol that the level of coverage of the installation as a whole is sufficient, the answer must be no. One may however consider delegating to the State of Import the authority of waiving the requirement of a guarantee for the disposal of individualised shipments under the Protocol in the event the financial guarantees required for the normal operation of the disposal installation are deemed sufficient.

III. The relationship between the level of liability and the limit of the financial guarantees

20. An important issue in the negotiations has been whether the liability under art. 4 (strict liability) should be financially limited and whether the limitation of liability should coincide with the level of financial guarantees and especially with the level of liability insurance. The question is of great importance.

For the potentially liable party, a limitation of liability provides protection against the consequences of accidents. To the extent the liability is fully covered by insurance, the compensation is furthermore financed by the insurer and not by the liable party himself. Setting the limit of financial guarantees at the same level as the limit of liability thus may be advisable if one wants to protect the operator of a socially valuable activity against losses resulting from liability claims.
For the victims, a limitation of liability has no positive effects. They remain unprotected to the extent the damages exceed the limitation of liability, unless these damages are compensated by a compensation fund. If the liability is unlimited, or is limited to an amount higher than the insurance coverage, the liable party will have to respond with his personal assets for at least part of the losses. This should provide a stimulus for greater care and stimulate prevention. The personal solvency of the defendant however will limit the possibility for the victim to obtain compensation.
Hereafter we summarize some comparative data on the ceilings for liability and financial guarantees in domestic and international law.

A. Limitation of liability

21. The practice with respect to limiting liability or not, varies substantially in the various legal systems.[26]
A limitation of strict liability however is common in international liability conventions, particularly in the transportation treaties. We proceed here from the fact that the Ad Hoc Working Group has expressed its intention to impose a financial ceiling on the liability of art. 4 (strict liability) but not on the liability of art. 5 (fault liability).
As is indicated in section II, one may want to adopt in the Protocol the same limitations as are provided for the various transportation modi in the transportation treaties relating to hazardous goods and hydrocarbons. This may not be acceptable in all respects.
With respect to non hazardous goods, LLMC and the Treaty of Rome of October 7, 1952 on

[26] Fault liability, in domestic law, is generally unlimited. If a compulsory insurance is provided for in the context of fault liability, it is generally limited. There are however exceptions where an unlimited insurance is required as is the case in the Belgian law on traffic insurance (except for property damages caused by fire and explosion, where a limitation up to 50 million BEF is possible). Also in the case of Swiss law, the guarantee is unlimited for road transport (motor vehicle liability) except for damages caused by fire and explosion (limitation ranges from 3 to 10 million CHF), damage by nuclear energy and loss prevention costs (limitation up to 3 million CHF) .
A number of countries do maintain unlimited liability also in cases where strict liability is imposed. The protection of the potential victims here takes precedence over the interest of the potentially liable parties. Unlimited liability with respect to damages arising from toxic waste is e.g. imposed in Belgium under the Toxic Waste Act of 1974 (the act does not provide for compulsory guarantees).
Other countries do, as a rule, limit the amount up to which strict liability can be imposed. This limitation reflects a trade-off between the lowering of the threshold for obtaining compensation and the additional burden for the potentially liable parties. Strict liability is perceived as unusual. One deems it necessary to allow the potentially liable party to protect himself by having this liability covered by liability insurance.

damage caused by foreign aircraft to third parties on the surface provide for a limitation on fault liability[27]. Question is whether this limitation should be transposed into the Protocol. A positive answer would be consistent with the harmonisation of the limits for accidents occurring during a specific section of the movement of the waste, regardless of whether the countries involved have ratified both the transportation treaties and the protocol or only the latter. An exception should then however at the least be made with respect to illegal movements of waste.

B. The limitation of financial guarantees.

22. There is no common practice in national law with respect to the question of whether compulsory financial guarantees must fully cover the liability or not.
Certain countries accept readily that this is not the case. It is argued that this solution is the better one from a preventive viewpoint as it maintains a higher stimulus for the operator. Furthermore one avoids lowering the level of protection of the victims in view of the conditions of the insurance market and the willingness of insurers to provide cover.
Other countries impose strict liability only to the extent it is possible for the liable party to obtain insurance, which means that the limit for liability and the limit for the financial guarantees must be identical. In this approach, the availability of insurance cover thus is a major factor in determining the liability and insurance limits. The identity of the two limits means that the losses resulting from potential liability will be fully shifted to the insurer - with the exception of the deductibles- rather than borne by the liable party. An example of a country where liability and insurance limits are identical is the Netherlands.[28] One may raise the question whether this protection is necessary in the area of transboundary movement of hazardous waste - which is not to be considered a socially very desirable operation.

23. International liability treaties -especially the transportation treaties- generally do limit the insurance requirement to the same level as the strict liability. In a number of cases, however, a compensation fund provides additional protection in the event the damages exceed the limitation of liability.[29]

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[27] Treaty law generally does not limit fault liability, with the exception of the LLMC, which provides a general limitation for damage claims arising from marine incidents, "whatever the basis of liability may be" (art. 2). Financial guarantees are not required under the LLMC. Liability insurance is not compulsory under LLMC. The convention does however - as other treaties - apply the "limitation fund" technique : in order to benefit from the limitation of liability, the person liable is to deposit a sum of money to the amount of the liability limit. Failure to do so, deprives him of the right to invoke the limitation (art. 10-14). The money required to make the deposit may be advanced by the insurer.

[28] In the Netherlands, the limits for liability for damages in connection with the different transport modi were determined taking into account the available insurance capacity of the insurance market (although there exists no obligation to insure, except for road transport). For the figures see footnote nr. 32.

[29] The HNS Convention e.g. establishes the "International Hazardous and Noxious Substances Fund" to provide compenstation (up to 250 million SDR per incident) for damage that is not (adequately) compensated under the Convention for lack of liability/solvency, or because of damage exceeding the limits. The Fund is financed by initial and annual contributions by the receivers of cargo based on the amount of cargo received.
The International Convention on the Establishment of an International Fund for Oil Pollution Damage of 1971 creates the "International Oil Pollution Compensation Fund" as a complement to the CLC Convention. This Fund is to compensate damages exceeding the CLC liability limits or exempted by the CLC. The Fund is financed by oil importers.

If one would harmonise the liability limits with those of the transportation treaties, it would be logical to use also in the protocol itself, identical limits for both the liability and the financial guarantees.[30]

IV. The liability and compulsory financial guarantees in connection with the transportation of goods or waste and the disposal of waste in international conventions and domestic law [31]

A. Transportation.

1. International Legislation

24. As indicated, the international legislation with respect to non contractual liability for damages caused during transportation of waste is generally based on a distinction by the transport modus used. In addition, in certain cases, a distinction is made between hazardous substances and non hazardous substances. Waste is not separately dealt with in the present transportation treaties.
Liability from the transportation of goods in general is dealt with in a number of conventions. Maritime transportation of goods in general is governed by the LLMC Convention which is ratified by 33 states. Air transportation also is the subject of an international treaty, which however has been less widely adopted. Inland navigation may also be governed by the LLMC convention pursuant to its art. 15 paragraph 2. Third party liability for damages caused by transportation by rail has not been dealt with in multilateral conventions. Road transportation is governed by a number of regional instruments but is largely a matter of domestic law.
Hazardous substances are dealt with by separate instruments, most of them not in force.
The Brussels CLC of 1969 deals with transportation of crude oil in bulk by tankers. The CLC entered into force in 1975 and is presently in force in 73 states. It is complemented by the Fund Convention of 1971, that entered into force in 1978 and is presently in force in 46 states. In 1992, a Diplomatic Conference adopted two Protocols amending the 1969 CLC and 1971 Fund Convention, which became the 1992 CLC and 1992 Fund Conventions. These Protocols entered into force on 30th May 1996. Countries that ratified the 1992 Fund Convention were required to denounce the 1969 CLC and 1971 Fund Convention, by 15th May 1998. The 1992 CLC is presently in force in 41 states. The 1992 Fund Convention is presently in force in 39 states. Maritime transportation of hazardous goods is further governed by the HNS convention of 3 May 1996, negotiated in the framework of IMO. The HNS Convention has not entered into force yet. Liability for transportation of dangerous goods by rail, road or inland navigation is governed by the CRTD Convention of 10th October 1989, negotiated in

[30] In the final version of the Protocol (as adopted by COP-5), financial guarantees are required for amounts not less than the minimum limits of liability. Thus the limits for liability and for the financial guarantees need not be identical.

[31] For the texts of the instruments we consulted: M. CLARINGBOULD and T. VAN DER VALK (eds.), *International Transport Treaties,* Kluwer, The Hague. For the status of the conventions (entry into force, signature and ratification or accession) we relied on the survey in the above mentioned publication, the 1998 CMI (Comité Maritime International) Yearbook as well on the tables on the IMO and UN/ECE internet web-sites. Two of these tables are reproduced in an annex to this report (reservations have not been reproduced).

the framework of UN/ECE Inland navigation Commission on the basis of an initial UNIDROIT draft. It is not yet in force and has been signed by Germany and Morocco.

25. Hereafter, a survey is given on the basis of the distinction between transport modus. For each mode of transport, we distinguish between the rules for dangerous goods and other goods. In each case we indicate both the limitation of liability and the insurance ceiling.

a. Maritime transportation

Goods in general

26. Convention on Limitation of Liability for Maritime Claims, London November 19th 1976 (LLMC)[32] and Protocol London 3 May 1996. Status : Convention in force since 1 December 1986; Protocol : not yet in force.
This convention entitles the operator (also the owner, manager and charterer) of a ship to limit his liability for all claims based on the damage caused by the operation of the ship, *whatever the basis of liability* (art. 2), except for the liability incurred in accordance with the CLC Convention (oil pollution) and the national or international legislation on liability for nuclear liability (art. 3).
The signatories can make reservations with respect to art. 2 paragraph 1, litterae d and e and thus can exclude the liability limitation for removal and clean up of the ship and cargo.
The limitation is set aside in case of wilful misconduct and gross negligence (art. 4).

The liability limitation per event (mishap) is as follows :

With respect to claims for death and bodily injury :
- 333,000 SDR for a (gross) tonnage up to 500 tonnes
- plus 500 SDR per tonne between 501 and 3,000 tonnes
- plus 300 SDR per tonne between 3,001 and 30,000 tonnes
- plus 250 SDR per tonne between 30,000 and 70,000 tonnes
- plus 167 SDR per tonne over 70,000 tonnes

With respect to claims for other damages :
- 167,000 SDR for a (gross) tonnage up to 500 tonnes
- plus 167 SDR per tonne between 501 and 30,000 tonnes
- plus 125 SDR per tonne between 30,001 and 70,000 tonnes
- plus 83 SDR per tonne over 70,000 tonnes

If the amount provided for death and bodily is insufficient to cover the total claims, in order to supplement the shortage, the amount calculated for the other damages shall be shared pro rata parties by both the death and bodily injury deficit and the other damages.

[32] Ratified or acceded to by Australia, Bahamas, Barbados, Belgium, Benin, China (Hong Kong), Croatia, Denmark, Egypt, Equatorial Guinea, Finland, France, Georgia, Germany, Greece, Gyuana, Ireland, Japan, Liberia, Marshall, Islands, Mexico, New Zealand, Netherlands, Norway, Poland, Spain, Sweden, Switzerland, Turkey, United Arab Emirates, United Kingdom, Vanuatu, Yemen,
The United Kingdom declared its accession to be effective in respect of : The Bailiwick of Jersey, The Bailiwick of Guernsey,the Isle of Man, Belize, Bermuda, British Virgin Islands, Falkland Islands, Gibraltar, Hong Kong, Montserrat, Pitcairn, Saint Helena and Dependencies, Turks and Caicos Islands, United Kingdom Sovereign Base Areas of Akrotiri and Dhekelia in the Island of Cyprus.

Hazardous goods

27. International Convention on Liability and Compensation for Damage in connection with the carriage of Hazardous and noxious substances by Sea (HNS) [33] (London May 3rd 1996). Status : not in force.
The HNS Convention is similar to and based on the same principles as the CLC (see hereafter, nr. 29). It relates to all types of hazardous and noxious substances, including oil (art. 1,5). It covers personal injury on board or outside the ship carrying the hazardous and noxious substances and material damages outside the ship carrying the hazardous and noxious substances (art. 1,6). It covers damage by contamination of the environment and preventive measures (art. 1,6). The convention applies exclusively (art. 3). It applies to any damage in the territory (and territorial sea) of a Country and to environmental damage by contamination in the exclusive zone. Outside the territory (including the territorial sea) it applies to damage other than environmental damage by contamination. It applies to preventive measures wherever taken (art. 3). The convention does not apply to oil pollution under the CLC nor to radio-active material of class 7 (art. 4). With respect to state-owned ships, the contracting parties waive all defences based on their status as a sovereign state (art. 4,6).
The convention institutes a regime of strict liability of the owner (art. 7). No claim for compensation of damage may be made against the owner otherwise than in accordance with the Convention (art. 7,4).

The liability is limited (art. 9) to 10 million SDR for a ship not exceeding a gross tonnage of 2,000 tonnes.
For ships with a gross tonnage in excess of 2,000 tonnes :
in addition:
- for each tonne from 2,001 to 50,000 : 1,500 SDR
- for each tonne in excess of 50,000 : 360 SDR.
provided the aggregate amount does not exceed 100 million SDR.
Up to two-thirds of the limit available, claims in respect of death and bodily injury have priority over other claims (art. 11).

The Convention compels the ship owner to maintain insurance or other financial security, such as a bank guarantee to the amount of the liability limits (art. 12). The insurance cover or other financial security is only to lapse 3 months after notice of termination is given to the authority that keeps the record of the ship's registry (art. 12,5).The victim has a direct action against the insurer or financial guarantor (art. 12,8). The insurer may invoke the defenses (other than bankruptcy or winding up of the owner) which the owner would have been entitled to invoke. Furthermore, he may invoke the defense that the damage resulted from the intentional act (wilful misconduct) by the insured owner, but he may not invoke any other defense which he might have been able to invoke in proceedings brought by the owner against him. The insurer shall in any event have the right to require the owner to be joined in the proceedings. (art. 12,8).

The convention establishes the "International Hazardous and Noxious Substances Fund" (art. 13) to provide compensation (up to 250 million SDR per incident) for damage that is not (adequately) compensated under the Convention for lack of liability or insurance/solvency, or

[33] Signed by : none.

because of damage exceeding the limits (art. 14). The Fund is financed by initial and annual contributions by the receivers of cargo based on the amount of cargo received (art. 17 and following).

28. Convention relating to Civil Liability in the Field of Maritime Carriage of Nuclear Material (Brussels, December 17th 1971) (NUCLEAR) [34]. Status : entry in to force since 15 July 1975.
The convention exonerates any maritime carrier for damage caused by a nuclear incident to the extent an operator of a nuclear installation is liable for such damage under the Paris or Vienna conventions or under national law that is as favourable to victims as the Paris and Vienna conventions.

Hydrocarbons

29. International Convention on Civil Liability for Oil Pollution Damage (Brussels, November 29th, 1969) (CLC) and Protocol London 19 November 1992 [35] /International Convention on the Establishment of an International Fund for Oil Pollution Damage 1971 and Protocol London 19 November 1992. [36] Status : Convention in force since 19 June 1975; Protocols 19 November 1992: in force since 30 May 1996.
The CLC convention relates to "any persistant hydrocarbon mineral oil, such as crude oil, fuel oil, heavy diesel oil and lubricating oil, carried on board as cargo or in the bunkers" (art. I, 5). It is questionable whether this definition excludes waste oil. It applies exclusively to oil pollution liability on the territory, the territorial sea and in the exclusive economic zone of a Contracting State (art. II). Only the damages resulting from contamination (hence not those by explosion or fire) by oil escaped or discharged shall be compensated.
The convention imposes a strict liability regime on the owner of the tanker (reversal of the onus of proof) (art. III). The Convention offers an exclusive remedy (art. III, 4).
It limits the owner's/operator's liability to 3 million SDR per ship that does not exceed a gross tonnage of 5,000 (art. V, 10), plus an additional 420 SDR for each tonne of the ship's gross tonnage in excess of 5,000 tons, however with a maximum aggregate limit of 59.7 million SDR. The limitation may be broken by the unpardonable negligence of the owner.

The owner of a ship carrying more than 2,000 tons of oil in bulk as cargo, is required to maintain insurance or other financial security, such as a bank guarantee or a certificate issued

[34] Ratified by : Argentina, Belgium, Denmark, Finland, France, Gabon, Germany, Italy, Liberia, Netherlands, Norway, Spain, Sweden, Yemen.

[35] Ratified or acceded to by Algeria, Australia, Bahamas, Bahrain, Barbados, Belgium, Belize, Canada, Croatia, Cyprus, Denmark, Egypt, Finland, France, Germany, Greece, Grenada, Iceland, Ireland, Jamaica, Japan, Korea (Republic of), Latvia, Liberia, Marshall Islands, Mexico, Monaco, New Zealand, Netherlands, Norway, Oman, Philippines, Singapore, Spain, Sweden, Switzerland, Tunisia, United Arab Emirates, United Kingdom, Uruguay, Venezuela. The United Kingdom declared its accession to be effective in respect of : the Bailiwick of Guernsey, The Isla of Man, Falkland Islands, Montserrat, South Georgia and the South Sandwich Islands.

[36] Ratified or acceded to by Australia, Bahrain, Croatia, Denmark, Finland, France, Germany, Greece, Grenada, Ireland, Japan, Korea (Republic of), Liberia, Marshall Islands, Mexico, Monaco, Netherlands, Norway, Oman, Philippines, Spain, Sweden, Switzerland, Tunisia, United Kingdom, Uruguay. The United Kingdom declared its accession to be effective in respect of : The Bailiwick of Guernsey, The Isla of Man, Falkland Islands, Montserrat, South Georgia and the South Sandwich Islands.

by an international compensation fund, in the sums fixed by applying the limits of liability prescribed in art. V, 1 to cover his liability for pollution damage under this Convention (art. VII). The insurance cover or other financial security is only to lapse 3 months after notice of termination is given to the authority that keeps the record of the ship's registry (art. VII, 5). The prejudiced third party may bring his claim for compensation directly against the insurer or the provider of the financial security (art. VII, 8). The insurer may avail himself of the defenses which the owner himself would have been entitled to invoke (other than bankruptcy or winding up of the owner); furthermore he may avail himself of the defense that the oil pollution damage resulted from the wilful misconduct of the ship owner himself, but he shall not avail himself of any other defense which he might have been able to invoke in proceedings brought by the owner against him. He shall in any event have the right to require the owner to be joined in the proceedings (art. VII, 8).

The States have waived the defences based on sovereign status for state owned ships used for commercial purposes (art. XI, 2).
The International Oil Pollution Compensation Fund, financed by the oil importers, was created as a complement to the CLC. The Fund is to compensate damages exceeding the CLC liability limits or exempted by the CLC. The Fund guarantees compensation of damages up to 135 million SDR.

b. Rail

Goods in general

30. There is no international instrument governing the third party liability for rail carriage of non-hazardous goods.
Although the state-owned railway companies traditionally are self-insured, the E.U. liberalisation of rail transport has opened this transport mode to the private initiative and regulated the admission requirements. The E.U. licensing rules impose the proof of financial fitness, without reference to a bank guarantee (art. 7 EC Council Directive 95/18/EC of 19 June 1995 on the licensing of railway undertakings). Art. 9 of the same Directive compels the railway to be "*adequately insured or make equivalent arrangements for cover, in accordance with national and international law, of its liabilities in the event of accidents, in particular in respect of [...] third parties*".
It does not specify the extent or modalities of the insurance cover.

Hazardous goods

31. Convention on Civil Liability for Damage Caused during Carriage of Dangerous Goods by Road, Rail and Inland Navigation Vessels (Geneva, October 10th 1989) (CRTD) [37]. Status: not in force.
CRTD refers to ADR for the qualification of hazardous goods. It imposes strict liability on the carrier at the time of the incident. The liability is limited as follows (art. 9) :
-18 million SDR for loss of life or bodily injury
-12 million SDR for any other claims
If the amount provided for death and bodily is insufficient to cover the total claims, in order to

[37] Signed by: Germany and Morocco.

supplement the shortage, the amount calculated for the other damages shall be shared pro rata parties by both the death and bodily injury deficit and the other damages.
It imposes an insurance (or other financial security) obligation (art. 13). The insurance cover must match the liability limit.
Art. 16 paragraph 4 exempts a state owned rail carrier form the insurance or financial guarantee obligation.
The victim may bring an action directly against the insurer of other provider of a financial guarantee (art. 15). The insurer may avail himself of the defense which the carrier would have been entitled to invoke, other than bankruptcy or winding up of the carrier. He may not avail himself of any other defense which he might have been entitled to invoke in proceedings brought by the carrier against him. He shall in any event have the right to require that the carrier be joined in the proceedings (art. 15).

c. Road

Goods in general

32. In Road transport, there are no world-wide conventions harmonising the liability regime or ceiling for the carriage of non-hazardous goods.
In the Benelux, motor third party liability insurance is compulsory pursuant to the Benelux Convention of May 24th 1966 and additional Protocol of September 26th 1968. According to art. 6 of the common provisions of the Benelux Convention of May 24th 1966 the victim has a direct action against the insurer.
In all E.U. Member Countries, it is compulsory on the basis of art. 3 of the EC Council Directive 72/166/EEC. The state owned vehicles form a recurrent exception (e.g. in the E.U. on the basis of art. 4 Second EC Council Directive 84/5/EEC). In the E.U. the insurance covers bodily injury and material damage (art. 1 Second EC Council Directive 84/5/EEC).
Art. 1 Second EC Council Directive 84/5/EEC provides for a minimum cover to the amount of : 350,000 ECU per victim and per event for bodily injury and 100,000 ECU per event for material damage regardless of the number of victims. Alternatively a minimum cover can be provided for up to the amount of 500,000 ECU per event for bodily injury, regardless of the number of victims or a minimum cover of 600,000 ECU per event for all types of damages, regardless of the number of victims or type of damage. The E.U. Draft Fourth Directive Motor Insurance (doc. COM (97) 510 final) imposes the Member Countries to provide for a direct action in the compulsory third party liability motor insurance.

Generally the compulsory third party liability insurance cover is restricted to the traffic risk and does not cover losses exclusively due to the cargo.

Hazardous goods

33. Convention on Civil Liability for Damage Caused during Carriage of Dangerous Goods by Road, Rail and Inland Navigation Vessels (Geneva, October 10th 1989) (CRTD). Status : not in force.
As indicated, CRTD refers to ADR for the qualification of hazardous goods. It imposes strict liability on the carrier at the time of the incident. The limitation of liability (art. 9) is for road carriage:
-18 million SDR for loss of life or bodily injury
-12 million SDR for any other claims
If the amount provided for death and bodily is insufficient to cover the total claims, in order to

supplement the shortage, the amount calculated for the other damages shall be shared pro rata partis by both the death and bodily injury deficit and the other damages.
The Convention imposes an insurance (or other financial security) obligation (art. 13). The insurance cover must match the liability limit. With respect to road transport, the insurance obligation is broader than the third party motor liability insurance, because the latter only relates to traffic risks.

The victim may bring an action directly against the insurer of other provider of a financial guarantee (art. 15). The insurer may avail himself of the defense which the carrier would have been entitled to invoke, other than bankruptcy or winding up of the carrier. He may not avail himself of any other defense which he might have been entitled to invoke in proceedings brought by the carrier against him. He shall in any event have the right to require that the carrier be joined in the proceedings (art. 15).

d. Inland navigation

Goods in general

34. Convention de Strasbourg sur la Limitation de la Responsabilité en navigation intérieure (CLNI) (Strasbourg November 4th 1988).[38] Status : not in force.

The liability of the shipowner is limited to 200 SDR per ton gross tonnage plus 700 SDR per Kilowatt engine power, with a minimum of 200,000 SDR for bodily injury and 100,000 SDR for material damage (art. 6).

35. Convention on Limitation of liability for maritime claims, London, November 19, 1976 (see above). In accordance with art. 15, paragraph 2 of the LLMC, the convention has been made applicable to inland navigation in a number of countries such as Belgium (Act of April 11th 1989 and Royal Decree of November 24th 1989).

Hazardous goods

36. Convention on Civil Liability for Damage Caused during Carriage of Dangerous Goods by Road, Rail and Inland Navigation Vessels (Geneva, October 10th 1989) (CRTD). Status : not in force.
As indicated, CRTD refers to ADR for the qualification of hazardous goods. It imposes strict liability on the carrier at the time of the incident.
The limitation of liability (art. 9) for inland navigation is as follows:
-8 million SDR for loss of life or bodily injury
-7 million SDR for any other claims
If the amount provided for death and bodily is insufficient to cover the total claims, in order to supplement the shortage, the amount calculated for the other damages shall be shared pro rata partis by both the death and bodily injury deficit and the other damages.
It imposes an insurance (or other financial security) obligation (art. 13). The insurance cover must match the liability limit.
The victim may bring an action directly against the insurer of other provider of a financial guarantee (art. 15). The insurer may avail himself of the defense which the carrier would

[38] Signed by Belgium, France, Germany, Luxembourg, Netherlands, Switzerland.

have been entitled to invoke, other than bankruptcy or winding up of the carrier. He may not avail himself of any other defense which he might have been entitled to invoke in proceedings brought by the carrier against him. He shall in any event have the right to require that the carrier be joined in the proceedings (art. 15).

e. Air

Goods in general

37. Convention on Damage caused by Foreign Aircraft to Third Parties on the Surface (Rome, October 7th, 1952) and SDR Protocol Montreal September 23rd 1978) [39]. Status : Convention in force since 4 February 1958; SDR Protocol : not in force yet.
The convention introduces an absolute (risk) liability for foreign aircraft. The national law implementing the treaty, may also submit domestic aircraft to the liability regime. The convention provides an exclusive remedy, thereby excluding any claims based on other grounds [40].

The liability is limited according to the weight of the aircraft :
10,500,000 Poincaré Gold Francs [41] for aircraft exceeding 50,000 kilograms of weight, plus 100 Francs per additional kilogram. There is also a limit per victim of 500,000 Francs.
If the total amount available does not cover the loss, the latter will be reduced pro rata.
Half of the total amount available is reserved for the compensation of bodily injury and human loss. The remainder will compensate the human and material loss pro rata.
Financial guarantees (art. 4) b are required for the amount of the liability under the form of insurance or (public) bank deposit or state guarantee, provided the latter renounces all sovereign immunity. The defences the insurer is entitled to invoke against the victim are limited (art. 16).

38. E.U. Council Regulation 2407/92/EEC.
Art. 7 of the E.U. Council Regulation 2407/92/EEC imposes a liability insurance cover as a prerequisite for obtaining a professional transport operator's license : the airline's liability towards third parties in the case of accident is to be insured.

Hazardous goods

39. No specific conventions exist governing the liability/insurance of the carriage of hazardous goods by air.

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[39] Ratified/acceded to by**:** Algeria, Argentina, Australia, Belgium, Brazil, Canada (subsequent denunciation), Ceylon, Cuba, Denmark (only signature), Dominican Republic, Ecuador, Egypt, El Salvador, France (only signature), Gabon, Greece, Guatemala, Guinea, Haiti, Honduras, India (only signature), Iraq, Israel, Kuwait, Libyan Arab Jamahiriya (only signature), Luxembourg, Mali, Mauritania, Mexico (only signature), Morocco, Netherlands (only signature), Niger, Nigeria, Norway (only signature), Pakistan, Papua New Guinea, Philippines (only signature), Portugal (only signature), Rwanda, Seychelles, Spain, Sweden (only signature), Switzerland (only signature), Thailand (only signature), Togo, Tunisia, Union of SSR, United Arab Emirates, United Kingdom, Uruguay, Vanuatu, Yemen Arab Republic, The United Kingdom (only signature) declared its accession to be effective in respect of : the Bailiwick of Guernsey, the Isla of Man, Falkland Islands, Montserrat, South Georgia and the South Sandwich Islands.

[40] GODFROID, M. and NAVEAU, J., *Précis de Droit Aérien*, Brussels, Bruylant, 1988, p. 291.

[41] 1 Poincaré Gold Franc = 3,3167 BEF.

f. summary.

40. The information in connection with limitations of liability and financial guarantees in the transportation treaties is summarised in the table on the following pages. The (minimum) limits of liability in the Protocol (established at COP-5), are added to the table.[42]

	Range of the Liability limit	**Hypothetical cargo of 2000 tonnes**[43]	**Compulsory financial guarantee**
MARITIME			
LLMC	To 500 tonnes : 500,000 SDR to 3,000 tonnes : + 667 SDR/ton to 30,000 tonnes : +467 SDR/ton to 70,000 tonnes : +375 SDR/ton over 70,000 tonnes : + 250 SDR/ton	1.500.500 SDR	No
CLC	To 5,000 tonnes : 3M SDR over 5,000 tonnes : +420 SDR/ton aggregate maximum : 59.7M SDR	3 M SDR	For ships carrying over 2000 tons bulk oil to the amount of the liability limit
HNS	To 2,000 tonnes : 10M SDR to 50,000 tonnes : +1,500 SDR/ton over 50,000 tonnes : +360 SDR/ton aggregate maximum : 100M SDR	10 M SDR	to the amount of the liability limit
Road, Rail and Inland Navigation			
CRTD	30M SDR	30 M SDR	to the amount of the liability limit
Air			
Rome 1952	to 1 tonne : 500,000 Gold Francs to 6 tonnes : +400 Gold Francs/kg to 20 tonnes: +250 Gold Francs/kg to 50 tonnes: +150 Gold Francs/kg over 50 tonnes: +100 Gold Francs/kg maximum of 500,000 Gold Francs per person killed or injured	900.000 Gold Francs	May be required by state overflown up to the liability limit

[42] In annex I, a comparison is made between the ceilings in the transportation treaties and those in the text adopted at COP-5.

[43] The figures in this column correspond to the liability limit which would apply to a hypothetical cargo of 2000 tonnes.

Basel Liability Protocol[44]			
Transport of hazardous wastes: minimum limits	to 5 tonnes: 1 M SDR to 25 tonnes: 2 M SDR to 50 tonnes: 4 M SDR to 1000 tonnes: 6 M SDR to 10.000 tonnes: 10 M SDR over 10.000 tonnes: 1000 SDR for each additional tonne up to max. 30 M SDR	10 M SDR	To the amount of the (minimum) liability limit
Disposal operations: Minimum limits	2 M SDR per incident	2 M SDR	To the amount of the (minimum) liability limit

2. Domestic Legislation

41. A number of countries have adopted legislation imposing limitations of liability and financial guarantees in connection with liability for damages arising during transportation. The following table summarises the information we have in this respect.

Countries	**Goods in General**		**Hazardous goods**	
	Limits of liability	**Financial guarantees**	**Limits of liability**	**Financial guarantees**
Maritime transportation				
Netherlands			167,000 – 40 M SDR	
U.K.			< 2000 tons: 10 M SDR >2000 tons: 10 M SDR +1500 SDR per extra ton until 50 000 ton +360 SDR per ton above 90 000 ton max. 100 M SDR	
Rail				
Switzerland		CHF 100 M		

[44] Figures adopted at COP-5; see also annex I at the end of this paper.

Netherlands			18 M SDR personal injury; 12 M SDR property and environmental damage	
Austria			ATS 18 M	

Road	
Switzerland	
Czech Republic	
Netherlands	
Finland	
Austria	
Inland navigation	
Netherlands	
Switzerland	
Air	
Switzerland	
Generally applicable	
Italy	
Switzerland	
Australia	
U.K.	

B. Waste Operations

42. Waste is dealt with in environmental legislation in a way different from goods in general or hazardous goods in particular. This is not to be explained by the intrinsically higher threat of accidents raised by waste in comparison with raw materials or goods with a comparable chemical composition but by the danger of abandonment or improper disposal of the waste by the producer or the holder thereof, in view of its lack of value and the potentially high cost of disposing thereof. It is not surprising, that the international instruments and the domestic legislation which exists in a number of countries with respect to transportation or disposal of wastes, pays especially attention to the recovery of government expenditures (preventive measures, reinstatement measures) and is often much less concerned with third party damages. In a limited number of cases, a separate treatment is given to domestic and transfrontier movement of waste.

1. Domestic movements of waste

43. Examples of national legislation which impose limitations of liability and/or compulsory insurance with respect to damages caused during domestic movements of waste can be found in a number of countries, e.g. Belgium, U.K., Italy, El Salvador, U.S. [45] Often attention is paid more to the response costs made by the government than to accidents with personal damage.[46]

In Belgium, there is no limitation on the liability. The Flemish legislator (article 5.1.2.2, 1° and 2°, Regulation of the Flemish Government of 17 December 1997 -VLAREA) requires a financial guarantee as a licensing condition for collectors. The amounts are generally limited: 20 million, 50 million or 100 million BEF. The guarantee is to cover response costs rather than damages to third parties. In Wallony, the waste collectors must underwrite an adequate insurance policy (Decision of the Walloon Government of 9 April 1992).

In the U.K., there are no financial guarantees required for response costs if the transportation of the waste is internal. The only requirement is that the carrier of the waste is registered with the Environmental Agency and that he holds a registration certificate (sect. 1 Control of Pollution Act 1989). For liability for damages caused to third parties, the Transfrontier Shipment of Waste Regulations 1994 SI 1994/1137 does require an insurance cover. This insurance cover is provided by the main transport insurance companies.

In Italy, Article 18 of Law n°349/1986 provides financial guarantees for environmental damages; everyone who gives rise to events which cause damages to the Italian State is liable to refund these damages. Waste transportation enterprises must submit to the Ministry of Environment appropriate financial guarantees in connection with the cleaningup, restoration, transportation and recovery or disposal of the wastes, as well as covering the refund of any

[45] See also the domestic legislation of Denmark, Finland, the Russian Federation.

[46] E.g. U.K. (Section 74 of the Environmental Protection Act), El Salvador (article 29 of the El Salvador Environmental Law) and Italy (Environment Minister Decree of 8 October 1996). See however article 15 of the Federal Law on Industrial Safety of Hazardous Projects of the Russian Federation and the Law on the Transportation of Hazardous Substances of the FR Yougoslavia which provide for a financial guarantee that is also meant to cover damages to third parties.

further damages regarding the environment (Environment Minister Decree of 8 October 1996, published in the Official Gazette of 2 January 1997). The limits of the guarantees range from 100 million Italian Liras to 10 billion Italian Liras.

In the U.S., sect. 107 CERCLA imposes strict liability on the owner or operator of any vessel which carries hazardous substances and on the transporter thereof in connection for response costs and natural resource damages resulting from a release of hazardous substances during transportation in connection with disposal operations. For vessels, the liability is limited to 300 US $ per tonne or 5 million US $, whichever is greater. For motor vehicles, aircraft, pipelines and rolling stock, the limitation shall be between 5 and 50 M US $. For vessels, financial guarantees are required of 300 US $ per ton or 5M $, whichever is greater. With respect to releases from vessels, any claim may be asserted directly against any guarantor.[47]
The federal Department of Transportation Regulations requires truck transporters of various hazardous substances with gross vehicle weight in excess of 10,000 pounds to carry financial assurances of 5 million US $ (title 39 U.S. Code of Federal Regulations 387.9).
For oil and hazardous wastes of various classes, financial assurances are required of 1 million US $ (title 39 U.S. Code of Federal Regulations 387.9).

2. Transfrontier movements of waste

a. International legislation

44. As already indicated, article 27 of the EU Council Regulation 259/93 of 1 February 1993 requires that every shipment of hazardous waste within, into and out of the European Community be covered by a financial guarantee or by an equivalent insurance. The guarantee is intended to cover the costs of shipment or necessary reshipment, and the cost of alternative disposal or recovery of the waste but not damages to third parties.

b. Domestic legislation

45. The Council regulation 295/93 on the supervision and control of shipments of waste within, into and out of the European Community is implemented by EU members[48] and

[47] Sect. 108 CERCLA.

[48] In Belgium, the regulation is implemented in the Flemish region by article 33 of the Flemish Waste Decree of 2 july 1991 and art. 6.5 of VLAREA. According to article 6.5 of VLAREA, a guarantee is required for import and export of waste. Bank guarantees to the benefit of Public Waste Agency for the Flemish Region (OVAM) or an insurance policy that covers the costs of transport and disposal of the waste can be used. The amount of the guarantee will be determined by OVAM depending on the basis of the nature of the waste, the normal costs for disposal operations or for recovery operations, etc. The maximum amount imposed is 200 million BEF for personal damage and 200 million BEF for property damage.

In Germany, paragraph 7 of the Waste Disposal Act, provides as an execution of article 27 of the EU-Waste Disposal Regulation to give a security or to effect an adequate insurance. Furthermore the entrepreneur has to participate in a joint fund as stated in § 8 section 1 sentence 6 of the Act. In practice the insurance companies offer a so called "'Waste Disposal Insurance". This particular insurance covers the costs mentioned in article 27 of the EU Waste Disposal Regulation.

In Denmark, the Council regulation is implemented by the Environment Protection Act. Article 39a of this act requires financial guarantees for a number of specific activities concerning the management of waste and the costs of remediation; the requirements are strengtened for those companies who have allready been sanctioned. There is no maximum limit.

copied by other European states.
We have already mentioned the guarantee or insurance requirements in the legislation of Australia, China (Hong Kong)[49] and the U.K.
Other examples can be found in the legislation of Finland[50], Germany[51], FR Yougoslavia[52], Mexico[53] Switzerland[54] and the Czech Republic[55].
In the domestic legislation of a large part of the countries, provisions on compulsory insurance for liability for automobile accidents can be found.[56]

[49] The highest insurance requirements imposed in China (Hong Kong) are said to be 2-3 M HKG $. Guarantees for safety measures are required in amounts of 0,4 to1,5 HKG $

[50] The Finnish Aviation Act provides strict liability for damage to persons and property outside the aircraft (with exception for collision between the aircrafts (§66)); an aircraft is required to maintain insurance covering the liability of the owner, possessor, operator or other person working on board the aircraft (§68). The National civil aviation Administration determines the coverage and content of the insurance and the insurance amounts. According to Finnish domestic legislation, there is no demand for liability insurance for rail traffic or sea transport (with the exception of oil pollution liability).

[51] Companies that are accumulating and transporting waste are obliged to effect a motor vehicle liability insurance and an environmental liability insurance referring to the process of accumulation and transportation. Regarding the commercial transportation of waste, the regulations to insure are stated in §7 section 2 N°1, e and f of the Transport Permission Regulation. According to that regulation, the owner of the company has to prove a motor vehicle liability insurance including an environmental liability insurance.

[52] In Yougoslavia, article 8 of the Law on Transportation of Hazardous Substances, published in the Federal Jounal N° 27/90 and 45/90, obliges the holder of the title or owner to ensure hazardous substances against damages inflicted on third persons due to death, bodily injury or impaired health, damage or destruction of property or environmental pollution during transportation. No limits are mentioned.

[53] Article 109 of the Mexican Road Transport regulation concerning the transportation of hazardous substances and wastes obliges the transporter, exporter or generator of waste to insure third party liability, damages to the environment and response cost. No specific limits are mentioned.

[54] According to Swiss domestic legislation, mandatory liability insurance is required for damage caused to third parties by aircraft not owned by the Swiss Confederation of the Cantons (Law on Air traffic; art. 70). The guarantee amounts range between CHF 3 million and CHF 75 million. Other forms of security cover different from insurance coverage may be provided. Railway companies with no own tracks are subject to a mandatory liability insurance coverage (article 9 §2 of the Railway Law); the minimum guarantee amounts to CHF 100 million (also in this case it is possible to provide other forms of security). Article 31 of the Law on Inland Navigation stipulates that privately owned boats or ships are subject to a mandatory liability insurance with direct liability of the insurer towards the damaged party. The minimum guarantee amounts to CHF 5 million. The law on pipelines sets forth a mandatory liability insurance with a guarantee of CHF 10 million.

[55] According to Act no 168/1999 Coll. on insurance liability for damage caused by road vehicles, insurance against damage to third parties caused by use of motor vehicles, is compulsory. Liability for physical damage must be covered for at least the amount of 18 million CZK (about 514.000 US $); damage to property and pure economic loss must be covered for at least the amount of 5 million CZK (about 142.000 US $).

[56] Insurance cover for liability for automobile accidents is compulsory in the majority of the EU countries and in a large part of the 49 states in the US. See hereafter, nr. 54.

3. Disposal of waste

a. International legislation

46. Generally, waste disposal installations fall under legislation providing liability for certain types of industrial installations. At international level, in this connection, the Lugano Convention on civil liability for damages resulting from activities dangerous to the environment of 21 June 1993 is to be mentioned. Article 12 of the Convention states that operators conducting an environmentally dangerous activity on the territory of a Party State must either participate in a financial security scheme or have and maintain a financial guarantee up to a certain limit, to cover the liability under the Convention. Civil liability under the Convention is unlimited.

47. Other legislation exclusively relates to waste disposal operations. As indicated above, article 8 a, iv of the E.U. Council Directive 1999/31/EC of 26 April 1999 on the Landfill of Waste, obliges Member States to take adequate provisions in order to ensure that a financial security or any equivalent has been made by the applicant prior to the commencement of the disposal operations. The financial provision must be sufficient to discharge the obligations that will arise from the license.

b. Domestic legislation

48. There is fairly much domestic legislation with respect to liability for damages caused **by industrial installations** which provides for limitations of liability and/or for compulsory financial guarantees which will also apply to waste disposal operations.

According to §2 of the Finnish Environmental Impairment Liability Insurance Act of 1998, any private corporation whose operations involve a material risk of environmental damage or whose operations cause harm to the environment in general shall be covered by insurance against damage compensable under the Act. Article 15 of the Act states that the maximum amount payable for the occurrence of an insured event is FIM 30 million. Compensation payable for two or more occurrences reported during one insurance period shall not exceed a total of FIM 50 million .

The example of the German Umwelthaftungsgesetz was already mentioned. It imposes strict liability limited to 160 M DM for personal damages and a same amount for property damages. The amounts up to which compulsory insurance is provided for, still are to be determined. [57] However, this sum only describes a minimum insurance coverage. In addition to that further insurances can be required.

After the Bhopal incident, India enacted unlimited strict liability with insurance requirements of up to 50 crore rupies[58] or approximately 11.500.000 US $.

In Russia, major industrial installations have to be insured up to a minimum of approximately

[57] Paragraph 19 section 1 of the Umwelthaftungsgesetz provides that owners of facilities listed in annex 2 of the Act have to ensure to be able to comply with their legal duties of compensation. According to § 20 section 1 of this Act, the details of this coverage prevention have to be provided by regulation.

[58] One crore rupie = ten millon rupies or about 230 000 US $.

230.000 US $.[59]

Art. 59 of the Swiss Umwelthaftungsgesetz imposes unlimited strict liability and makes it possible for the government to impose financial guarantees; possibility which has not been used up to now[60].

49. There are also rules which **specifically** impose liability and/or compulsory financial guarantees on the **operators of waste disposal installations**.

In Belgium, the generator of toxic waste is under the Law on Toxic Waste of 1974 liable for all damages caused by the waste, be it during the disposal thereof. There is no limitation of liability nor compulsory insurance. The Flemish Waste Decree does however require the operators of waste disposal installations (who are not strictly liable) to underwrite sufficient civil liability insurance.[61] The amount is not specified by law but determined by the waste agency. The highest insurance is said to cover 400 million BEF. A similar obligation exists in the Walloon Region pursuant to article 11, 3° of the Walloon Waste Decree.

In El Salvador, the Environmental Law establishes that any institution, public or private that generates or manages substances, residues or hazardous wastes, must present financial guarantees. The law does not establish upper and minimum limits to be covered by bonds. We have already mentioned that France and other countries do require guarantees to cover closing and restoration costs. Legislation of this type will be generalised in the implementation of the EU regulation on landfills.

According to § 6 of the German Waste Disposal Regulation of 10th September 1996, waste disposal operators are obliged to provide for a sufficient insurance covering their activities. The arrangement of the insurance as well as its range has to be determined on the basis of an operational risk assessment. Companies storing, recycling or disposing waste are obliged to effect at least one environmental liability insurance and a business liability insurance that offers a sufficient cover. The Gesamtverband der Deutschen Versicherungswirtschaft estimates that an insurance sum of 3 million DM to 10 million DM (depending on the classification of the respective waste) is sufficient as a minimum cover.
For disposal operations in the UK, the disposer must be registered with the Environmental Agency and granted with a disposal licence pursuant to the Control of Pollution Act 1974 sect. 3. There are no prerequisites for financial guarantees to be provided in order to obtain a licence.

In the Netherlands, article 176 of Book 6 of the Civil Code imposes strict liability on the operator of a site for the disposal of waste. The liability is unlimited and the operator is not obliged to cover his liability by insurance or other financial guarantees.

In the US , sect. 107 CERCLA imposes strict liability for clean up costs and for damages to natural resources caused by the release of hazardous substances in connection with waste

[59] Federal Law No. 116-FZ of July 21, 1997.
[60] It is planned to introduce a mandatory insurance coverage with a guarantee of CHF 20 million for operations with genetically manipulated organisms.

[61] E.g. article 5.2.4.5.1 VLAREA.

disposal operations. Liability for facilities is limited to the total of all response costs plus 50 million US $. The liability is to be covered by financial guarantees under CERCLA sect. 108; the necessary implementing regulations however have not been issued.
For receiving facilities the federal Environmental Regulations require financial liability coverage for sudden accidental releases for at least 1 million US $ per occurence and 2 million US $ annual aggregate. In addition there must be liability coverage for nonsudden accidental occurrences of at least 3 million US $ per occurence with an annual aggregate of at least 6 million US $ (title 40 Code of Federal Regulations 264.147).
Receiving facilities must also provide bonds for closure or post closure care. The amount of these bonds are determined through the licensing process and vary by site (title 40 Code of Federal Regulations Sections 264.140-264.151).

V. The availability of liability insurance and other financial guarantees for liabilities arising from transportation of waste.

A. The structure of the market for environmental liability insurance.

50. Until 1970 environmental liabilities were covered by liability insurers as any other liability. At present, the situation is totally different. Environmental liability did and does indeed raise special problems for insurers.
Most important is the fact that pollution damages often are the result of a gradual process, especially where they result from waste disposal, releases during regular industrial processes or from the use of chemicals rather than from explosions or other accidents. Pollution damages may become apparent only a long time after the activity which has caused it has ceased . Under normal liability policy wording, insurers may be held liable for damages resulting from activities carried, possibly in the distant past, by former clients with whom they do not have any relationship. This not only may cause unforeseen losses; it also requires insurers to keep reserves for a very long time. It makes it difficult to allocate the losses to one or another policy. Furthermore, insuring environmental risks requires a careful analysis of risks with whom insurers traditionally had little experience. There were little statistical data on environmental incidents on which insures could rely to establish premiums. Uncertainty about the scope of the liability arose from developments in case law, with respect to e.g. causation and the concept of damage, whereas additional liabilities were being imposed by new domestic and international environmental legislation. Finally, pollution damages, especially clean up costs, appeared to take catastrophic dimensions.

51. The impact of the environmental problems on the insurance market has been the greatest in the area of the commercial general liability policies (CGL) which cover general liability arising from a normal business operation.
In the US, insurers in the seventies faced increasing losses under CGL policies as a result of claims, largely related to gradual pollution resulting from operations which had taken place years earlier. These unexpected losses severally burdened the insurance industry, not only in the US, but world-wide[62]. The reaction of the insurers was to deal with pollution damages

[62] The description on the evolution of the environmental liability insurance in this chapter are mainly based on AIDA *Studies in pollution and insurance*, Aida Working Party on Pollution and Insurance, Hungarian Section of Aida, Edited by W.PFENNINGSTORF, 1986; ECS Underwriting Inc, *The environmntal insurance market. Rapid emergence to stable gowth*, 1997; Swiss Re, *Insuring environmentalk impairment liability, The current situation in selected European countries*, Zurich, 1999, F. MALAVAL, *Développement durable, assurances et environnement,* Economica, 1999.

separately. It was not excluded from the CGL policies, but cover was limited to damages caused by "sudden and accidental" events[63] in order to give protection against long-term pollution liability exposure from e.g. waste dumping of chemical discharges. The exclusion was not upheld by the courts. The insurance industry responded by adopting an absolute pollution exclusion from the CGL policy in the mid 1980.
In other countries than the US as well, the insurers became reluctant to continue the coverage of environmental risks. Sometimes pollution liability was fully excluded from the CGL policy. In other cases it remained covered but under special conditions. Environmentally dangerous operations such as the disposal and treatment of waste were denied cover by the traditional liability insurer or were offered cover only on an exceptional basis.

52. The market of marine insurance is highly specialised and organised in a different way than the other transportation insurance markets. In case of oil pollution from ships, the non-P&I market offers extremely limited coverage[64], whereas P&I clubs offer a more extensive coverage which is specifically directed to satisfy the statutory requisites of the compulsory insurance, required by the applicable statutes implementing CLC 1969/1992.
Basically, underwriters at Lloyd's, insurance companies and Hull Clubs offer cover for first party insurance, whereas P& I-clubs offer cover for third party liabilities. There is one area of oil pollution liability coverage where P&I clubs have refused to venture; this is in relation to the provisions of the financial responsibility guaranties under OPA 1990. In this area the shipping world has seen the emergence of new institutions and organisations willing and able to provide such coverage.[65]
The current limit of coverage imposed for pollution liability offered by P&I clubs in the International Group of Protection and Indemnity Clubs, is 500 million US $ each ship any one incident or occurence.[66] An additional coverage of 200 million US $ is available. This limitation is a reflection of the market capacity for reinsurance.[67] Further, Club rules contain an "omnibus" provision affording the directors the discretion to grant cover in whole or in part in respect of liability costs and expenses which have not been explicitly mentioned in the club rules, but which fall within the scope of the Association.

53. Air insurance is of little importance in this context as waste is normally not shipped by air. On the commercial market, claims directly or indirectly caused by pollution or contamination, unless caused by or resulting in a crash, fire explosion, collision or recorded in-flight

[63] For other types of damages, the accidental character is not required.

[64] The liability cover provided by commercial marine insurers is limited, mainly to part of the damages resulting from collisions ("hull" cover). This coverage was also influenced by pollution concerns: an exclusion was incorporated relating to damages "arising from pollution or contamination of any real or personal property or thing whatsoever (except other vessels with which the insured vessel is in collision or property on such other vessel)": clause 8.4.5. and 6.4.5. (3/4 Collision Liability) of the Institute Time and Voyage Clauses.

[65] E.g. Environmental Pollution Group Inc., Ocean Marine Mutual Insurance Association Ltd., Puget Sound Underwriters Inc., etc.

[66] A typical current rule is rule nr. 26/8 of the Liverpool and London Protection and Indemnity Rulebook 1997, which provides: " *... a member is covered by the Association for any liability in respect of an actual or threatened pollution of the environment, caused by an escape of oil or other polluting substance, but only up to a maximum of 500 million US $ (and subject to ...) for any one incident or occurence in cases of oil pollution, or fines or penalties for oil pollution*".

[67] See G. GAUCI, *Oil pollution at sea, Civil liability and Compenation for Damage*, John Wiley & Sons, New York, 1997, Chapter 7 (Oil pollution insurance).

emergency causing abnormal aircraft operation, are usually excluded from the air third party liability insurance covers[68,69]. Due to capacity scarcity and runaway premium levels, IATA (International Air Transport Association) has created a mutual insurance association: the "Airline Mutual Insurance Ltd" (AMI).

54. Insurance cover for liability for automobile accidents[70], is compulsory in the majority of the countries and in a large part of the states in the US. In other continents than the E.U., 27 countries restrict the cover to bodily injury. The minimum cover differs considerably, reflecting the economic situation of the country. In 42 countries the cover must be unlimited with respect to bodily injury and in 10 countries also with respect to material damage. In Belgium and Luxemburg, insurance cover may be limited to 50 million BEF for material damage, caused by fire or explosion. In Sweden the minimum cover is set at US $ 45 million both for bodily injury and material damage. In Germany the minimum cover is set at DM 5 million for bodily injury and DM 1 million for material damage. In the Czech Republic, insurance for liability for physical damage to third parties must be covered for at least 18 million CZK (about 514.000 US $); damage to property and pure economic loss must be covered for at least 5 million CZK (about 142.000 US $). In the U.S.A. the situation differs considerably from State to State, ranging from an unlimited cover in Hawaii in case of multiple accident over US $ 100,000 in Alaska to US $ 10,000 in Florida, with an average in the other States of US $ 40-50,000 (US $ 25,000 for bodily injury to one person and US $ 10-15,000 for material damage). It should be stressed that the cover relates to damages which are caused by the participation of the vehicle in the traffic and not to those which are solely due to the characteristics of the cargo or the loading thereof. More particularly, the liability of the owner of the cargo will not be covered.
In many countries where a compulsory insurance was introduced, it was accompanied by a Guarantee Fund to provide compensation in case of unidentified (generally only bodily injury) or not insured (bodily injury and material damage) vehicles[71]. It is generally financed by a levy on the insurance premium or on the periodical vehicle registration (renewal) tax.
In a the countries which provide an unlimited or very broad cover for traffic accidents such as Belgium and France, the pollution crisis has had no effect on the automobile accident cover. In other countries such as the US, pollution risks were excluded from standard automobile policies. The specialised US insurers sell Supplemental Environmental Automobile liability insurance to transporters which will cover pollution risks.

55. Since the mid-eighties however, the insurance market, slowly, came better to grasp with environmental damages. This development was stimulated by the growing demand for pollution liability cover as a result of legislation imposing financial security requirements. It required a number of changes in underwriting practices and policy wording.
Essential is a careful technical assessment and screening of the risks which are insured. Non sudden and accidental damages remain excluded or are covered only to a limited extent. If gradual pollution is covered, it is under a "claims made" policy which covers only damages

[68] Cf. AVN 1A, s II, 3(b) and AVN 46B.

[69] Cf. annexes to MARGO, R., *Aviation Insurance*, London, Butterworths, 1989.

[70] The information in this paragraph is mainly based on a world-wide survey of automobile insurance made in the Aida Working party on automobile insurance: ZIMOLO, A., *Normative and management Characteristics of Third Party Motor Liability Insurance in the World*, Aida Motor Insurance Working Party, Survey, 1998.

[71] Cf. art. 1. Second EC Council Directive 84/5/EEC.

for which a claim is brought during the period of validity of the contract or at the least which are reported during the period of the contract. In this way the insurer protects himself from long-tail liability arising from past activities. An alternative is a clause limiting cover to damages which have first manifested themselves during the period of the policy. Losses resulting from the normal operation on a plant are excluded, as are damages resulting from foreseeable emissions in any event. Losses, resulting from the violation of legal or administrative rules are not covered. Specific ceilings are used.

56. Presently the insurance market looks quite different than two decades ago.
In certain countries no special developments have taken place; liability insurers avoid environmental sensitive operations such as waste treatment facilities and limit cover for environmental risks to fairly low amounts and to sudden and accidental pollution.
In other countries, special environmental liability policies are offered by a limited number of insurers[72] or by the majority of the trade. The latter is the case in Germany.[73]
In France[74], Spain[75], Italy[76], insurers cooperate in insurance pools which offer specialised cover for environmental pollution, in some cases including cover for installations handling dangerous goods and the transportation thereof.[77]

In the U.S., by 1985, only two insurers were offering a special pollution liability coverage (PLL). At this moment about seven specialised insurers have emerged in an increasing market of environmental liability insurance. Three of them, AIG, ECS Underwriting (XL) and Zurich were said to represent in 1995 75% of the market.[78] They provide CGL cover for environmentally sensitive operations, Pollution Legal Liability (PLL)[79] cover for other

[72] The brochure by SwissRe, *Ensuring environmental impairment liability. The current situation in selected European countries*, Zurich, 1996 and 1998, mentions Royale belge, *Assurances Générales*, Winterthur, Skandia and Royal &Sun Alliances. Many other insurers have indicated to us that they offer cover for environmental damages.

[73] The Huk-Verband policy. See more extensively Malaval Frédericq, *Développement durable, assurances et environnement*, Economica, 1999, 157.

[74] *Assurpol*; this pool has been created in 1979 and assembles 53 insurers and 12 reinsurers. The pool mainly covers risks in connection with classified installations. Damages to third parties as well as restoration costs are covered. Cover can be provided up to 100 million FF, with a min. deductible of 40.000 FF. . The trigger clause is the first manifestation of the pollution. The pool usually doesn't make a distinction between gradual and accidental pollution.

[75] *Perm*; this pool has recently been created (in 1995). It assembles 25 insurers or reinsurers. Its capacity is about 4 M £. This pool covers two types of risks: fixed installations and transport of dangerous substances

[76] *Inquiniamen*to; this pool has been created in 1979 and assembles 74 insurance and reinsurance companies. Its actual capacity is about 20 M £. Iniquiniamento covers three types of risks: fixed installations (90% of the total volume of premiums); transport of dangerous substances and disposal operations. The trigger clause of the policy is claims made.

[77] See COMBRY, J.Y., *Les pools pollution Européens*, http//www.scor.fr In Holland and Denmark there are pools with a much smaller area of operation. In Finland a pool operates the compulsory environmental insurance under the Environmental Insurance Act., which however provides only compensation in the event the liable polluter is insolvent or remains unknown.

[78] ECS Underwriting, Inc., *The environmental insurance market. Rapid emergence to stable growth*, 1997.

[79] The PLL policy (Pollution Legal Liability Policy) of AIG provides coverage for disposal sites on an annual term or multi-year basis (not on a per shipment basis). The limits vary by the insured and the type of risk but the

operations and supplementary environmental cover for transporters (SEAL). AIG promotes a cover called Owners Spill Liability (OSL) [80] which is designated for gener ators and owners of hazardous materials who use third party carriers to transport their waste or hazardous products.
The major specialised insurers operate on a world-wide basis and have subsidiaries in many countries which underwrite policies under local insurance law but whose operations are centrally co-ordinated by an international centre. They also provide risk management services and devise custom made solutions for specific clients, in order to enable them to cover risks which are otherwise difficult to insure. They may in this connection set up captive insurance companies, alternative risk transfer programs with deductible funding or provide bonds.

B. The capacity of the environmental liability insurance market and its implications.

Of major importance for the drafters of the Protocol is the capacity available on the market (the maximum amounts which can be insured).
The traditional insurers, without special policies, offer only a limited -if any- cover for pollution damages, generally on a sudden and accidental basis and exclude cover of sensitive installations.
Insurers with special policies often report a substantial capacity up to amounts, exceeding easily 30 M US $ and often 50 M US $[81]. For major installations, specialised insurers provide

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majority of the insureds are purchasing limits between US 1M $ each occurrence and in the aggregate to US $ 10M each occurrence and in the aggregate. AIG can offer cover up to 100 M US $ each incident and 100 M US $ coverage section aggregate, with a minimum deductible of 10.000 US $. Coverage options include i.a. coverage for on-site clean up of unknown pre-existing or new conditions triggered by a third party claim; property damage to personal property of third parties and bodily injury to third parties by on-side pollution condititons; third party claims for cleanup costs and bodily injury resulting from off-side pollution conditions, defense coverage.

The PLL policy of ECS provides coverage for third-arty legal liability arising from pollution conditions which emanate from covered locations, including defense costs and remediation expenses for on-site cleanup. The limits of liability that are covered are 30 million US $ per loss and 60 M US $ in the aggregate with a minimum of 25.000 self-insured retention. ECS also offers a PARLL policy. This "Pollution and Remediation Legal liability" policy provides coverage for loss, remediation expense and legal defense expense under one policy for sudden and gradual pollution conditions at or on covered locations. The limits of liability that are covered are 30 M US $ per loss or remediation expense and 60 M US $ in the aggregate with a minimum of 25.000 US $ self-insured retention.

[80] The OSL policy (Owner's Spill Liability Policy) of AIG covers the transportation risk on an annual basis and not on an per shipment basis. The limits range from 1M $ each occurrence and in the aggregate to 10M $ each occurrence and in the aggregate. Coverage protects the insured against liability for bodily injuy, property damage and clean up costs arising out of spills that occur in the course of transit by rail, air, auto or vessels. Defense cost is also provided. The limits are up to 100 M US $ each claim and 100 M US $ in the aggregate with a minimum deductible of 10.000 US $.

[81] In Australia, the highest values that were mentioned were AUD 35 M and AUD 50 M. The companies in question were multinationals who export and import large quantities of materials including hazardous wastes. For the AUD 50 M policy, the premium was AUD 350.000. For a coverage for AUD 5 M, the premium typically costs about AUD 500 per year.

The French Pool Assurpol offers cover for damages in connection with the operation of classified installations up to 100 million FF (with a deductible of min. 40.000 FF).

Finnish industrial insurers can cover risks with sums insured up to 50 M US $ (Information provided by Industrial Insurance, Finland).

cover over 100 million US $.

57. At this moment, there clearly is a substantial capacity in the international market. One should however be careful not to draw the conclusion that imposing routinely very high financial guarantees does not pose any problems.
The insurance is not always available. Coverage and premium will depend on an individual assessment of an installation or operation. Not properly managed operations do not get insurance.
The insurance is also costly. Premiums are quoted from 50.000 to 250.000US $ for a cover of 100.000.000 US $. Minimum premiums for a cover of 10.000.000 US $, may start around 5000 US $. Generalisations are however not possible with respect to insurnance costs. The premium will depend on the type of operation, the ceiling and wording of the cover and many other factors … Generally, a limit is provided per incident and for the period of the contract. If the two amounts are identical, the price will be lower than if the aggregate is a multiple of the limit per incident. Generally a substantial deductible will be imposed which will make the insured bear part of the losses himself. The lower the deductible, the higher the premium. There also will be a substantial difference according to whether or not the premium is taken out for an isolated operation or whether it is a blanket policy covering a continuous operation. In the latter case, the premium will probably be lower not only in view of the effect of economy of scale, but also in view of the higher degree of specialisation of the operator. Next insurers do not accept to tie up their capacity in excessive cover for operations presenting limited risks. A generalised cover of 10 M US $ for e.g. all waste shipments would not find insurers. For this reason, a distinction has to be made between according to the more or less hazardous nature of the waste. It may further not be necessary or desirable to cover all shipments of hazardous waste by a 10 M US $ cover.

In Germany, according to Malaval, coverage under the Huk-Verband policy above 20M DM is limited to accidental losses.

In Japan, Sumitomo Marine provides coverage for basically 1 billion Japanese Yen; Nippon Fire provides coverage to approximately 5 M US $. (Both companies only cover liability for damage in connection with the operation of industrial facilities and construction.)

Recent experience in New Zealand suggests that New Zealand companies are in the vicinity of 1M US $ per tonne and 10 M US $ per incident (figures based on maritime shipments which did not go to or through the US).

Zurich Insurance Company Russia offers standard coverage for liability of industrial hazardous objects insurance of 230.000 US $ with a maximum premium of 5000 US $ according to fixed tariffs.

The Spanish insurance company, MAPFRE Industrial SAS, provides third liability cover for industrial activities up to 500 M Pesetas; in cases of environmental damages, claims are canalised to PERM.
The coverage capacity of Zurich (Spain) is up to 27 million Euros for each client, with the possibility to provide higher limits in special cases.

According to the Swiss Insurance Company Winterthur the guarantee sum for general liability is normally CHF 3 million for smaller companies; it can amount to several hundreds of millions CHF for multinational companies. The usual guarantee for all mandatory insurances corresponds to the legal minimum.

The maximum amount insured by a Ukraine company was 5 M US $ (the risk was reinsured in the local and London reinsurance market). (Information provided by Ostra Insurance Co.)

C. Tentative conclusion

58. If the drafters of the Protocol were not to refer to the transportation treaties for the amount of the financial guarantees, it would seem possible to impose one single limit both for the notifier and for the disposer, irrespective of the transportation modus. The insurance market would probably allow to fix the amount at 5.000.000 US $, for a shipment of not more than 2000 tonnes, to be increased by, e.g., 1000 US $ per additional tonne. In order to reduce the cost of insurance it may be acceptable to provide a lower limit for small road shipments of inert solid waste. This cover would in the majority of the cases provide a very substantial protection to the victims.
One should bear in mind in this respect that the guarantee, with respect to the disposer is not the cover the whole operation of the disposal facility but only the disposal of a given shipment. In any event the notifier and the disposer are also under the duty to establish guarantees with respect to safety measures and other response costs. With respect to accidents occurring during transportation, the victim, in many cases, also will have the possibility to invoke the liability and financial guarantees of the transporter who will remain liable under the transportation treaties.

59. Whereas it seems advisable not to impose too high amounts for the financial guarantees, it does not seem acceptable to limit at the same time the liability of the operator to the same amount. If this is done, both amounts should be higher and at the least match those of the transportation treaties.
Strong arguments plead in favour of leaving a substantial part of the potential damage to be borne by the notifier and disposer themselves, be it that they can buy additional liability insurance on the market. It is available.
Potentially, the damages might, in exceptional cases, be much higher than the amounts of the financial guarantees proposed before. It seems more equitable and consistent with the polluter-pays principle and the precautionary principle that the operator rather than the victim bears the losses.
There is further no reason to protect the notifier against all personal liability and thus to promote the development of his business at low cost. Transboundary shipments of hazardous waste are not an activity one has to promote and protect. The international community has expressed reservations at several occasions. There are the BAN decisions. There is the principle of disposal on the region of production.
Leaving the notifier to bear part of the potential damage himself, will, together with the duty of establishing the financial guarantees proposed above, lead to a further concentration of waste shipment operations with a smaller number, probably also larger, more specialised and better equipped operators. These will be easier to control and have more financial resources to buy themselves additional liability cover on the market.

VI. The limitations of the liability insurance; the conditions under which it can be an effective tool for the protection of potential victims

60. Of considerable importance are the issues of a direct action by the victim against the insurer or the guarantor and the defences available to the latter.
Compared to a system where the insurer has to reimburse the liable party for what he has paid to the victim, the direct action provides protection against fraud by the liable party. It avoids that the victim comes as an unsecured creditor into concourse with other creditors of the liable

party. It simplifies the procedure. In order to avoid contradictory decisions which may be possible if the claims against the liable party and the insurer are adjudicated separately, the protocol should provide that the action can only be brought against the guarantor if the claim is at the same time brought against the liable party.
There is ample precedent to provide a direct action.
The HNS, CRTD and CLC all recognise direct action against the guarantor. The LLMC does not as it does not provide for compulsory financial guarantees.
Under national law, the practice varies.
In a limited number of countries, such as Belgium, the direct action is the general rule in land liability insurance and applies to general liability insurance as well as in transportation insurance.
In transportation insurance, the direct action, however, is very common. In motor liability insurance, almost every non common law country recognises a direct action. It is provided for by a draft EU directive on motor insurance.
In common law countries, the principle is that the insurer who pays, reimburses the liable party what he has paid the victim. The rule however is softened by giving the victim a direct action against the guarantor in the event of insolvency of the liable party. In the U.K., this is achieved by the "Third Party Right against insurers act" (1930). Common law countries however in many cases do recognise a broader direct action. This is the case for the countries which implement the transportation treaties. [82] In the US, more than fifteen states recognise the direct action in motor insurance. A broad direct action is also in certain instances recognised under major US environmental liability laws. Under OPA (sect. 1016, f, 2, c) claims by the United States for removal costs and for damages may be brought directly against the guarantor. This is also the case under CERCLA, § 108, c, 1[83].

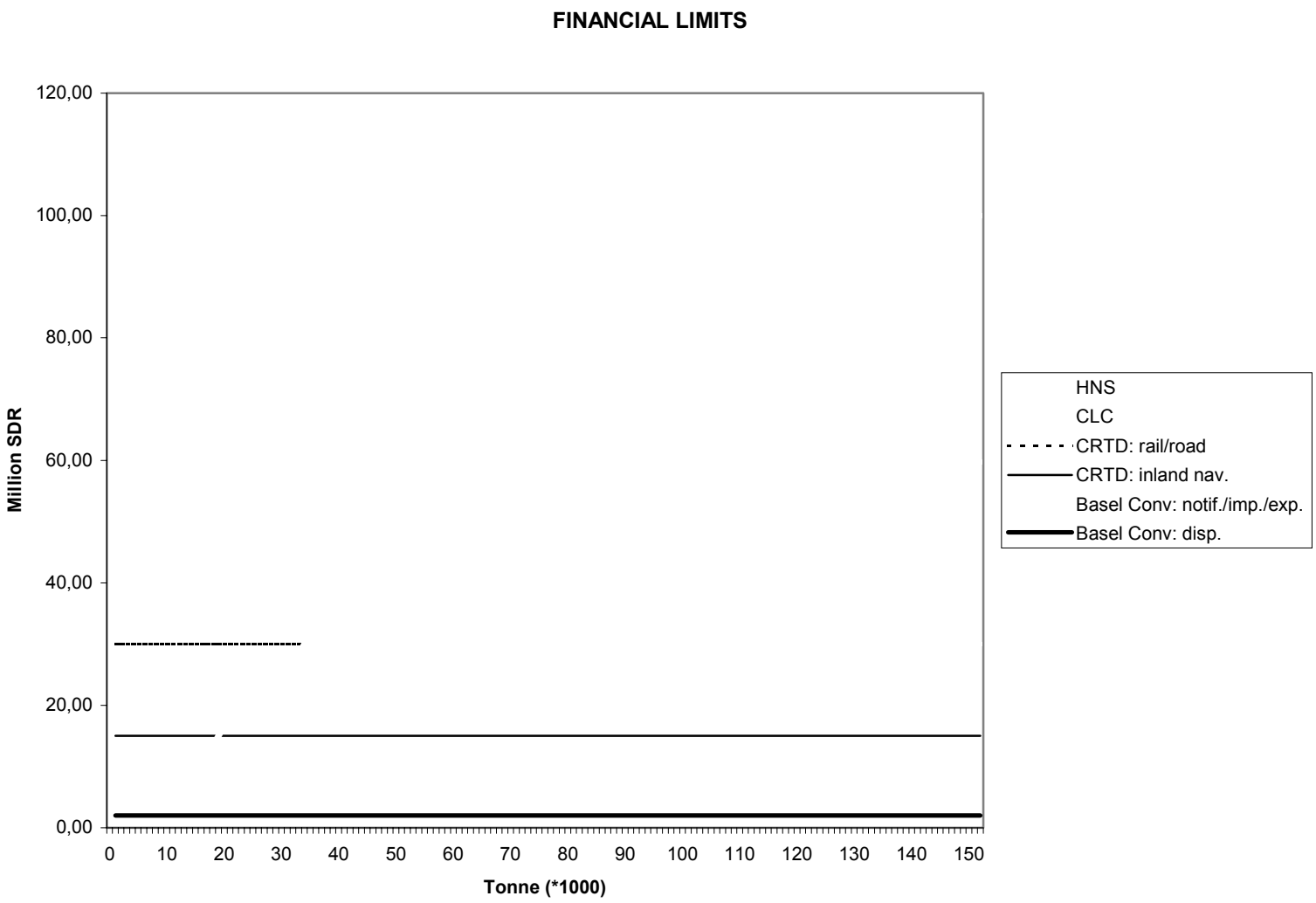
61. The issue of defenses available to the insurer is separate from the issue of the direct action. The insurer can in any event invoke the defenses which the liable party can invoke against the victim. It is, however, common in this respect to broaden the victim's right by not allowing the insurer to oppose against the victim all the defences the insurer might have opposed against the insured himself, on the basis e.g. of the insurance contract or principles of insurance law. One may take a middle road by allowing the insurer to invoke the wilful misconduct of the liable party. The same solution is adopted in the HNS Convention (art. 12, 8), in the CLC Convention (art. VII) and in sect. 108 CERCLA[84].

[82] Althoug in the UK, the Merchant Shipping Act 1995 implements the CLC 1992, it does not contain any provision stating that *the insurer shall not avail himself of any other defense which he might have been entitled to invoke in proceedings brought by the owner against him*; thus it appears that the "pay first rule" here is still applicable.

[83] CERCLA, sec 108, c, 1: "in the case of a release … from a vessel, any claim … may be asserted directly against any guarantor providing evidence of financial responsibility for such vessel … In defending such a claim, the guarantor may invoke all rights and defenses which would be available to the owner or operator … The guarantor may also invoke the defense that het incident was caused by the wilful misconduct of the owner or operator, but the guarantor may not invoke any other defense that the guarantor might have been entitled to invoke in a proceeding brought by the owner or operator against him.

[84] See previous note.

ANNEX I:


FINANCIAL LIMITS
120,00
100,00
80,00
60,00
40,00
20,00
0,00
Million SDR
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
Tonne (*1000)
HNS
CLC
CRTD: rail/road
CRTD: inland nav.
Basel Conv: notif./imp./exp.
Basel Conv: disp.

ANNEX II: STATUS OF CONVENTIONS

	CLC Convention 69	CLC Protocol 92	FUND Convention 71	FUND Protocol 92	LLMC Convention 76	HNS Convention 96
Afghanistan						
Albania	x		x			
Algeria	x	x	x	x		
Andorra						
Angola						
Antigua & Barbuda	x		x			
Argentina						
Armenia						
Australia	d	x	d	x	x	
Austria						
Azerbaijan						
Bahamas	d	x	d	x	x	
Bahrain	d	x	d	x		
Bangladesh						
Barbados	x	x	x	x	x	
Belarus						
Belgium	x	x	x	x	x	
Belize	x	x		x		
Benin	x		x		x	
Bhutan						
Bolivia						
Bosnia & Herzegovina						
Botswana						
Brazil	x					
Brunei Darussalam	x		x			
Bulgaria						
Burkina Faso						
Burundi						
Cambodia	x					
Cameroon	x		x			
Canada	d	x	d	x		
Cape Verde						
Central African Republic						
Chad						
Chile	x					
China	x	x				
Colombia	x		x			
Comoros						
Congo						
Costa Rica	x					
Cote d'Ivoire	x		x			
Croatia	x	x	x	x	x	
Cuba						
Cyprus	d	x	d	x		
Czech Republic						
Dem. People's Rep. Korea						

Dem. Rep. of the Congo							
Denmark	d	x	d	x	x		
Djibouti	x		x				
Dominica							
Dominican Republic	x	x		x			
Ecuador	x						
Egypt	x	x			x		
El Salvador							
Equatorial Guinea	x				x		
Eritrea							
Estonia	x		x				
Ethiopia							
Fiji	x		x				
Finland	d	x	d	x	x		
France	d	x	d	x	x		
Gabon	x		x				
Gambia	x		x				
Georgia	x				x		
Germany	d	x	d	x	x		
Ghana	x		x				
Greece	d	x	d	x	x		
Grenada		x		x			
Guatemala	x						
Guinea							
Guinea-Bissau							
Guyana	x		x		x		
Haiti							
Holy See							
Honduras	x						
Hungary							
Iceland	x	x	x	x			
India	x		x				
Indonesia	x		d				
Iran (Islamic Republic of)							
Iraq							
Ireland	d	x	d	x	x		
Israel							
Italy	x		x				
Jamaica		x		x			
Japan	d	x	d	x	x		
Jordan							
Kazakhstan	x						
Kenya	x		x				
Kiribati							
Kuwait	x		x				
Kyrgyzstan							
Lao People's Dem. Rep.							
Latvia	x	x		x			
Lebanon	x						
Lesotho							
Liberia	d	x	d	x	x		
Libyan Arab Jamahiriya							
Liechtenstein							
Lithuania							
Luxembourg	x						
Madagascar							
Malawi							

Malaysia	x		x				
Maldives	x		x				
Mali							
Malta	x		x				
Marshall Islands	d	x	d	x	x		
Mauritania	x		x				
Mauritius	x		x				
Mexico	d	x	d	x	x		
Micronesia (Fed. States of)							
Monaco	d	x	d	x			
Mongolia							
Morocco	x		x				
Mozambique	x		x				
Myanmar							
Namibia							
Nauru							
Nepal							
Netherlands	d	x	d	x	x		
New Zealand	d	x	d	x	x		
Nicaragua	x						
Niger							
Nigeria	x		x				
Norway	d	x	d	x	x		
Oman	d	x	d	x			
Pakistan							
Palau							
Panama	x	x	x	x			
Papua New Guinea	x		x				
Paraguay							
Peru	x						
Philippines		x		x			
Poland	x		x		x		
Portugal	x		x				
Qatar	x		x				
Republic of Korea	d	x	d	x			
Republic of Moldova							
Romania							
Russian Federation	x		x				
Rwanda							
Saint Kitts and Nevis	x		x				
Saint Lucia							
St. Vincent & Grenadines	x						
Samoa							
Sao Tome & Principe	x						
Saudi Arabia	x						
Senegal	x						
Seychelles	x		x				
Sierra Leone	x		x				
Singapore	d	x		x			
Slovakia							
Slovenia	x		x				
Solomon Islands							
Somalia							
South Africa	x						
Spain	d	x	d	x	x		
Sri Lanka	x	x	x	x			
Sudan							

Suriname							
Swaziland							
Sweden	d	X	d	X	X		
Switzerland	d	X	d		X		
Syrian Arab Republic	X		X				
Tajikistan							
Thailand							
the former Yugoslav Republic of Macedonia							
Togo							
Tonga	X		X				
Trinidad & Tobago							
Tunisia	d	X	d	X			
Turkey					X		
Turkmenistan							
Tuvalu	X		X				
Uganda							
Ukraine							
United Arab Emirates	X	X	X	X	X		
United Kingdom	d	X	d	X	X		
United Rep. of Tanzania							
United States							
Uruguay		X		X			
Uzbekistan							
Vanuatu	X	X	X	X	X		
Venezuela	X	X	X	X			
Viet Nam							
Yemen	X				X		
Yugoslavia	X		X				
Zambia							
Zimbabwe							
Hong Kong, China (Associate Member)	X	X	X	X	X		

SUMMARY OF STATUS OF CONVENTIONS
as at 30 June 1999

Convention	Entry into force date	No. of Contracting States	% world tonnage*
CLC 1969	19-Jun-75	75	41.00
CLC Protocol 1992	30-May-96	46	75.53
FUND 1971	16-Oct-78	50	33.16
FUND Protocol 1992	30-May-96	44	72.10
LLMC 1976	01-Dec-86	33	43.12
HNS Convention 1996	-	0	
** Source: Lloyd's Register of Shipping/World Fleet Statistics as at 31 December 1998*			

ANNEX III : LIST OF CORRESPONDENTS

Mr. Leopoldo SAHORES (Argentinia)

Mr. Geoff THOMPSON (Australia)

Mr. RETTER, Verband der Versicherüngsunternehmen Österreichs (Austria)
Ms. Helga JESSER-HUSS (Austria)

Mr. Jean ROGGE, B.V.V.O., AIDA (Belgium)
M. Dominique RANSON, A.I.G. Europe (Belgium)
Prof. Colin JANSEN, University of Ghent (Belgium)
Prof. Kris BERNAUW, University of Ghent (Belgium)
Prof. Hilary PAGE, University of Ghent (Belgium)
Mr. P. DE BRUYCKER, Indaver Antwerp (Belgium)
Ms. Veronique EYCKMANS, De Vaderlandsche Verzekeringen (Belgium)
Ms. Nadia RONGVAUX, AG (Belgium)
Mr. Denis BLANPAIN, AG (Belgium)
Ms. Els DE PICKERE (Belgium)

Mr. Thimoty FINLAY, General & Cologne Re (Brasil)
Mr. Christian LAHNSTEIN, Munich Re (Brasil)

Prof.. Gu BAIZHONG (China)
Mr. C.F. WONG (Hong Kong Special Administrative Region, China)

Mr. Jimena NIETO (Colombia)
Mr. Henrik NIELSEN, AIDA Working Party (Denmark)

Ms. Yolanda KAKABADSE (Ecuador)

Ms. Flor DE MARIA PERLA DE ALFARO (El Salvador)

Mr. Matti SJÖGREN, AIDA Working Party (Finland)
Prof. Peter WETTERSTEIN, AIDA (Finland)
Ms. Marja EKROOS (Finland)
Mr. Esbjörn HALLSTRÖM (Finland)

Mr. Jean-Marc SZMARAGD, Scor (France)
Mr. Jean-Yves COMBY, Scor (France)

Prof. Gerrit WINTER, AIDA Working Party (Germany)
Prof. Ulrich HÜBNER, AIDA (Germany)

Mr. Antonios D. TSAVDARIDIS, Rokas & Partners, AIDA (Greece)

Ms. Marianne KARCZA (Hungary)

Mr. K. RAMCHANDRAN (India)

Mr. Alan W. FINLAY, Alan W. Finlay Insurances Ltd. (Ireland)

Mr. Pierluigi TRUCILLO, AIDA Working Party (Italy)
Mr. Aldo BERTELLE, Swiss Re (Italy)

Mr. Takashi ARAKANE, Nippon Fire (Japan)
Mr. Keichi HATATANI, Sumitomo Marine & Fire Co. Ltd. (Japan)

Ms. Rita RAUM-DEGREVE, Eureco (Luxemburg)

Mr. Antonio DE ICAZA (Mexico)

Mr. Theo KREMER, AIDA Working Party (Netherlands)
Mr. Jan Engel DE BOER (Netherlands)
Mr. Eddy BAUW (Netherlands)
Mr. K.W. KEUZENKAMP (Netherlands)

Ms. Trine-Lise WILHELMSEN (Norway)

Mr. Pawel SUKIENNIK, Hestia Insurance (Poland)
Mr. Witold JANUSZ, Hestia Insurance (Poland)
Mr. Witold JANUSZ, Hestia Insurance, AIDA Working Party (Poland)

Mr. Igor SHINKARENKO, Zurich Insurance Company Russia Ltd. (Russian Federation)

Mr. Milagros SANZ, AIDA (Spain)
Mr. E. PAVELEK, AIDA (Spain)
Mr. José Luis DE HERAS, Perm (Spain)

Mr. Massimo PERGOLIS, AIDA Working Party, Winterthur (Switzerland)

Mr. Mingquan WICHAYARANGSARDIH (Thailand)
Mr. W. Wattana, Alexander Forbes Wattana (Thailand)

Mr. Andrew RANDALL (United Kingdom)
Ms. Valerie FOGLEMAN, Barlow Lyde & Gilbert (United Kingdom)
Mr. Robert HOGARTH, AIDA Working Party, Reynolds Porter Chamberlain (United Kingdom)
Mr. Leonard R. OLSEN, ECS (United Kingdom)

Ms. Julie HESPE, AIG (United States)
Ms. Beth CLARK, Antarctica Project (United States)
Mr. James BARNES, Antarctica Project (United States)
Mr. Roger KLUCK, Basel Action Network (United States)