European Commission

White Paper on environmental liability

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CONTENTS

FOREWORD

These days, we are confronted with cases of severe damage to the environment resulting from human acts. The recent incident with the *Erika* resulted in large-scale contamination of the French coast and the suffering and painful death of several hundred thousands of sea birds and other animals. This was certainly not the first case of an oil spill at sea with terrible consequences for the environment. Some years ago, a catastrophe of a different kind happened near the Doñana nature reserve, in the south of Spain, when the breach of a dam containing a large amount of toxic water caused enormous harm to the surrounding environment, including innumerable protected birds. These and other similar events raise the question of who should pay for the costs involved in the clean-up of the pollution and the restoration of the damage. Should the bill for this be paid by society at large, in other words, the taxpayer, or should it be the polluter who has to pay, in cases where he can be identified?

Also in relation to genetically modified products, there is serious public concern that these may affect our health, or may have negative effects on the environment. This concern results in a call for liability of responsible parties.

One way to ensure that greater caution will be applied to avoid the occurrence of damage to the environment is indeed to impose liability on the party responsible for an activity that bears risks of causing such damage. This means that, when such an activity really results in damage, the party in control of the activity (the operator), who is the actual polluter, has to pay the costs of repair.

This White Paper sets out the structure for a future EC environmental liability regime that aims at implementing this 'polluter pays' principle. It describes the key elements needed for making such a regime effective and practicable.

The proposed regime should not only cover damage to persons and goods and contamination of sites but also damage to nature, especially to those natural resources that are important from a point of view of the conservation of biological diversity in the Community (namely the areas and species protected under the Natura 2000 network). So far, environmental liability regimes in EU Member States do not yet deal with that.

Liability for damage to nature is a prerequisite for making economic actors feel responsible for the possible negative effects of their operations on the environment as such. So far, operators seem to feel such responsibility for other people's health or property — for which environmental liability already exists, in different forms, at the national level — rather than for the environment. They tend to consider the environment 'a public good' for which society as a whole should be responsible, rather than an individual actor who happened to cause damage to it. Liability is a certain way of making people realise that they are also responsible for possible consequences of their acts with regard to nature. This expected change of attitude should result in an increased level of prevention and precaution.

EXECUTIVE SUMMARY

This White Paper explores various ways to shape an EC-wide environmental liability regime, in order to improve application of the environmental principles in the EC Treaty and implementation of EC environmental law, and to ensure adequate restoration of the environment. The background includes a Commission Green Paper in 1993, a joint hearing with the European Parliament that year, a Parliament resolution asking for an EC directive and an opinion of the Economic and Social Committee in 1994, and a Commission decision in January 1997 to produce a White Paper. Several Member States have expressed support for Community action in this field, including some recent comments on the need to address liability relating to genetically modified organisms (GMOs). Interested parties have been consulted throughout the White Paper's preparation.

Environmental liability makes the causer of environmental damage (the polluter) pay for remedying the damage that he has caused. Liability is only effective where polluters can be identified, damage is quantifiable and a causal connection can be shown. It is therefore not suitable for diffuse pollution from numerous sources. Reasons for introducing an EC liability regime include improved implementation of key environmental principles ('polluter pays', prevention and precaution) and of existing EC environmental laws, the need to ensure decontamination and restoration of the environment, better integration of the environment into other policy areas and improved functioning of the internal market. Liability should enhance incentives for more responsible behaviour by firms and thus exert a preventive effect, although much will depend on the context and details of the regime.

Possible main features of a Community regime are outlined, including: no retroactivity (application to future damage only); coverage of both environmental damage (site contamination and damage to biodiversity) and traditional damage (harm to health and property); a closed scope of application linked with EC environmental legislation — contaminated sites and traditional damage to be covered only if caused by an EC-regulated hazardous or potentially hazardous activity; damage to biodiversity only if protected under the Natura 2000 network; strict liability for damage caused by inherently dangerous activities, and fault-based liability for damage to biodiversity caused by a non-dangerous activity ([1]); commonly accepted defences, some alleviation of the plaintiffs' burden of proof and some equitable relief for defendants; liability focused on the operator in control of the activity which caused the damage; criteria for assessing and dealing with the different types of damage; an obligation to spend compensation paid by the polluter on environmental restoration; an approach to enhanced access to justice in environmental damage cases; coordination with international conventions; financial security for potential liabilities; and working with the markets.

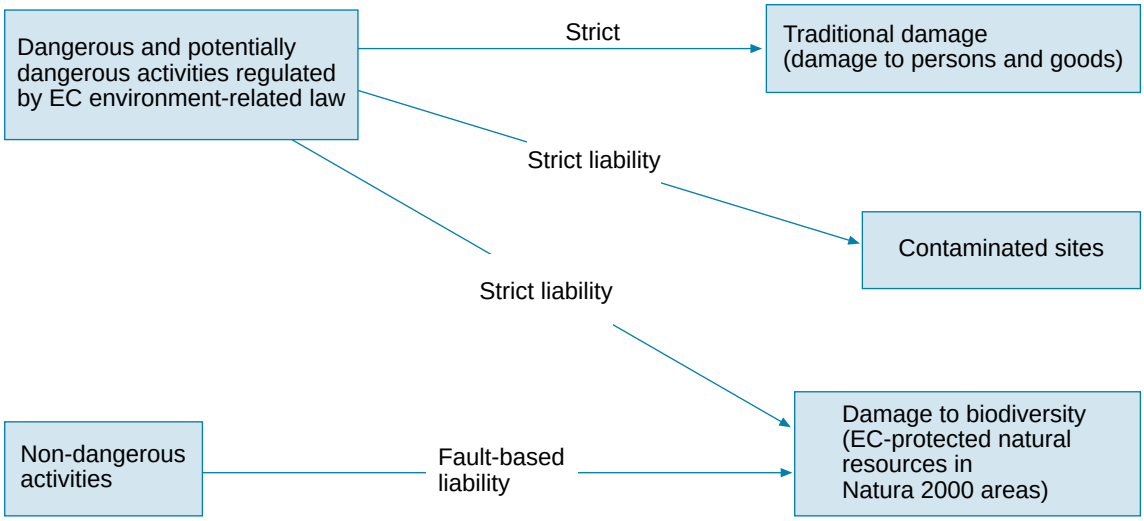
Different options for Community action are presented and assessed: Community accession to the Council of Europe's Lugano Convention; a regime covering only transboundary damage; a Community recommendation to guide Member State action; a Community directive; and a sectoral regime focusing on biotechnology. Arguments for and against each option are given, with a Community directive seen as the most coherent. A Community initiative in this field is justified in terms of subsidiarity and proportionality, on grounds including the insufficiency of separate Member State regimes to address all aspects of environmental damage, the integrating effect of common enforcement through EC law and the flexibility of an EC framework regime which fixes objectives and results, while leaving to Member States the ways and instruments to achieve these. The impact of an EC liability regime on the EU industry's external competitiveness is likely to be limited. Evidence on existing liability regimes was reviewed and suggests that their impact on national industry's competitiveness has not been disproportionate. The effects on small and medium-sized enterprises (SMEs) and financial services and the important question of the insurability of core elements of the regime are dealt with. The effectiveness of any legal liability regime requires a workable financial security system based on transparency and legal certainty with respect to liability. The regime should be shaped in such a way as to minimise transaction costs.

([1]) See a schematic view of the possible scope of the regime in the annex to this summary.

The White Paper concludes that the most appropriate option would be a framework directive providing for strict liability for damage caused by EC-regulated dangerous activities, with defences, covering both traditional and environmental damage, and fault-based liability for damage to biodiversity caused by non-dangerous activities. The details of such a directive should be further elaborated in the light of consultations. The EU institutions and interested parties are invited to discuss the White Paper and to submit comments by 1 July 2000.

ANNEX

POSSIBLE SCOPE OF AN EC ENVIRONMENTAL LIABILITY REGIME



1. INTRODUCTION

1.1. THE AIM OF THIS WHITE PAPER

According to Article 174(2) of the EC Treaty:

'Community policy on the environment shall be […] based on the precautionary principle and on the principles that preventive action should be taken, that environmental damage should as a priority be rectified at source and that the polluter should pay.'

The purpose of this White Paper is to explore how the 'polluter pays' principle can best serve these aims of Community environmental policy, keeping in mind that avoiding environmental damage is the main aim of this policy.

Against this background, the White Paper explores how a Community regime on environmental liability can best be shaped in order to improve the application of the environmental principles of the EC Treaty and to ensure restoration of damage to the environment. The White Paper also explores how an EC environmental liability regime can help to improve the implementation of Community environmental law, and examines the possible economic effects of such a Community action.

1.2. THE STRUCTURE OF THE WHITE PAPER

After an introductory part containing some background information and explaining the aim of environmental liability in Sections 1 and 2, the White Paper presents the case for an EC regime in Section 3. Section 4 contains some possible features of a Community regime and Section 5 considers and compares different options for such a regime. Whereas Section 6 considers the issue from the perspective of subsidiarity and proportionality, Section 7 examines the economic impact of an EC environmental liability regime. Section 8, finally, draws a conclusion and sets out the next steps in this matter.

1.3. BACKGROUND AND INSTITUTIONAL CONTEXT

1.3.1. *The Green Paper on remedying environmental damage*

In May 1993, the Commission published its Green Paper on remedying environmental damage ([2]). Over 100 comments were submitted, from Member States, industry, environment groups and other interested parties, and followed up by continuous consultations. A joint public hearing was held by the Parliament and the Commission in November 1993.

1.3.2. *The position of the European Parliament*

In April 1994, the European Parliament adopted a resolution calling on the Commission to submit 'a proposal for a directive on civil liability in respect of (future) environmental damage' ([3]). In that resolution, the Parliament applied for the first time Article 192(2) (ex-Article 138b(2)) of the EC Treaty, which enables it to ask the Commission to submit legislative proposals. Since then, the issue of environmental liability has been raised by the Parliament on several occasions, such as in the Commission's annual working programmes, in parliamentary questions and in letters to the Commission.

In its questionnaire to the candidate Commissioners in view of their hearings, the Parliament again raised this question and expressed once more its view that Community legislation in this field is urgently needed. It stressed, in particular, the need to insert liability provisions in existing Community legislation in the field of biotechnology.

1.3.3. *The opinion of the Economic and Social Committee*

A detailed opinion on the Green Paper was issued by the Economic and Social Committee (ESC) on 23 February 1994, which supported EC action on liability for environmental dam-

([2]) Communication of 14 May 1993 (COM(93) 47 final) presented to the Council, the Parliament and the Economic and Social Committee.
([3]) Resolution of 20 April 1994 (OJ C 128, 9.5.1994, p. 165).

age, suggesting that this could take the form of a framework directive on the basis of Treaty Articles 174 and 175 (ex-Articles 130r and 130s) ([4]).

1.3.4. Commission's decision for a White Paper

Following an orientation debate on 29 January 1997, the Commission decided, taking into account the need to reply to the resolution from the European Parliament of 1994 asking for Community action, that a White Paper on environmental liability should be prepared ([5]).

1.3.5. Member States' positions

A number of Member States have expressed, informally or formally, a favourable opinion with respect to Community action in the field of environmental liability in general (Belgium, Greece, Luxembourg, the Netherlands, Austria, Portugal, Finland and Sweden). Several Member States are known to be awaiting the Commission's proposals before embarking on national legislation in this field, especially with respect to liability for damage to biodiversity. Furthermore, Belgium, Germany, Spain, the Netherlands, Austria, Finland and Sweden have recently declared in the Council that they welcome the Commission's intention, in the context of the forthcoming White Paper on liability, to assess the question of liability for environmental damage linked to the deliberate release and placing on the market of GMOs. The UK has recently called upon the Commission as a matter of priority to consider the feasibility of and possible criteria for a liability regime or regimes to cover the release and marketing of GMOs. The positions of the other Member States are not yet clear.

1.3.6. The consultation process

During the process of preparing the White Paper, consultations have been held with independent experts from the Member States, with national experts from the Member States and with interested parties, many of whom have also sent written comments in relation to informal working papers that they received in the course of the process. The views expressed were quite different, among other things with respect to the need for Community action. A summary report of the comments from interested parties is available on request.

([4]) ESC opinion of 23 February 1994 (CES 226/94).
([5]) Four studies have been conducted for the purpose of the preparation of an EC policy in this area. These studies are available to the public. Summaries of these studies are included in this publication (annexes 1–4).

2. WHAT IS ENVIRONMENTAL LIABILITY?

2.1. THE AIM OF ENVIRONMENTAL LIABILITY

Environmental liability aims at making the causer of environmental damage (the polluter) pay for remedying the damage that he has caused.

Environmental regulation lays down norms and procedures aimed at preserving the environment. Without liability, failure to comply with existing norms and procedures may merely result in administrative or penal sanctions. However, if liability is added to regulation, potential polluters also face the prospect of having to pay for restoration or compensation of the damage they caused.

2.2. THE TYPES OF ENVIRONMENTAL DAMAGE FOR WHICH LIABILITY IS SUITED

Not all forms of environmental damage can be remedied through liability. For the latter to be effective:

- there needs to be one or more identifiable actors (polluters);
- the damage needs to be concrete and quantifiable; and
- a causal link needs to be established between the damage and the identified polluter(s).

Therefore, liability can be applied, for instance, in cases where damage results from industrial accidents or from gradual pollution caused by hazardous substances or waste coming into the environment from identifiable sources.

However, liability is not a suitable instrument for dealing with pollution of a widespread, diffuse character, where it is impossible to link the negative environmental effects with the activities of certain individual actors. Examples are effects of climate change brought about by CO_2 and other emissions, forests dying as a result of acid rain and air pollution caused by traffic.

3. THE CASE FOR AN EC ENVIRONMENTAL LIABILITY REGIME AND ITS EXPECTED EFFECTS

3.1. IMPLEMENTING THE KEY ENVIRONMENTAL PRINCIPLES OF THE EC TREATY

Environmental liability is a way of implementing the main principles of environmental policy enshrined in the EC Treaty (Article 174(2)), above all the 'polluter pays' principle. If this principle is not applied to covering the costs of restoration of environmental damage, either the environment remains unrestored or the State, and ultimately the taxpayer, has to pay for it. Therefore, an initial objective is to make the polluter liable for the damage he has caused. If polluters have to pay for damage caused, they will cut back pollution up to the point where the marginal cost of abatement exceeds the compensation avoided. Thus, environmental liability results in prevention of damage and in internalisation of environmental costs ([6]). Liability may also lead to the application of more precaution, resulting in avoidance of risk and damage, and may encourage investment in R & D for improving knowledge and technologies.

3.2. ENSURING DECONTAMINATION AND RESTORATION OF THE ENVIRONMENT

In order to make the 'polluter pays' principle really operational, Member States should ensure effective decontamination and restoration or replacement of the environment in cases where there is a liable polluter, by making sure that the compensation which he has to pay will be properly and effectively used to this effect.

3.3. BOOSTING THE IMPLEMENTATION OF EC ENVIRONMENTAL LEGISLATION

If liability exerts the preventive effect described earlier and restoration is ensured when damage does occur, it should also improve compliance with EC environmental legislation. Therefore, the link between the provisions of the EC liability regime and existing environmental legislation is of great importance. Whereas most Member States have introduced national laws that deal with strict liability for damage caused by activities that are dangerous to the environment in one way or another, these laws are very different in scope and often do not cover in a consistent way all damage caused by activities that are known to bear a hazard for the environment. Moreover, these liability regimes are only operational with respect to damage to human health or property, or contaminated sites. Generally, they are not applied to damage to natural resources. It is therefore important that an EC environmental liability regime should also cover damage inflicted upon natural resources, at least those that are already protected by EC law, namely under the wild birds and habitats directives, in the designated areas of the Natura 2000 network ([7]). Member States should ensure the restoration of damage to these protected natural resources in any event, and also in cases where a liability regime could not be applied (for instance, if the polluter cannot be identified), since this is an obligation under the habitats directive. The preventive effects of liability should have a 'boosting' effect in an enlarged Union, thus facilitating the implementation of environmental rules by new Member States.

3.4. BRINGING ABOUT BETTER INTEGRATION

The Treaty of Amsterdam introduced in Article 6 of the EC Treaty the principle that environmental protection requirements must be integrated into the definition and implementation of other Community policies and activities. An EC environmental liability regime covering all Community-regulated activities bearing a risk for the environment (see 4.2.2 for activities to be covered) will bring about better integration of environmental considerations in the different sectors concerned through the internalisation of environmental costs.

([6]) Internalisation of environmental costs means that the costs of preventing and restoring environmental pollution will be paid directly by the parties responsible for the damage rather than being financed by society in general.

([7]) Council Directives 79/409/EEC on the conservation of wild birds (OJ L 103, 25.4.1979, p. 1), and 92/43/EEC on the conservation of natural habitats and wild fauna and flora (OJ L 206, 22.7.1992, p. 7).

3.5. *Improving the functioning of the internal market*

Even if the main objectives of a Community regime are of an environmental nature, this may also contribute to creating a level playing field in the internal market. This is important since most EU trade takes place within the internal market, i.e. intra-EU trade is more significant than extra-EU trade for Member States, and therefore differences in the legal framework and costs faced by companies in the internal market matter more than differences vis-à-vis third countries.

Currently, the existence of any problem of competition in the internal market caused by differences in Member States' environmental liability approaches is still unclear. This may be because national environmental liability systems in the EU are relatively new and have yet to become totally operational.

However, most existing Member States' environmental liability regimes do not cover damage to biodiversity. The economic impact of the latter could conceivably be significantly higher than the impact resulting from existing national liability laws and reach thresholds where concerns about the competitiveness of firms established in one Member State would cause the national authorities to wait for an EU initiative and refrain from imposing unilaterally liability for biodiversity. If so, this would justify EU action also on the grounds of ensuring a level playing field in the internal market.

The considerations above suggest that an EU liability regime should also be designed with a view to minimising possible impacts on the EU industry's external competitiveness ([8]) — an issue which is discussed specifically in Section 7. This is one reason for applying a step-by-step approach when introducing a Community regime (see also Section 6).

3.6. *Expected effects*

It follows from what is said in 3.1 on implementing the 'polluter pays', preventive and precautionary principles, that it is expected that liability creates incentives for more responsible behaviour by firms. However, a number of conditions need to be met for this effect to happen. For instance, experience with the US Superfund legislation (liability for cleaning up contaminated sites) shows the need to avoid loopholes for circumventing liability by transferring hazardous activities to thinly capitalised firms which become insolvent in the event of significant damage. If firms can cover themselves against liability risk by way of insurance, they will not tend to resort to this perverse route. The availability of financial security, such as insurance, is therefore important to ensure that liability is environmentally effective, a concern that is discussed in 4.9. The effectiveness of any legal liability regime requires a workable financial security system, which means that financial security is available for the core elements constituting the regime. Moreover, the effectiveness of liability for environmental damage (as opposed to traditional damage) depends on the capacity of administrative and judicial authorities to treat cases expeditiously, as well as on proper means of access to justice available to the public.

The overall effect of liability is therefore a function of the broader context and specific design of the liability scheme.

([8]) It should be pointed out in this regard that in the framework of environmental liability legislation, which applies also to natural resource damage, the United States applies border-adjusted taxes for the most sensitive sectors, i.e. the oil and chemical industries.

4. POSSIBLE FEATURES OF AN EC ENVIRONMENTAL LIABILITY REGIME

This section provides a description of the possible main features of a Community regime. All or some of these elements will have to be taken into account depending on the option for further action that is chosen (see Section 5).

4.1. NO RETROACTIVITY

For reasons of legal certainty and legitimate expectations, the EC regime should only work prospectively. Damage that becomes known after the entry into force of the EC regime should be covered, unless the act or omission that resulted in the damage has taken place before the entry into force. It should be left to the Member States to deal with pollution from the past. They could establish funding mechanisms to deal with existing contaminated sites or damage to biodiversity in a way which would best fit their national situation, taking into account elements like the number of such sites, the nature of the pollution and the costs of clean-up or restoration. In order to apply the principle of non-retroactivity in a harmonised way, a definition of 'past pollution' will need to be given at a later stage.

Some transaction costs associated with litigation concerning the cut-off point between what is to be considered past pollution and pollution covered by the regime are to be expected. However, a retroactive system would have significantly higher economic impacts.

4.2. THE SCOPE OF THE REGIME

The scope of the regime has to be approached from two different angles: first, the types of damage to be covered, and, second, the activities, resulting in such damage, to be covered. The following subsections set out how this could be dealt with.

4.2.1. *Damage to be covered*

Environmental damage

As the regime concerns environmental liability, environmental damage should be covered. This is not as self-evident as it may seem: several national laws called 'environmental liability law' (or similar names) deal with traditional types of damage, such as personal injury, or property damage, rather than with environmental damage as such. Damage is covered by such laws, if it is caused by activities that are considered dangerous for the environment or if it is caused by effects that result in (traditional) damage via the environment (for instance pollution of air or water). Examples of such legislation are the German Environmental Liability Act of 1990 and the Danish Compensation for Environmental Damage Act of 1994. In some other national laws, impairment of the environment is also covered, next to traditional damage, but hardly any further rules are given to specify this notion.

In this White Paper, two different types of damage are brought together under the heading 'environmental damage', both of which should be covered under a Community regime, namely:

(a) damage to biodiversity;

(b) damage in the form of contamination of sites.

Most Member States have not yet started to explicitly cover biodiversity damage under their environmental liability regimes. However, all Member States have laws or programmes in place to deal with liability for contaminated sites. They are mostly administrative laws aiming at cleaning up polluted sites at the cost of the polluter (and/or others).

Traditional damage

To be coherent, it is important also to cover traditional damage, such as damage to health or property, if it is caused by a dangerous activity as defined under the scope, since in many cases traditional damage and environmental damage result from the same event. Covering only environmental damage under the EC regime while leaving liability for traditional damage entirely to the Member States might result in inequitable results (for instance no or less remedies for health damage than for environmental damage caused by one and the same incident). Moreover, human health — an important policy

objective in its own right — is an interest closely connected with environmental protection: Article 174(1) of the EC Treaty states that Community policy on the environment shall contribute to pursuit (among other things) of the objective of protecting human health.

4.2.2. Activities to be covered

The objective of nearly all national environmental liability regimes is to cover activities ([9]) that bear an inherent risk of causing damage. Many of such activities are currently regulated by Community environmental legislation, or Community legislation that has an environmental objective along with other objectives.

A coherent framework for the liability regime needs to be linked with the relevant EC legislation on protection of the environment. In addition to ensuring restoration of the environment where this is currently not possible, the liability regime would therefore also provide extra incentives for a correct observation of national laws implementing Community environmental legislation. An infringement of such legislation would not only result in administrative or penal sanctions, but also, if damage results from it, in an obligation on the causer (polluter) to restore the damage or pay compensation for the lost value of the injured asset. This approach of a closed scope, linked with existing EC legislation, moreover, has the advantage of ensuring an optimal legal certainty.

The activities to be covered, with respect to health or property damage and contaminated sites, could be those regulated in the following categories of EC legislation: legislation which contains discharge or emission limits for hazardous substances into water or air; legislation dealing with dangerous substances and preparations with a view (also) to protecting the environment; legislation with the objective to prevent and control risks of accidents and pollution, namely the IPPC (integrated pollution prevention and control) directive and the revised Seveso II directive; legislation on the production, handling, treatment, recovery, recycling, reduction, storage, transport, transfrontier shipment and disposal of hazardous and other waste; legislation in the field of biotechnology; and legislation in the field of transport of dangerous substances. In the further shaping of an EC initiative, the scope of activities will need to be defined with more precision, for instance by setting up a list of all the pieces of relevant EC legislation with which the liability regime should be linked. Moreover, some of these activities, such as activities with respect to genetically modified organisms (GMOs), are not dangerous per se, but have the potential, in certain circumstances, to cause damage to health or significant environmental damage. This could be the case, for example, in the event of an escape from a high-level containment facility or from unforeseen results of a deliberate release. For this reason, it is considered appropriate for such activities to come within the scope of a Community-wide liability regime. In these cases, the precise definition of the regime, for instance the defences to be allowed, might not be the same for all activities related to GMOs, but may have to be differentiated according to the relevant legislation and the activities concerned.

An important factor to be taken into account with respect to biodiversity damage is the existence of specific Community legislation to conserve biodiversity, namely the wild birds directive and the habitats directive. These directives establish a regime, to be implemented through the Natura 2000 network, of special protection of natural resources, namely those important for the conservation of biodiversity. They contain, among other things, requirements that significant damage to protected natural resources should be restored. These obligations are addressed to the Member States. The environmental liability regime would provide the tool to make the polluter pay for the restoration of such damage. Since the objective of the two directives is the protection of the natural resources concerned, *irrespective of the activity that causes damage to them*, and since such resources are vulnerable and can, therefore, also rather easily be damaged by other than inherently dangerous activities, a liability regime applicable to biodiversity damage should also cover other than dangerous activities which

([9]) Dealing with substances that bear such an inherent risk is also referred to, in this White Paper, as (dangerous) activities.

cause significant damage in protected Natura 2000 areas. However, the type of liability in this case should be different from the liability applicable to damage caused by dangerous activities, as is explained in 4.3.

4.3. THE TYPE OF LIABILITY, THE DEFENCES TO BE ALLOWED AND THE BURDEN OF PROOF

Strict liability means that fault of the actor need not be established, only the fact that the act (or the omission) caused the damage. At first sight, fault-based liability ([10]) may seem more economically efficient than strict liability, since incentives towards abatement costs do not exceed the benefits from reduced emissions. However, recent national and international environmental liability regimes tend to be based on the principle of strict liability, because of the assumption that environmental objectives are better reached that way. One reason for this is that it is very difficult for plaintiffs to establish fault of the defendant in environmental liability cases. Another reason is the view that someone who is carrying out an inherently hazardous activity should bear the risk if damage is caused by it, rather than the victim or society at large. These reasons argue in favour of an EC regime based, as a general rule, on strict liability. As mentioned in 4.2.2, damage to biodiversity should be covered by liability, whether it is caused by a dangerous activity or not. It is proposed, however, to apply fault-based instead of strict liability to such damage *if it is caused by a non-dangerous activity*. Activities carried out in conformity with measures implementing the wild birds and habitats directives which aim at safeguarding biodiversity would not give rise to liability of the person carrying out the activity, other than for fault. Such activities can, for instance, take place under an agri-environmental contract in accordance with the Council regulation on support for rural development ([11]). The State will be responsible for restoration or compensation of biodiversity damage caused by a non-dangerous activity, in case fault of the causer cannot be established.

In the framework of an environmental liability regime, consistency should be ensured with other Community policies and measures implementing these policies.

The effectiveness of a liability regime depends not only on the basic character of the regime but also on such elements as the allowed defences and the division of the burden of proof. The positive effects of strict liability should therefore not be undermined by allowing too many defences, or by an impossible burden of proof on the plaintiff.

Defences

Commonly accepted defences should be allowed, such as act of God (*force majeure*), contribution to the damage or consent by the plaintiff, and intervention by a third party (an example of the latter defence is the case that an operator caused damage by an activity that he conducted following a compulsory order given by a public authority) ([12]).

Several interested parties, in particular economic operators, have expressed the view that a defence in relation to damage caused by releases authorised through EC regulations, for state of the art and/or for development risk should also be allowed. For economic reasons, they need predictability regarding their liabilities to third parties, but the occurrence and extent of these liabilities are subject to ongoing developments in any event (e.g. changes in legislation and case-law, medical progress, etc.). Defences like those mentioned here are normally not allowed by existing national environmental liability regimes of EU Member States. When deciding on these defences, all relevant impacts should be considered, among others possible effects on SMEs (see also Section 7).

Burden of proof

In environmental cases, it may be more difficult for a plaintiff and easier for a defendant to establish facts concerning the causal link (or

([10]) Fault-based liability applies when an operator has acted wrongly intentionally, by negligence, or by insufficient care. Such an act (or omission) may involve non-compliance with legal rules or with the conditions of a permit, or may occur in any other form.

([11]) Council Regulation (EC) No 1257/1999 (OJ L 160, 26.6.1999, p. 80).

([12]) Certain procedural aspects can also be relevant with a view to contesting liability, such as the lack of jurisdiction of the court seized or questions of limitation.

the absence of it) between an activity carried out by the defendant and the damage. Therefore, provisions exist in several national environmental liability regimes to alleviate the burden of proof concerning fault or causation in favour of the plaintiff. The Community regime could also contain one or other form of alleviation of the traditional burden of proof, to be more precisely defined at a later stage.

Application of equity

Circumstances might occur which would make it inequitable for the polluter to have to pay the full compensation for the damage caused by him. Some room might be granted to the court (or any other competent body, e.g. an arbiter) to decide — for instance in cases where the operator who caused the damage can prove that this damage was entirely and exclusively caused by emissions that were explicitly allowed by his permit — that part of the compensation should be borne by the permitting authority, instead of the polluter. Further criteria would need to be defined for such a provision, for instance that the liable operator had done everything possible to avoid the damage.

4.4. WHO SHOULD BE LIABLE?

The person (or persons) who exercise control of an activity (covered by the definition of the scope) by which the damage is caused (namely the operator) should be the liable party under an EC environmental liability regime ([13]). Where the activity is carried out by a company in the form of a legal person, liability will rest on the legal person and not on the managers (decision-makers) or other employees who may have been involved in the activity. Lenders not exercising operational control should not be liable.

4.5. CRITERIA FOR DIFFERENT TYPES OF DAMAGE

Different approaches are indicated to deal with the different types of damage. For biodiversity damage, liability rules and criteria do not exist to any meaningful extent, so therefore they need to be developed. With respect to liability for contaminated sites, national laws and systems exist, but they are quite different. Traditional damage should be dealt with in a coherent way in relation to the other, environmental, forms of damage, which can only be achieved if the fundamental rules are the same for each type of damage.

4.5.1. BIODIVERSITY DAMAGE

Since this area is not generally covered by Member State liability rules, an EC liability regime could make a start by covering this kind of damage within the limits of existing Community biodiversity legislation.

Which biodiversity damage should be covered?

Damage to biodiversity, which is protected in Natura 2000 areas, based on the habitats and wild birds directives, should be covered. Such damage could take the form of damage to habitats, wildlife or species of plants, as defined in the annexes to the directives concerned.

When should damage to biodiversity be covered?

There should be a *minimum threshold* for triggering the regime: *only significant damage* should be covered. Criteria for this should be derived, in the first place, from the interpretation of this notion in the context of the habitats directive ([14]).

How to value biodiversity damage and ensure restoration at reasonable cost?

Economic valuation of biodiversity damage is of particular importance for cases where damage is irreparable. But if restoration of damage is feasible, there also have to be valuation criteria for the damaged natural resource, in order to avoid disproportionate costs of restoration. A cost–benefit or reasonableness test will have to be undertaken in each separate case. The starting point for such a test, for cases where restoration is feasible, should be the *restoration costs*

([13]) However, Member States could make other parties liable also, on the basis of Article 176 of the EC Treaty.

([14]) A Commission services document on the interpretation of this and other notions in the context of Article 6 of the habitats directive will be published shortly.

(including the costs of assessing the damage). For valuing the benefits of the natural resource ([15]), a system needs to be elaborated for which inspiration could be gathered from certain systems that exist or are being developed at the regional level (e.g. Andalusia, Hessen).

If restoration is technically not or only partially possible, the valuation of the natural resource has to be based on the costs of alternative solutions, aiming at the establishment of natural resources equivalent to the destroyed natural resources, in order to re-establish the level of nature conservation and biological diversity embodied in the Natura 2000 network.

Valuation of natural resources may be more or less expensive, depending on the method used. Economic valuation methods, such as contingent valuation, travel cost and other forms of revealed preference techniques that necessitate surveys involving a large number of people can be expensive if carried out in every case. The use of 'benefit transfer' techniques can, however, significantly reduce the cost. The development of benefit transfer databases, such as the 'Environmental valuation resource inventory' (EVRI), which contain relevant valuation material, is particularly important. These databases can be used to provide a context to the problem and as a source of directly comparable valuation.

How to ensure a minimum level of restoration?

Restoration should aim at the return to the state of the natural resource before the damage occurred. To estimate this state, historical data and reference data (the normal characteristics of the natural resource concerned) could be used. Replication of the quality and quantity of the natural resources will mostly not be possible, or only at extreme cost. Therefore, the aim should rather be to bring the damaged resources back to a comparable condition, considering also factors such as the function and the presumed future use of the damaged resources.

The impact of damage to biodiversity on costs of prevention and restoration

Biodiversity damage, in the sense of this White Paper, may only occur in areas protected under the habitats and wild birds directives which, once the Natura 2000 network is established, are expected to cover up to around 10 % of the EC territory. In these areas, only environmentally friendly activities may be carried out. This means that the bulk of environmental damage to these areas may only be caused by plants operating dangerous activities in neighbouring areas. But these plants are already covered by the other pillars of the proposed regime which address damage in the form of traditional damage and contamination of sites. It follows that the only additional cost for these activities due to biodiversity coverage is that related to prevention of damage to, and restoration of, biodiversity according to the criteria foreseen in the White Paper.

Given that dangerous activities are not supposed to operate in protected areas, biodiversity damage occurring there will only exceptionally be caused by IPPC industries or large plants for which costs and competitiveness are a critical issue. Hence, the impact of liability for biodiversity damage will be minimal for these industries. On the other hand, the kind of environmentally friendly activities allowed to operate in the protected areas are, by their very nature, likely to internalise cheaply the desired levels of prevention and restoration.

4.5.2. Contaminated sites

Most Member States have special laws or programmes to deal with the clean-up of contaminated sites, both old and new. The Community regime should aim at implementing the environmental principles ('polluter pays', prevention and precaution) for new contamination and at a certain level of harmonisation with respect to clean-up standards and clean-up objectives. For contaminated sites, the dangerous activities' approach would apply and the regime would be triggered only if the contamination is significant. Contaminated sites include the soil, surface water and groundwater. Where an area protected under the biodiversity

([15]) For instance, the presence of the middle spotted woodpecker (see cover page), a protected species under the wild birds directive.

legislation is part of a contaminated site, the regime for biodiversity damage would apply to that area, in addition to the regime for contaminated sites. This might mean that restoration of the natural resource has to be carried out after decontamination of the site.

Clean-up standards

These are standards to evaluate and decide *whether clean-up of a contaminated site is necessary*. As with biodiversity, only significant damage should be covered. The main qualitative criterion for this will be: does the contamination lead to a serious threat to man and the environment?

Clean-up objectives

These should define the *quality of soil and water at the site to be maintained or restored*. The main objective should be the removal of any serious threat to man and environment. Acceptable thresholds would be determined according to best available techniques under economically and technically viable conditions (as under the IPPC directive). Another objective should be to make the soil *fit for actual and plausible future use* of the land. These qualitative objectives should, where possible, be combined with quantified numerical standards indicating the soil and water quality to be achieved. If clean-up is not feasible for economic or technical reasons, full or partial containment might be a possibility.

4.5.3. Traditional damage

The definition of traditional damage, namely personal and property damage and possibly economic loss, will remain under the Member States' jurisdiction. All the elements of the regime dealt with in this White Paper should, however, also be applied to traditional damage, with the exception of the specific rules on access to justice (4.7) and the specific criteria for restoration and valuation of environmental damage (4.5.1 and 4.5.2). For traditional damage, the EC regime should not introduce a notion of 'significant damage'.

4.5.4. The relation with the product liability directive ([16])

The product liability directive deals with damage to persons and goods (i.e. traditional damage) caused by a defective product, but it does not cover environmental damage. Overlaps between the two liability regimes cannot be excluded in the field of traditional damage. This could be the case, for example, when damage is caused by a product containing dangerous substances which results in being a defective product due to a higher presence of chemical substances than allowed under EC environmental legislation. In such a case, the product liability directive prevails as the legislation applicable when compensation is sought for traditional damage ([17]).

4.6. Ensuring effective decontamination and restoration of the environment

An obligation common to biodiversity damage and contamination of sites should be that damages or compensation paid by the polluter for restoration or clean-up have to be effectively spent for that purpose. If restoration of the damage is not or only partially possible for technical or economic (cost–benefit) reasons, compensation amounting to the value of the unrestored damage should be spent on comparable projects of restoring or improving protected natural resources. Determination of comparable projects by the competent authorities should depend on a thorough analysis of the environmental benefits gained.

4.7. Access to justice

The case of damage to the environment is different from the case of traditional damage, where victims have the right to raise a claim with the competent administrative or judicial bodies to safeguard their private interests. Since the protection of the environment is a

([16]) Council Directive 85/374/EEC on the approximation of the laws, regulations and administrative provisions of the Member States concerning liability for defective products (OJ L 210, 7.8.1985, p. 29), amended by Directive 1999/34/EC (OJ L 141, 4.6.1999, p. 20).

([17]) The Commission has recently published a Green Paper on product liability to gather information on the actual application of the directive and in order to initiate a debate about the possible need for a substantial revision of the directive.

public interest, the State (including other parts of the polity) has the first responsibility to act if the environment is or threatens to be damaged. However, there are limits to the availability of public resources for this, and there is growing acknowledgement that the public at large should feel responsible for the environment and should under certain circumstances be able to act on its behalf. The Commission has referred to the need for such an enhanced access to justice in its communication to the Council and Parliament entitled 'Implementing Community environmental law' ([18]).

An important legal instrument in this field is the Århus Convention ([19]). It includes specific provisions on access to justice that form a basis for different actions by individuals and public interest groups. These actions include the following: to challenge a decision of a public authority before a court of law or another independent and impartial body established by law (the right of administrative and judicial review); to ask for adequate and effective remedies, including injunctions; and to challenge acts and omissions by private persons and public authorities which contravene environmental law ([20]). An EC environmental liability regime could contribute to the implementation of the Convention in Community law, along the following lines.

4.7.1. 'Two-tier approach': the State should be responsible in the first place

Member States should be under a duty to ensure restoration of biodiversity damage and decontamination in the first place (*first tier*) by using the compensation or damages paid by the polluter. Public interest groups promoting environmental protection (and meeting the relevant requirements under national law) shall be deemed to have an interest in environmental decision-making ([21]). In general, public interest groups should have the right to act on a subsidiary basis, i.e. only if the State does not act at all or does not act properly (*second tier*). This approach should apply to administrative and judicial review and to claims against the polluter.

4.7.2. Urgent cases (injunctions, costs of preventive action)

In urgent cases, interest groups should have the right to ask the court for an injunction directly in order to make the (potential) polluter act or abstain from action, to prevent significant damage or to avoid further damage to the environment. They should be allowed, for this purpose, to sue the alleged polluter, without going to the State first. Injunctive relief could aim at the prohibition of a damaging activity or at ordering the operator to prevent damage before or after an incident, or at making him take measures of reinstatement. It is up to the court to decide if an injunction is justified.

The possibility to bring claims for reimbursement of reasonable costs incurred in taking urgent preventive measures (i.e. to avoid damage or further damage) should be granted, in a first instance, to interest groups, without them having to request action by a public authority first.

4.7.3. Ensuring sufficient expertise and avoiding unnecessary costs

Only interest groups complying with objective qualitative criteria should be able to take action against the State or the polluter. Restoration of the environment should be carried out in cooperation with public authorities and in an optimal and cost-effective way. The availability of specific expertise and the involvement of independent and recognised experts and scientists can play a fundamental role.

Since costs will inevitably be involved in making use of rights of access to justice, it would

([18]) 'Better access to courts for non-governmental organisations and individuals would have a number of helpful effects in relation to the implementation of Community environmental law. First, it will make it more likely that, where necessary, individual cases concerning problems of implementation of Community law are resolved in accordance with the requirements of Community law. Second, and probably more important, it will have a general effect of improving practical application and enforcement of Community environmental law, since potentially liable actors will tend to comply with its requirements in order to avoid the greater likelihood of litigation.' (COM(96) 500 final, p. 12.)

([19]) UN/ECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters, that was adopted and signed, also by the Community, at the fourth ministerial conference in Århus (Denmark), 23 to 25 June 1998.

([20]) Article 9 of the Århus Convention.

([21]) Article 2(5) of the Århus Convention.

be worthwhile to explore how *out-of-court solutions*, such as arbitration or mediation, could be used in this context. Such solutions aim at saving time and costs.

4.8. THE RELATION WITH INTERNATIONAL CONVENTIONS

There are a growing number of international conventions and protocols dealing with (environmental) liability in several fields. There is, for instance, a long-standing body of conventions and protocols concerning damage caused by nuclear activities, as well as in the field of oil pollution at sea. A more recent convention deals with damage caused by maritime transport of hazardous and noxious substances, and Member States are currently considering its possible ratification. All these conventions are based on a strict but limited liability and the concept of a second tier of compensation. In the case of oil pollution, the second tier is a fund, fed jointly by the contributing oil companies in the importing States, which compensates — also up to a certain limit — liabilities exceeding the shipowner's liability. In the light of recent marine pollution accidents, it should be examined if the international regime should be complemented by EC measures. The Commission will prepare a communication on oil tanker safety (June 2000) examining, *inter alia*, the need for a complementary EC regime on liability for oil spills. Different options in this regard will be examined, taking into account the specific character of the sector. More generally, a future EC regime on environmental liability would have to clarify to what extent there is room for application in those areas that are already covered by international law.

4.9. FINANCIAL SECURITY

Insurability is important to ensure that the goals of an environmental liability regime are reached.

Strict liability has been found to prompt spin-offs or delegation of risky production activities from larger firms to smaller ones in the hope of circumventing liability. These smaller firms, which often lack the resources to have risk-management systems as effective as their larger counterparts, often become responsible for a higher share of damage than their size would indicate. When they cause damage, they are also less likely to have the financial resources to pay for redressing it. Insurance availability reduces the risks to which companies are exposed (by transferring part of them to insurers). They should therefore also be less inclined to try to circumvent liability ([22]).

Insurance availability for environmental risks, and in particular for natural resource damage, is likely to develop gradually. As long as there are not more widely accepted measurement techniques to quantify environmental damage, the amount of the liability will be difficult to predict. However, the calculation of risk-related tariffs is important for the fulfilment of liabilities under insurance contracts and insurance companies are required to establish adequate technical provisions at all times. Developing qualitative and reliable quantitative criteria for recognition and measurement of environmental damage will improve the financial security available for the liability regime and contribute to its viability, but this will not occur overnight and is likely to remain expensive. This justifies a cautious approach in setting up the liability regime.

Capping liability for natural resource damages is likely to improve the chances of early development of the insurance market in this field, though it would erode the effective application of the 'polluter pays' principle.

When looking at the insurance market — insurance being one of the possible ways of having financial security, alongside, among others, bank guarantees, internal reserves or sector-wise pooling systems — it appears that coverage of environmental damage risks is still relatively undeveloped, but there is clear progress being made in parts of the financial markets specialising in this area. One example is the development of new types of insurance policies for the coverage of costs involved in the clean-up of contaminated sites, for instance in the Netherlands.

([22]) On the other hand, a company that is able to insure against the damages it can potentially cause to natural resources still has an interest in behaving responsibly. This is so because, to get an insurance policy, a company normally has to go through an environmental audit, is often required to have an effective risk-management system, and, if insurance payments are required, must frequently shoulder part of the bill.

The insurability of environmental risks is essential for financial security but depends considerably on the legal certainty and transparency provided by the liability regime. The environmental liability regimes of nearly all the Member States, however, have not made financial security a legal requirement. Where this has been done, for instance in the German environmental liability law, the implementation of the provision concerned has run into difficulties, which have so far prevented the necessary implementing decree from being established.

The concerns of the financial sectors are one reason for the step-by-step approach mentioned in this White Paper (see Section 6). The closed scope of dangerous activities, the limitation to those natural resources which are already protected by existing Community law and the limitation to significant damage are all aspects which contribute to making the risks arising from the regime better calculable and manageable. Moreover, *the EC regime should not impose an obligation to have financial security*, in order to allow the necessary flexibility as long as experience with the new regime still has to be gathered. The provision of financial security by the insurance and banking sectors for the risks resulting from the regime should take place on a voluntary basis. The Commission intends to continue discussions with these sectors in order to stimulate the further development of specific financial guarantee instruments.

5. DIFFERENT OPTIONS FOR COMMUNITY ACTION

A range of different options and instruments have been considered in the course of the process of developing an approach to environmental liability. The main ones are described in this section, as well as their advantages and disadvantages.

5.1. COMMUNITY ACCESSION TO THE LUGANO CONVENTION

The Council of Europe Convention on Civil Liability for Damage resulting from Activities Dangerous to the Environment was established in 1993. The Commission and all Member States participated in the negotiations. The Convention contains a regime for environmental liability that covers all types of damage (both traditional damage, such as personal injury and property damage, and impairment of the environment as such) when caused by a dangerous activity. Dangerous activities in the fields of dangerous substances, biotechnology and waste are further defined. The scope is open in the sense that activities other than those explicitly referred to may also be classified as dangerous. A summary on the history and contents of and signatories to this Convention is available to the public.

Community accession to this Convention would have the advantage of being in accordance with the subsidiarity principle at international level (new EC legislation should not be established in so far as the matter concerned can be dealt with by Community accession to an existing international convention). Moreover, the Convention has a comprehensive coverage (all types of damage resulting from dangerous activities) and a wide and open scope, which has the merit of presenting a coherent system and of treating operators of all dangerous activities in the same way. Six Member States ([23]) have signed the Convention, whereas others may be considering doing so. Several Member States ([24]) have already prepared legislation to implement the Convention, or are in the process of preparing ratification. However, some other Member States ([25]) do not intend to sign or ratify it. The Convention is also open to accession by central and east European countries, even by countries which are not members of the Council of Europe, so that it could have an important international spread. Accession by the Community could encourage other countries to accede.

Comparing the regime of the Lugano Convention with the environmental liability regimes of the Member States, a general impression is that the Convention goes further than most Member States in some respects (namely in that it explicitly covers environmental damage as such). Its open scope of dangerous activities also goes further than several Member States which have regimes with a closed and more limited scope. These Member States, and most of industry, feel that the scope of the Lugano Convention is too wide and gives too little legal certainty and that its definitions, especially in the field of environmental damage, are too vague. The Convention does cover such damage, but in a rather unspecific way. For instance, it does not require restoration nor does it give criteria for restoration or economic valuation of such damage. Thus, if accession to the Convention was envisaged, an EC act would be needed to supplement the Lugano regime in order to bring more clarity and precision to this new area where liability is concerned.

5.2. A REGIME FOR TRANSBOUNDARY DAMAGE ONLY

Member States are increasingly aware of damage caused across their boundaries, not least because of public sensitivity to pollution originating in another country. Awareness of transboundary problems is likely to increase further as the implementation of the habitats directive and Natura 2000 progresses and it is found that many protected areas straddle borders between Member States. Even if both pollution and immediate damage to one of these areas are within one Member State, the damage may also have implications for other Member States, for instance by damaging the integrity of a species or a habitat as a whole. The pollution of rivers or lakes also often has a transboundary dimension.

([23]) Greece, Italy, Luxembourg, the Netherlands, Portugal and Finland.

([24]) Greece, the Netherlands, Austria, Portugal and Finland.

([25]) Denmark, Germany and the UK.

The main argument used in favour of a 'transboundary only' regime is that, on subsidiarity grounds, there are insufficient arguments for applying a liability regime to problems within one Member State, but that transboundary problems are indeed better dealt with at EC level. The disadvantage is that a system that addresses only transboundary problems would leave a serious gap where liability for biodiversity damage is concerned, since this is not yet covered at all by most Member States. The important objective of strengthening the application of Community environmental legislation could not be reached by a regime which would not cover most of the potential infractions of such legislation, namely all those taking place within one Member State. A transboundary only system would also lead to subjects being treated completely differently within one Member State, since some, who happen to be involved in a case of transboundary damage, could be liable under the EC transboundary only regime, whereas others, who are conducting the same activity in the same country and causing similar damage, could walk free if the national regime happened not to cover such a case. This might even call into question the legitimacy of such a regime under the principle of equal treatment as developed in the case-law of the Court of Justice of the European Communities.

5.3. *Member States' action guided by a Community recommendation*

This option, for instance a recommendation linked with existing Community legislation relevant in this field, might have the support of those who are not convinced of the need for a legally binding instrument. They might feel, for instance, that there is insufficient evidence for Member State laws not being adequate enough to deal with the relevant environmental problems. A recommendation, being a non-binding instrument without enforcement mechanisms, would bring less cost for operators but also less benefit for the environment, among other things in cases of transboundary damage inside the Community, than a binding instrument. Similar arguments would apply to the use of environmental (voluntary) agreements in this context.

5.4. *A Community directive*

The main differences between a Community directive and Community accession to the Lugano Convention are that the scope of Community action can be better delimited and the regime for biodiversity damage can be better elaborated, in accordance with the relevant Community legislation. Both differences result in more legal certainty than provided by the Lugano Convention. It should be noted that, even if the Community does not accede to the Lugano Convention, the latter can provide an important source of inspiration for a future Community directive. As far as the application of a liability regime to non-EU Member States is concerned, it is clear that a Community directive on environmental liability would be taken into account in the enlargement process of the applicant countries, whereas the situation in these countries with respect to environmental liability would also be examined.

Comparing this type of Community action with the more limited and non-binding options described in 5.2 and 5.3, the former is the option with higher added value in terms of better implementation of the EU environmental principles and law, and of effective restoration of the environment.

5.5. *Liability sector-wise, namely in the area of biotechnology*

On several occasions, the European Parliament has asked the Commission to insert liability provisions into existing directives in the field of biotechnology. The option mentioned in 5.4 could be pursued by proposing more focused liability provisions applicable to specific sectors (e.g. biotechnology), instead of a horizontal approach, covering all (potentially) hazardous activities in an equal way.

A horizontal approach has the advantage of providing the general framework in a single act. Provided that the activities covered pose similar environmental risks and raise comparable economic issues, this approach would not only be more consistent but also more efficient. A sector-wise approach would not ensure a coherent system or an equal application of

the ‘polluter pays’, preventive and precautionary principles to activities that are comparable in the sense that they pose a risk to man and the environment. Moreover, the objective of better implementation of all relevant pieces of Community environmental legislation would not be reached if liability provisions were introduced only in one specific area of legislation. Finally, it would be difficult to explain to a sector why it should be singled out for being subject to liability provisions, different from other sectors posing similar risks. For all these reasons, a horizontal environmental liability regime is to be preferred.

6. *SUBSIDIARITY AND PROPORTIONALITY*

The EC Treaty requires Community policy on the environment to contribute to preserving, protecting and improving the quality of the environment, and to protecting human health (Article 174(1)). This policy must also aim at a high level of protection, taking into account the diversity of situations in the various regions of the Community. *It shall be based* on the precautionary principle and on the principle that preventive action should be taken, that environmental damage should as a priority be rectified at source and that the polluter should pay (Article 174(2)). All these principles, which are, according to the wording of the Treaty (see italic), binding for the EU institutions, are currently not being implemented in an optimal way throughout the Community. One reason for this is that there is a gap in most Member States' liability regimes as far as biodiversity damage is concerned (see also in this context Section 3).

Moreover, national legislation cannot effectively cover issues of transboundary environmental damage within the Community, which may affect, among others, watercourses and habitats, many of which straddle frontiers. Therefore, an EC-wide regime is necessary in order to avoid inadequate solutions to transfrontier damage.

Member States apply different instruments to implement their environmental liability rules. Some rely more on administrative or public law, whereas others use civil law to a larger extent. They all use a mixture of both. *An EC regime should aim at fixing the objectives and results, but the Member States should choose the ways and instruments to achieve these*.

In accordance also with the subsidiarity and proportionality principles, an EC regime — to be based on Article 175 of the Treaty — could be a framework regime containing essential minimum requirements, to be completed over time with other elements which might appear necessary on the basis of the experience gathered with its application during the initial period *(step-by-step approach)*.

In case the instrument for establishing the regime were to be a directive, a coherent application of the system throughout the Community will be ensured through the Commission's monitoring of EC law and the case-law of the Court of Justice of the European Communities.

7. THE OVERALL ECONOMIC IMPACT OF ENVIRONMENTAL LIABILITY AT EC LEVEL

An EC regime along the lines of the White Paper would differ in significant respects from existing regimes. Therefore, past experience is insufficient to support any strong views on the overall economic impact of the EC regime, including its external competitiveness impact. The Commission will continue its research in this area and launch further studies on the economic and environmental impact of environmental liability. The findings of these studies will be profoundly assessed and given due weight in the preparation of the Commission's future initiatives in this field. However, at this point, evidence on existing liability regimes offers a useful general analytical framework.

The available evidence on the overall impact of environmental regulation on industry competitiveness suggests that no significant negative impact is discernible. There is also available data on the impact of environmental liability regimes. The annual total clean-up costs, excluding natural resource damage costs, of the retroactive ([26]) US Superfund represent some 5 % of the total amount spent each year in the United States to comply with all federal environmental regulations. No overall figures are available on the costs of natural resource damage for the US Superfund. As concerns the environmental liability regimes in place in Member States, available evidence suggests that they have not led to any significant competitiveness problems.

While we are unsure of the effects on external competitiveness of an EC liability regime, it must be taken into consideration that most OECD countries have environmental liability legislation of some kind. Therefore, an EC environmental liability regime will not amount to the adoption by the EU of a unilateral standard of environment protection ([27])

([26]) The White Paper argues against retroactive liability which, all else being the same, has higher cost impacts.

([27]) In this context, it is relevant to note that most problems of competitiveness and delocalisation present themselves among developed countries rather than between developing and developed ones (a conclusion that is confirmed in the recent WTO study on trade and environment, 'Trade and the environment', *Special Studies*, WTO, 1999). Therefore, since most OECD countries already have some kind of environmental liability legislation, the impact on external competitiveness of an EC liability regime is likely to be limited.

This does not mean that the international competitiveness of EU industry, and in particular of export-oriented industries and of sectors facing significant competition from imports, should not be safeguarded by all means possible. There are ways to offset potential external competitiveness problems that might be raised by differences in liability standards at international level compatible with world trade rules.

As regards SMEs, they often cause more environmental damage than their size would indicate, possibly due to a lack of resources. From this perspective, they might experience a more substantial impact. Undesirable side effects such as an increase in the share of damage caused by SMEs could be mitigated by more targeted use of national or EC support mechanisms aimed at facilitating the adoption by SMEs of cleaner processes.

The proposed approach to liability protects economic operators in the financial sector from liability unless they have operational responsibilities. Undesirable negative impacts on this sector are therefore unlikely. Provided legal certainty with respect to liability and transparency are assured, the impact, in particular on the insurance sector, should be positive over time, as experience is gained with the working of the regime and new markets for insurance products emerge.

The effect of environmental liability on employment is also a relevant issue. The available research on the overall impact of environmental regulation suggests that, while jobs in particular industries may rise or fall, total employment will not be systematically affected ([28]).

While there are no available empirical studies on the specific impact of environmental liability on employment, it is clear that there might be some negative impacts as enterprises shift from more environmentally damaging activities and processes to cleaner ones. However, this impact is likely to be counterbalanced. The economic essence of liability is that it provides incentives to increase levels of prevention. It is therefore to be expected that employment in

([28]) See, for instance, the benchmark study, 'Jobs, competitiveness and environmental regulation: what are the real issues?', Repetto, R., World Resources Institute, March 1995.

industries providing and using clean technologies and related services will benefit from environmental liability. As insurance for natural resource damage develops, more jobs should also be created in this sector.

The key concept here is sustainable development, taking into account in a balanced way the economic, social and environmental dimensions.

Finally, it must be recalled that the use of policy instruments often generates costs even if they yield a net benefit. It is therefore necessary to pursue the minimisation of costs associated with predetermined goals.

In the case of liability, transaction costs, i.e. the costs of reaching and enforcing rules, are a matter of specific consideration. Three cases can be mentioned in this respect. Firstly, the case of the United States, where litigation is admittedly more widespread than in Europe, and where liability laws have entailed high transaction costs, mainly legal fees, to the tune of 20 % of total enforcement and compensation costs. Secondly, for the strict environmental liability systems in the Member States, there is no evidence that they have given rise to an increase in claims or transaction costs. Finally, there is the experience in the Community with the introduction of the product liability directive (see footnote 16). A study report on the first period of application of this directive did not find any significant increase in the number or pattern of claims. It can be concluded from this that, when shaping the features of an environmental liability regime, it is important to look at the reasons for the differences in transaction costs between the different systems, and to avoid features that would, in particular, contribute to such costs.

Rules concerning direct access to justice by parties other than public authorities should also be assessed in this light. The application of out-of-court solutions could be beneficial in this context. Also, clean-up and restoration standards should be assessed in the light of the costs they would be likely to generate.

In order to be able to deal with historical and other forms of pollution for which liability would not be a suitable instrument, for instance in the case of diffuse damage or in cases where the polluter cannot be identified, Member States could use — as some already do — other instruments, such as impact fees levied on polluting activities or funds established at national or regional level.

8. CONCLUSION

This White Paper has sought to assess different options for Community action in the field of environmental liability. On the basis of the analysis set out in this White Paper, the Commission considers as the most appropriate option that of a Community framework directive on environmental liability, providing for strict liability — with defences — with respect to traditional damage (namely damage to health and property) and environmental damage (contamination of sites and damage to biodiversity in Natura 2000 areas) caused by EC-regulated dangerous activities, and fault-based liability for damage to such biodiversity caused by non-dangerous activities. This approach would provide the most effective means of implementing the environmental principles of the EC Treaty, in particular the 'polluter pays' principle.

The details of such a framework directive should be further elaborated in the light of the consultations to be held.

The Commission invites the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions, as well as interested parties, to discuss and comment on the White Paper. Comments can be sent to the Commission at the following address:

Directorate-General for the Environment, Legal Affairs Unit (DG ENV.B.3), rue de la Loi/Wetstraat 200, B-1049 Brussels,

or sent by e-mail to

Carla.DEVRIES@cec.eu.int or
Charlotta.COLLIANDER@cec.eu.int

before 1 July 2000.

Annex 1

STUDY OF CIVIL LIABILITY SYSTEMS FOR REMEDYING ENVIRONMENTAL DAMAGE

EXECUTIVE SUMMARY

by McKenna & Co., London, June 1996

INTRODUCTION

This final report covers the legal liability systems of 19 different countries with regard to 'remedying' environmental damage as at December 1995. Although the original terms of reference were limited to consideration of civil liability, administrative and criminal liability have also been considered in some depth in order to provide a representative overall view of 'environmental liability' systems in place.

CIVIL LIABILITY

All the countries considered have a form of classical civil liability based on the fundamental principle that where a person causes damage to another with some degree of fault (usually negligence) that damage should be compensated. These rules are expressed either as part of a civil code or through common law developed through case-law or through enactments formalising common law. The classic civil liability systems in a number of countries have been developed to introduce forms of strict liability for environmental damage where, for example, hazardous activities are being undertaken.

Some countries have enacted specific laws to provide a basis for claiming compensation for environmental damage suffered. The first countries to take this step were Norway and Sweden. Significantly, the other Scandinavian countries have also now introduced specific environmental civil compensation laws. Among others, Germany also has such a law and Austria is due to introduce one based mainly on the Lugano Convention on Civil Liability for Damage resulting from Activities Dangerous to the Environment of 1993. Many of these laws are recent and therefore experience of their use is limited. The German legislation has been particularly underused.

The specific environmental compensation laws impose strict liability and are directed towards environmental issues. Some are made to apply only to certain industrial activities or installations. This is, for example, the case with the Danish and German legislation, both of which list in an annex the industries to which the legislation applies. In contrast, the Finnish and Swedish legislation applies to any activity which results in damage to the environment.

ADMINISTRATIVE AND CRIMINAL LIABILITY

The majority of environmental regulation in the countries considered, both in terms of the quantity of legislation and practical measures, operates through administrative law which is supported by the availability of criminal sanctions involving fines and/or imprisonment where breaches of the rules occur. In some countries, such as the Netherlands, administrative fines are also available.

A common characteristic is the use of administrative licensing or authorisations, but countries differ in the way in which such systems have been developed. Some countries have a number of administrative enactments and administrative bodies which control the activities of certain industries or environmental sectors. This often operates on a federal, regional or county basis. Other countries operate such systems under the control of a central 'environmental protection agency' which exerts control over most sectors of the environment and most industrial activities in conjunction with local authorities**.** The UK is at present undergoing transition from a sector-based approach to control mainly under the Environment Agency, although local authorities retain certain competences. Denmark has a similar regulatory structure, although the municipalities and county councils appear to have retained more powers relative to the central authority. Finland operates a central environment agency with 13 specific regional environment agencies.

Criminal sanctions mainly arise where there is breach of a licence or administrative order, although direct criminal pollution offences are used in more serious situations. Some countries, such as Spain, Germany and Finland, have now introduced broad environmental criminal offences into their criminal codes.

CIVIL DAMAGES

The main civil law remedy, common to the countries studied, is compensation by way of damages. The objective is to compensate persons for injury or loss

caused to them — that is, as far as possible, to put them in a position as if the damage had not occurred. The systems therefore seek to assess the value in financial terms of this loss. Recoverable losses are generally limited to personal injury, damage to property and, often, pure economic loss. Accordingly, most systems do not allow compensation for pure ecological damage. This does not mean that compensation is never available where damage to soil, groundwater, flora, fauna, etc. has occurred. Compensation in such circumstances is not in respect of the ecological damage but in respect of any consequential loss to the landowner or occupier, for example, for the reduction in value of land or damage to livelihood. Usually compensation in respect of clean-up costs may be claimed.

Some moves have been made towards compensation for pure ecological damage. The United States has a system allowing the recovery of natural resource damages which may, however, only be claimed or recovered by government trustees and therefore do not represent a windfall to private persons. The courts are still developing the methods for assessment and the limits for such damages. In Belgium, the courts are using the concept of collective goods so that pure ecological or aesthetic loss can be compensated. In France and the Netherlands, there is some possibility for environmental action groups to claim damages in respect of the interest which they aim to protect. The damages are awarded to enable them to carry out some form of restoration, such as restocking rivers with fish or cleaning oiled birds.

Under civil law principles, most systems do not impose an obligation to use damages received to restore the environment. This is not, however, without qualification. A number of the civil liability systems impose an obligation to mitigate any damage and this may involve clean-up. In addition, in a number of countries, the administrative authorities may order the plaintiff to carry out clean-up operations effectively requiring the use of civil damages for restoration. In Norway, the damages will often be paid to the authorities to enable them to carry out clean-up. The private plaintiff will only receive the money where it is not in the public interest to clean up.

Administrative powers

The systems studied all operate some form of administrative system for environmental protection and it is through these systems rather than civil law remedies that most action to protect and restore the environment takes place. The licensing and monitoring systems provide the authorities with information and they usually have considerable powers to either order remediation or to remediate and reclaim the cost. The powers available often depend upon the legislation establishing them. Most countries give regulatory authorities powers to order restoration or clean-up themselves and reclaim the cost. Such powers have only become available in the more recent statutes in Luxembourg. In the Netherlands, these powers are supported by administrative charges for non-compliance. A further power available, for example, in Italy, the Netherlands and Portugal, is the closure of plants which breach rules and are causing pollution. In Italy, the relocation of plants may also be ordered.

Limits on damages or clean-up costs

Maximums for damages or clean-up costs are rare. Germany has a theoretical limit in its civil environmental legislation for personal injury and damage to property, which is set at quite a high level. Austria usually limits civil damages to the value of the property involved. Clean-up costs are generally limited only in so far as they are necessary and reasonable, requiring some form of assessment of the costs and benefits of remediation.

Remediation/restoration standards

Some differences exist between the countries with regard to the level of restoration required. The most developed system operates in the Netherlands where the basic level is ‘multifunctionality’ which requires restoration suitable for all uses. The present system is a revision of the well-known ABC standards. In exceptional cases, multifunctionality is not required. Current use is generally relevant only in deciding whether or not clean-up should be commenced. The United States operates a system requiring clean-up to a level similar to multifunctionality. Due to the huge costs involved, there is a move towards less ambitious standards in practice. A few of the countries, such as Denmark, Portugal and Finland, set high absolute standards, although in practice these seem not to be rigidly adhered to. Most countries otherwise have no central standards although guidelines exist and in practice end-use is normally taken into account.

Injunctive relief

In most countries, injunctions are available in urgent cases to prevent polluting activity or requiring positive preventive measures. Generally, it is for the court to

grant injunctions. However, in Denmark the administrative authorities have some powers to enforce injunctive relief without the courts. In Germany, the level of urgency required to justify an injunction appears to be high and in Italy injunctions are unusual in environmental cases. The UK employs a 'balance of convenience test' which requires assessment of the relative advantages and disadvantages to the parties. If there is a significant disadvantage to one of the parties, an injunction may be refused. The Swedish system appears to be more liberal, granting injunctions where a mere risk of pollution arises.

Liable persons

The general rule is that the polluter is responsible. Normally, the liable person is an operator or landowner, although specific legislation may name the liable person more specifically. Criminal sanctions, although aimed at specific actions, are generally expressed widely in terms of the liable person. In some cases, a primary and secondary liable person is named. New provisions in the UK concerning contaminated land make the polluter primarily liable for clean-up with the landowner or occupier becoming liable if the polluter cannot be found.

Directors and managers may be held liable in most countries, particularly in criminal law. In some countries, such as Spain, the Netherlands, Finland, Sweden, the UK, and Switzerland, liability of a parent company is theoretically possible where it exerts actual control. Similarly, lenders may incur liability through foreclosure or exertion of actual control.

Causation and the burden of proof

A significant obstacle common to environmental cases in the countries studied is proof of causation. Frequently, the issues are complex and high levels of technical and expert evidence are required. This can be a significant barrier to successful action by individual plaintiffs bringing claims.

The basic rules applying to most systems is that the plaintiff carries the burden of proof. The plaintiff must normally in civil law show that one cause or version of events was more likely to have occurred than any others. This level of proof is often referred to as 'the balance of probabilities' or 'prevailing probability'. Some countries, such as Belgium, Portugal and Iceland, require higher levels of proof.

Reversal or reduction of the burden of proof is used in a number of the countries studied. Usually, reversal has been developed by the courts and is employed in specific circumstances. Some courts may, for example, reverse the burden of proof where particularly hazardous activities are involved or where there is apparently no alternative explanation to the version of events which the plaintiff seeks to show. In Germany, a reduction of the burden of proof of causation developed through case-law has been included in the environmental liability legislation. This merely requires the plaintiff to show the suitability of the plant to cause the damage. The defendant must then show that the actual cause was different.

Access to justice

There are some significant variations in the extent to which individuals and particularly environmental interest groups can gain access to the courts to enforce the law for protection and restoration of the environment.

Civil law

The general principle throughout most of the countries studied is that only a person with a direct interest, that is having suffered some damage or loss, may bring a civil action for compensation. Generally, therefore, plaintiffs do not have rights in relation to the unowned environment. Such rights for individuals were considered and rejected in Denmark.

As they cannot show any direct loss, environmental interest groups cannot usually bring civil actions. In France, there is provision, however, for concerned individuals to appoint an interest group to bring an action in the civil, administrative or criminal courts. Under certain Italian legislation, recognised interest groups may intervene in the assessment of civil damages. The Netherlands and Portugal allow interest groups to seek injunctive relief for protection of the environment.

In Luxembourg, certain laws have begun to allow interest groups standing to act as civil parties. The Norwegian approach is interesting in that environmental interest groups have been awarded standing in certain cases and the courts often favour such claims more than those of individuals. In addition, in France and the Netherlands, the courts have awarded compensation to interest groups for costs incurred in restoring the environment. Compensation for costs of restocking waters with fish can be claimed under specific legislation in Denmark.

The most liberal rules on standing appear to be in Ireland where the courts have held that by definition an aggrieved person has standing. This right extends to include interest groups.

Administrative law

In relation to administrative law, the countries studied show considerable differences in the rights of individuals and interest groups to challenge decisions and require enforcement of the law. Individuals are in most cases empowered to challenge administrative decisions in the courts only where their interests or rights have been violated or affected in some way. Again, the broad Irish ruling would seem to apply to any person or group challenging an administrative decision.

The rights of interest groups to challenge administrative decisions are somewhat more liberal than their rights in civil courts. Often the group concerned must be acting in relation to the interest it was created to protect. This is the case in the Netherlands and Switzerland. Others, such as Sweden, the UK, Iceland and Norway, require the interest group to show a sufficient level of interest. In the UK, the courts seem to be taking an increasingly liberal approach in this respect. In some of the countries, legislation actually sets out whether or not the interest groups are to have such rights and Italian and Danish legislation has gone so far as to list interest groups upon which rights are conferred.

Criminal law

The widest disparities in the rights of individuals and interest groups amongst the countries appear in relation to criminal law. Spain, France, Austria and the UK allow private prosecutions. In the UK, this right has been used by environmental interest groups and in France the right is available for all listed interest groups. In Finland, private prosecutions are possible but very rare and in Ireland certain legislation confers the right on 'any person' to bring a prosecution. Different rights are available in Luxembourg and Portugal. In Luxembourg, an interest group may prosecute if it can show an interest different to that of the community for whom the public prosecutor must act. In Portugal, interest groups may only act as third parties.

The remaining countries not mentioned above do not permit private prosecutions but usually permit some form of challenge or complaint to the authorities against a decision not to prosecute. This right is usually only available to the victim, although in Italy listed interest groups may do so.

Financial security

Where a polluter is insolvent or cannot be found, there is, in general, no civil remedy available to a plaintiff. Only Sweden has an environmental liability fund for this purpose. Similarly, where clean-up of land is required and a polluter cannot be made to pay, the cost falls upon the authorities to fund operations. A number of specific funds exist, for example, in Germany for contaminated land remediation, in France for airport noise compensation, and in the Netherlands for air pollution and amongst oil companies for clean-up of contamination at old petrol stations.

Compulsory insurance is used in a number of the countries studied but in specific high-risk areas only. Examples are nuclear installations, some listed sites (in Germany and France) and toxic and hazardous waste. Sweden, however, requires licensed sites to pay into the environmental civil liability fund.

The majority of insurance policies available in the general insurance markets are limited to sudden and accidental damage. Insurance pools covering pollution risks provide specialised insurance in some countries (notably Denmark, Spain, France, Italy and the Netherlands). Those pools, as well as some policies available from individual insurers in countries such as Germany, Ireland, Sweden, the UK and Switzerland, provide cover which extends to gradual pollution.

Annex 2

ECONOMIC ASPECTS OF LIABILITY AND JOINT COMPENSATION SYSTEMS FOR REMEDYING ENVIRONMENTAL DAMAGE

SUMMARY REPORT

by ERM Economics, London, March 1996

1. AIMS AND APPROACH OF THE STUDY

The aim of this study was to consider the economic implications of environmental liability systems and to examine the economic case for action by the EU. A parallel study ([29]) examined the legal aspects.

Environmental liability systems are of interest for a number of potential benefits that they can offer:

- they can provide incentives to prevent or remedy environmental damage not currently covered by other instruments;
- they can directly compensate the victim;
- they give force to the 'polluter pays' principle;
- they are, in some circumstances, more economically efficient than regulatory (command and control) or economic instruments.

The approach taken in this study was first to identify in principle what the expected benefits and costs of a liability system would be, and then to examine the available empirical data and supporting studies. Finally, interviews were carried out with a small number of firms in seven industrial sectors in each of five countries, four from the EU and one from eastern Europe. Interviews were also carried out with representatives of banks and insurance companies in the five countries.

A significant finding of the study is the surprising lack of previous studies into the economics of environmental liability systems. None of the EU countries studied had carried out empirical economic studies into either the costs or the benefits of their existing or future liability systems. A similar lack of empirical analysis is evident among the principal economic actors: firms, insurance companies and banks. The research conducted for this study was unable to find any firm or industrial association which had fully quantified its existing and future environmental liabilities ([30]). Nor did the research reveal that banks or insurance companies were able to quantify the future costs in any detail.

There are many reasons why the empirical basis for policy-making in this area is poor. Two specific reasons are:

- environmental liability systems are novel in Europe and very little experience exists;
- as with the evaluation of other prevention systems (e.g. policing, fire services), the target for performance is the avoidance of accident or damage; this effect is inherently unobservable.

1.1. ENVIRONMENTAL LIABILITY SYSTEMS AND OTHER INSTRUMENTS

The use of an environmental liability system was compared with alternative types of instruments, i.e. regulation and economic instruments, using a number of criteria:

- economic efficiency in controlling pollution;
- incentives for prevention, remediation and future technology development;
- transaction costs ([31]).

These criteria were used to provide initial indications of the relative applicability of environmental liability systems to different types of environmental problems.

Environmental liability systems work best where there is clear causation, for example in accidental damage or where a single polluter affects a single victim. Environmental liability systems can be efficient due to their flexibility, since they allow the polluter to choose the least cost actions ([32]), but these choices may be made more difficult due to the uncertainty of the potential size of liability. Uncertainty will be greatest where causation is unclear and the size and value of damage is difficult to assess, for example ecological damage from diffuse pollution.

Regulatory instruments can be relatively effective where the socially optimal pollution level is known,

([29]) 'Study of civil liability systems for remedying environmental damage: legal study', McKenna & Co., 1996.

([30]) We are aware that a small number of multinational firms have made provisions in their accounts for some or all of their expected future liabilities.

([31]) These costs include legal costs, administration costs, risk assessment procedures, monitoring and enforcement costs.

([32]) This is an advantage which they share with economic instruments.

small differences in marginal abatement costs exist, and the regulator has good access to information on abatement costs. Economic instruments can be effective where the underlying markets are not characterised by market failures and where there are large variations in firms' pollution control costs so that giving firms freedom to choose their abatement options can reduce these costs. Both regulation and economic instruments require regular monitoring of a firm's polluting activities.

Taking these characteristics into account leads to the conclusion that an environmental liability system has a comparative advantage in accidental pollution problems to all media, and gradual pollution, especially for damage to soil and water, provided causation can be proved at reasonable cost, and possibly also for historical soil contamination (provided that transaction costs can be kept low). Environmental liability systems have a comparative disadvantage for diffuse pollution (especially air, and possibly water), where there are multiple polluters and multiple injuries, and where causation is difficult to prove.

There is a complementarity between environmental liability systems and other instruments, since no one instrument is effective for all types of pollution. An example of this is ecological damage to natural habitats and the unowned environment, where the comparative advantage depends on the type of pollution and its sources.

The efficiency of alternative instruments can, in principle, be compared by examining the costs they impose on polluters and regulators in order to achieve a desired environmental objective. In those cases where economic instruments are applicable to pollution problems, a number of empirical studies have found them to be more economically efficient than regulations, i.e. they can achieve the same environmental objective at lower, sometimes substantially lower, cost. Unfortunately, there are no existing empirical studies on the performance of environmental liability systems, in terms of cost-effectiveness or efficiency compared with other instruments.

2. THE COSTS OF ENVIRONMENTAL DAMAGE

2.1. ENVIRONMENTAL DAMAGE

There continues to be considerable unremedied environmental damage in the EU which could, as a starting point, be internalised by an environmental liability system. In attempting to determine just how much, this study again faced enormous deficiencies in the data. No EU country has sufficiently detailed data to be able to produce a comprehensive estimate of this unremedied environmental damage. Partial estimates exist for some types of pollution but the data are very scarce and extremely variable. Using an indicator approach, we have estimated that the annual costs of residual damage for EU countries could vary within the range of 4 to 7 % of gross domestic product (GDP) ([33]). This range arises through three factors:

- the different levels of polluting activity in Member States;
- the sensitivity and concentration of receptors;
- the different levels of existing environmental protection.

A common EU approach to an environmental liability system has the potential to level out these differences between existing levels of environmental protection, although it would be complex to design a system which achieved the same effect within different jurisdictions, even if there were no variations in the sensitivity of receptors.

The uncertainty in the level and distribution of damage, and the scope for discrepancies in the valuations between different polluters, is clearly unsatisfactory. However, if a European system of environmental liability were introduced, courts would require guidance on the application of damage valuation methods. A first step could be to prepare a set of European guidelines for the application of damage valuation techniques and a framework for assessing damage values.

2.2. CURRENT LEVELS OF ENVIRONMENTAL EXPENDITURE

The study has attempted to collate existing data on European industries' expenditure on pollution prevention. This is of interest for two reasons:

- discrepancies in expenditure between EU Member States might already be affecting competition;
- to assess the overall size of current expenditure in relation to the estimated value of residual damage. If residual damage was internalised through an environmental liability system, would this signifi-

([33]) Note that if annual damages are as high as this, then it implies that a 'green counting' estimate of GDP growth would be negative for most countries in most years.

cantly increase the cost burden on firms compared with current environmental expenditure?

The reliability of the data is very uncertain but it tends to indicate that there is a discrepancy between countries in spending by industry on pollution prevention.

The evidence from industry is that, where an environmental liability system exists, firms are unable to separate their environmental costs into those induced by the environmental liability system and those carried out for other reasons, for example compliance with regulations or company environmental policies. Most prevention activities are induced by the combined effects of many factors.

Although firms are not able to identify clearly the extra expenditures which might be induced by stricter liability systems in the future, overall the costs of environmental protection and regulation issues remain a 'top three' concern for industry. In combination with other parts of the environmental protection system, a strict liability framework can be expected to induce a greater level of care towards environmental protection by firms.

It is not possible to measure the extent to which different elements of a stricter liability system would induce further preventive expenditure by industry.

2.3. THE IMPACT OF AN ENVIRONMENTAL LIABILITY SYSTEM

In relation to the environmental problems for which a liability system may be most effective, what share of environmental damage could be addressed?

Estimates of the share of environmental damage by media suggest that the proportion of damage to land lies in the range 10 to 40 % of total damage. Another indicator is the proportion of non-diffuse (i.e. point source) to diffuse pollution; this is probably around 15 %. In relation to soil contamination, accidental releases may cause only around 15 % of damage, compared with 85 % for ongoing releases (see 2.1).

If an environmental liability system is applied only to those types of problems to which it is most suited, then it might only internalise a small percentage of total environmental damage ([34]), although it can create wider incentives for prevention.

([34]) This can be compared to the estimate for Germany; the environmental liability system is currently estimated to internalise only about 1 % of total environmental damage.

An environmental liability system might be applicable to some transboundary pollution problems such as accidental water pollution, but probably not for other transboundary problems from many different sources (e.g. air pollution) where it is difficult to determine and prove which source caused (a share of) the pollution damage.

2.4. COMPETITIVENESS AND THE COSTS OF LIABILITY

Existing liability systems

It seems unlikely, based on the results of the interviews, that existing liability systems in EU Member States are currently creating any significant distortion of trade. In the interviews, no firms indicated that the environmental liability system on its own was a problem. This is not surprising, since the current cost of an environmental liability system is a negligible percentage of the value of output, and so has little influence on current production decisions.

Environmental cost differences would have to persist over the long term, and be expected to continue, to influence decisions about the location of future investments. Furthermore, the approach of multinational firms, which are the most frequent type of firm to view investment location decisions in an international context, is to apply the same environmental standards to all EU countries in which they operate, irrespective of differences in environmental standards and legislation.

Most firms indicated that environmental issues overall were a factor in investment decisions, but not necessarily between countries. Firms are also concerned about transparency in decision-making and a predictable regulatory environment.

Future liability

Without a common approach to environmental liability systems in Europe, the costs of compensation for damage could diverge within the EU.

A trade model of a key competitive industry, the bulk chemical industry, was used to simulate the effects of future liability systems on competitiveness by examining the impact of cost differences of up to 2 % between countries. The results of simulations showed that in the long run this could produce relative changes in the market shares of individual EU countries of between – 4 % and + 2 %. In an industry like the chemical industry,

which is very competitive and where the products of a number of firms are close substitutes for one another, relatively small differences in costs can have quite significant effects on loss of market share. However, the trade links and cost differences with countries outside the EU are an important factor, and possibly more important than the environment-related cost differences between EU members and between EU members and third countries, in altering the relative competitive position of EU countries vis-à-vis third countries.

Within the EU, the internal market has levelled out a number of impediments to trade and investment. There is also a greater similarity within the EU in terms of availability of infrastructure and economic policies than is the case with third countries. Therefore, the impact of environmental cost differences might be expected to be greater within the EU and create problems of internal competition. Within the framework of this study, however, it was not possible to find conclusive empirical evidence in this regard.

For other industries examined in this study (leather tanning, pharmaceuticals, electronics, hard coal mining, pulp and paper, and wood industries), the impact on the competitiveness of future environmental liability systems is likely to be less than for the chemical industry. This is because these industries are less competitive than the chemical industry, are traded less or have a higher share of transport costs in their total costs.

2.5. THE BENEFITS OF EU ACTION

The empirical support for assessing the benefits of EU action has been found to be limited by a lack of data. It is nevertheless possible to summarise the general case for EU action.

Environmental liability systems can create effective means of remedying some types of environmental damage, for example accidental damage with clear causation, and incentives for prevention of environmental damage in general. Conversely, it can be argued that in the absence of an environmental liability system damage would be greater, as firms would then not face any potential liability claims. Therefore, a liability system could be a further policy instrument to be used as a complement to existing instruments.

There is already a divergence of environmental liability systems, as well as current environmental expenditure, across the EU countries. The differences could increase, for example, if those countries which have expressed a willingness to sign the Lugano Convention implement systems of that type and other countries do not. The competitiveness analysis provided only a general indication of whether the cost differences which might emerge would distort future trade. But environmental issues are a major concern of firms in environmentally sensitive sectors. Firms want certainty across all the EU to promote the single market and facilitate mobility of capital. In this context, the uncertainty of divergent and changing liability systems in different countries could be a more important factor in long-term decisions than the direct cost differences.

The issue of including transboundary pollution within the scope of an environmental liability system depends on the type of pollution. Most transboundary pollution is airborne, i.e. of a diffuse nature and with unclear causation and is not therefore well suited to internalising through an environmental liability system. Other existing cases of transboundary pollution, such as polluted rivers, impaired habitat areas and transport of hazardous waste, may be amenable to being handled through an environmental liability system. However, they may also be capable of being handled through bilateral or international agreements.

3. THE RESPONSE OF ECONOMIC ACTORS

3.1. FIRMS' RESPONSES

Existing environmental liability systems have had only a limited impact on pollution expenditure or compensation payments and have not been a major concern of firms. There has been no clearly identified impact on competition. However, due to the joint effects' problem, firms are mostly unable to separate the impact, on their costs, of an environmental liability system from other environmental policies.

It is therefore not surprising that induced prevention costs have appeared to be small and have been hard to detect. Of the firms in the survey, none had made quantitative assessments of their liabilities or quantified the reductions of risk due to preventive expenditure. Similarly, they had not assessed the consequences of future liability systems and were unable to distinguish clearly the potential effects of most policy elements.

SMEs

The flexibility of an environmental liability system, in allowing firms to choose the means of prevention,

could be advantageous to SMEs. SMEs may also welcome the transparency and level playing field that a legal system offers. However, most environmental policy instruments, including liability systems, can bear more heavily on SMEs than on large firms in relation to their financial resources.

SMEs are more vulnerable to environmental risks since they are not as diversified as large firms and have limited management capability for prevention. This makes them more exposed to the risks of a large pollution incident. Damage caused by one process may therefore create significant environmental liabilities for a small firm.

The cost of complying with the complex regulations related to an environmental liability system and the cost and length of possible litigation will tend to be fixed costs which bear more heavily on SMEs.

Limits on liability, if set in relation to the activities of large firms, would be untenable for small firms; there would need to be a size-related element in determining the limit, although this might lead to some damage remaining uncompensated. This potential problem would be exacerbated if large firms created small firms to limit their exposure to risk. It might also be difficult to set an EU-wide limit.

Insurability is a crucial issue for SMEs, since they have limited financial resources to cover their own risks. Risk assessment procedures carried out or required by insurance companies (and banks) would be relatively more costly for small than for large firms.

Liability risks could lead banks to take a more conservative approach to valuing fixed assets as collateral for loans, particularly if insurance companies place relatively low limits on their cover. This would reduce the borrowing capacity of SMEs and result in lower investment.

However, an SME's impact on the environment can be proportionally greater than its size and the collective impact of SMEs can be considerable. Therefore, it is hard to justify that they be fully exempt from liability rules. Moreover, there are EU compensatory mechanisms such as the Community guidelines on State aid for environmental purposes. These provide more favourable conditions for SMEs to help them adapt to environmental standards.

Attitudes of firms to future liability systems

During the interviews with firms, their attitudes to current and possible future liability systems were discussed. The interviews indicated that most of the firms surveyed accept the 'polluter pays' principle but are not willing to pay for another firm's damage; hence there was a reluctance to consider participation in joint (industry-financed) compensation funds.

Firms also wanted a fitness-for-use criterion applied to clean-up standards.

Firms do not want:

- retroactive liability;
- compulsory financial security;
- joint (industry-financed) compensation funds;
- strict liability without limits or defences.

The interviews also indicated that firms might possibly under certain conditions accept:

- compulsory insurance;
- rights of action by non-governmental organisations (NGOs).

3.2. INSURANCE COMPANIES

Insurance companies expressed two distinct concerns in relation to environmental liability systems. One is the increased vulnerability of insurance companies from old policy exposure for historical pollution, especially under a system of retroactive liability. The other is the need to change insurance policies to cope with stricter environmental liability.

The insurance market's role is considered to be very important for three reasons:

- liabilities will probably need to be insurable for all but the very largest firms, in order that firms can manage their financial risks;
- to ensure that victims will be compensated when the size of compensation exceeds the firm's ability to pay;
- the test of insurability is an indicator of whether the environmental liability system will be able to internalise efficiently the damage costs. Uninsurable risks, unless arising through known ongoing activities of the firm, will either be because the risk is not assessable (in which case the firm will not be able

to respond rationally) or because a claim would not be able to succeed because the type of problem makes causation difficult to prove.

The proportion of environmental damage covered by insurance is currently small, estimated on the basis of our discussions with insurance companies at less than 1 %. However, retroactive liability would create a long tail of claims for which insurers have not collected a premium, and therefore for which they do not have planned reserves.

If increased insurance coverage is desired for polluting firms, then any decisions taken on what will be included in a future stricter environmental liability system must take into account the views and financial interests of the insurance industry.

Insurance companies are beginning to separate environmental risks from general liability policies, or create pools. They now manage the process of offering environmental damage cover more carefully with greater risk assessment. They focus on clearly specified environmental risks where these can be estimated and premiums set accordingly. The new policies tend to reduce the size of cover and restrict scope, to limit insurers' overall exposure to environmental risks. Site audits are increasingly being required before insurance is given to polluter industries. These increase transaction costs (possibly by adding around 10 % to premiums) and can affect SMEs' capacity to purchase insurance. Although environmental policies are more costly than general liability policies, they are, in principle, available to all sizes of firms.

Compulsory insurance has been proposed as a way of ensuring that all victims will be compensated. The experience of compulsory insurance in Germany has highlighted the practical problems concerning this provision. Insurers that we have spoken to in the context of our study are opposed to the idea, one reason being that they do not wish to be placed in the role of pollution police. There is also a fear that, by intervening in the insurance market in this way, overall costs and premiums will rise. Furthermore, because of the immaturity of the environmental liability insurance market, insurers would need to gain considerably more experience before any compulsory scheme can feasibly be introduced.

Compulsory insurance would also prove problematic for potential policyholders, especially SMEs. If individual insurance companies have the right to refuse cover for high-risk firms, they would then either have to close or incur a large financial burden to achieve satisfactory pollution prevention standards as judged by the insurer. In the short term, costs might rise substantially if insurance companies take a conservative approach to limiting their risks. Insurers would also try to limit the size of cover for high-risk firms.

The key difficulties for the effectiveness of insurance in future environmental liability systems, as identified by the insurance industry, include:

- the lack of a claims history (on frequency and size of claims) on which to assess risks;
- the uncertainty in future claims, which will be influenced by a series of unknown risks ([35]); and
- that, therefore, insurers are unable to assess or quantify reliably the scope of cover or the change in the size of premiums under stricter liability regimes.

Prevention incentives for firms may be provided by the self-insurance components of policies, but, so far, premium rates have not reflected to any significant extent varying levels of risk in a transparent and objective way. Current rates may vary widely between different insurers and firms (with comparable risks). Therefore, so far, the costs of insurance are unlikely to have provided effective economic signals. However, this market is a fairly recent one and the accumulation of experience by insurers is likely to lead to higher economic efficiency in future, as has been the case with other insurance markets.

Insurers will provide some cover under stricter regimes, but the scope or cost is unknown. In the immediate future, the scope will tend to be limited as follows:

- no cover for damage to natural habitats and the unowned environment;
- no cover if the burden of proof is reversed with no defences;
- insurers will not cover retroactive liability;
- insurers will cover accidental damage but hardly any ongoing pollution;
- insurers do not expect to cover much or any air pollution damage.

([35]) The particular risks involved in environmental liabilities are: the development of scientific knowledge about hazardous substances; the claims awareness of the public; the valuation of damages and/or the standard of restoration; the litigiousness of the public; and the law court's interpretation of liability and damages.

Insurance markets may need considerable time to evolve and mature. The environmental liability insurance market is not currently attractive to insurers and they will need considerably more claims experience before they are able to set premiums which reflect the real risks of polluters and have the confidence to place a significant proportion of their reserves at risk.

Due to the circularity of this problem, insurers will need to be encouraged to increase their cover under environmental liability policies in parallel with the development of future environmental liability systems. There is, therefore, a case for gradual step-by-step development of this market.

3.3. BANKS

Banks were also interviewed in the study countries. They appear to be more uncertain than insurance companies about the implications of current and future liability systems. The discussions focused on the following issues:

- the impact of an environmental liability system on borrowers' access to loans;
- the potential risks to banks of acquiring the environmental liabilities of their borrowers.

Not all banks are yet fully aware of the environmental risks of their borrowers but see the problem mainly in relation to SMEs (who form the bulk of banks' secured lending).

There have begun to be cases where bad debts have occurred as contamination of land has reduced the value of the banks' collateral. The need to carry out even a limited assessment of environmental risk raises the transaction costs of lending and disproportionately affects small loans. Therefore, small firms may be particularly affected by the costs of risk assessment. The availability of finance could be restricted for those sectors which have traditionally borrowed against the value of property, but which are carrying out potentially contaminating activities, since the security value of property will be reduced. This would also affect SMEs particularly badly.

If joint and several liability creates a 'deep pocket` syndrome, the uncertainty of a firm's future liabilities will reduce their credit standing and their borrowing capacity. Banks would be even more cautious if they felt that they could become the 'deep pocket` themselves.

Banks are particularly concerned to limit the liability of the lender in cases where the bank takes a charge over the assets of the firm. Without this protection, banks would not be prepared to lend to many high-risk firms.

Compulsory financial security is an area where banks see considerable difficulties. Most financial security instruments have a limited term (e.g. five years) and so would not provide security for damage which has a long-term delayed effect. The value of the financial security would directly reduce the borrowing capacity of the firm and this would particularly restrict lending to SMEs.

3.4. COMPENSATION FUNDS

Compensation funds are under consideration as a complementary mechanism for compensating victims or remedying damage which might otherwise not be covered by a liability system. They may also offer some benefits when remediation is slow or to avoid complicated litigation between multiple polluters and victims.

Funds which have been examined in this study include those in Germany, France, the Netherlands, Japan and the United States. Experience shows that the funds have most often been applied to diffuse pollution problems and to orphan contaminated sites for which there is no responsible party liable to pay for the clean-up, but the funds have had varying degrees of success. It has proved difficult to predict the level of claims arising and to match the claims met to the availability of funds.

There are two main drawbacks to compensation funds. Firms are resistant to these funds where they might result in them paying large amounts for other firms' pollution, including their competitors. This may appear inequitable as well as conflicting with the 'polluter pays' principle. Furthermore, unless financing of funds is proportionate to actual pollution, it fails to create efficient incentives for prevention. But if proportionate financing is possible (i.e. where there is clear causation), there is less need for a joint compensation fund. Reconciling these two problems requires finding a funding basis which strikes a delicate balance between maintaining equity and efficiency while providing a simple and broad funding base.

There may be a valuable role for a compensation fund to remedy damage or compensate victims where there are many sources of the polluting emissions (e.g. air pollution) so that assigning liability for each individual

source would not be worthwhile under an environmental liability system, and where the emissions could be easily monitored so that taxes on these emissions could finance the fund. This then would combine a compensation fund to remedy the damage with an economic instrument (a pollution tax) to finance it.

The level (local, national or EU) at which funds are organised may differ for administrative and financing purposes. Cost-effective administration requires a strong local involvement, while financing may also appear more equitable if locally based so that the benefits of the fund are felt by those who have contributed to it. Using existing national systems for collecting taxes or charges can reduce the costs of administering a fund. While it is possible to argue for economies of scale in large (e.g. EU level) funds which have a very broad funding base, there is little evidence to support this and the trend is towards more locally or nationally based funds.

4. SUMMARY OF THE ECONOMIC STRENGTHS AND WEAKNESSES OF AN EU ENVIRONMENTAL LIABILITY SYSTEM

A key finding of the study has been the lack of economic data on costs and benefits. Analysis of the issues is therefore surrounded by considerable uncertainty ([36]). This suggests that a cautious attitude should be taken in the shaping of an environmental liability system.

The size of unremedied environmental damage is highly uncertain but is none the less probably quite large. An environmental liability system is a complementary instrument to other policy instruments. Its appropriate use in addressing this damage depends on the type of problem; unclear causation is a key issue in limiting the scope of application of environmental liability. Accidental damage is well suited to liability, but this is only a small part of damage.

Environmental liability is potentially a flexible instrument but introduces a high level of uncertainty for economic actors in assessing their risks. Since insurability of risks would be a supportive factor for the development of a liability system, the shaping of an environmental liability system should also aim at minimising the uncertainty of future liabilities.

Based on the economic issues examined in this study, implications can be drawn on the strengths and weaknesses of the economic case for several of the elements of a future environmental liability system. These summary findings are given below (a short explanation is given in brackets after almost every point).

THE ECONOMIC CASE IS STRONG FOR THE FOLLOWING:

- Accidental pollution. (An environmental liability system is likely to be more effective than other instruments, for damage to all media, in both remedying and compensating damage to the environment, and in creating incentives for prevention.)
- Gradual pollution, provided causation can be proved at reasonable cost. (Liability for accidental pollution will also result in increased care towards preventing gradual pollution.)
- Encouraging the development of the insurance market in specific niche categories of environmental insurance in parallel with the development of the environmental liability system.
- Strict but proportionate liability. (This is consistent with the 'polluter pays' principle. Proportionate, rather than joint and several, liability is strongly preferred by firms, banks and insurance companies, although it may be difficult to prove which part of the damage is attributable to each polluter where there are many polluters and causation of damage is not clear.)
- Cost-effective restoration standards. (These limit the cost of unnecessary remediation.)
- Developing a set of European guidelines for the application of damage valuation techniques and a framework for assessing damage values. (This is particularly needed if ecological damage is to be included within the scope of an environmental liability system.)
- Providing protection to lenders from the liability of their borrowers. (Also providing protection to contractors carrying out site remediation to limit their liability.)

THE ECONOMIC CASE IS UNCERTAIN FOR THE FOLLOWING:

- Rights of action by NGOs. (More cases of environmental damage could be dealt with if NGOs have a right of action, under control of the judiciary, especially for ecological damage to the unowned environment where normally no individual citizen has an interest to take action. However, even with built-

([36]) There is a need for more economic studies at the national or sectoral level to address this issue.

in mechanisms to avoid legal procedures as much as possible, it is likely to increase transaction costs.)

- Reversing the burden of proof. (The advantage of placing the burden of proof on the operator is that he is more familiar with the possible effects of the emissions from his activities than the plaintiff. On the other hand, it is always difficult to prove something negative, for example that the emissions have not caused the damage.)
- Limits on firms' liability. (Most risks are small, but risk-averse firms may overinvest in prevention with unlimited liability. Banks would also restrict lending under unlimited liability due to a conservative assessment of the worst-case large risks. Insurance companies will always limit cover. Limited liability, possibly only for a transitional phase, will still give incentives for prevention, while significantly reducing uncertainty.)
- Special provisions for SMEs. (An environmental liability system can have both advantages and disadvantages for SMEs. It will increase the burden on SMEs disproportionately in relation to their financial resources, but exempting them does not prevent pollution.)
- Publicly financed compensation fund. (A joint compensation fund financed by industry contributions may not be efficient or fair since the current firms are not responsible for the pollution — as in the case of sites contaminated by past pollution. There is a public good aspect to using public funds to remedy such environmental damages.)

THE ECONOMIC CASE IS WEAK FOR THE FOLLOWING:

- Retroactive strict liability with no defences. (Insurers and banks would withdraw from the market, and activity on old sites would be inhibited.)
- Industry-funded compensation funds. (Firms are not willing to pay for their competitors' pollution; clean firms would pay twice, thereby creating a disincentive for prevention; the size of contributions would be arbitrary and therefore not provide effective economic incentives.)
- Compensation fund organised at the EU level. (Locally or nationally organised funds may be more effective.)
- Compulsory insurance. (Insurance companies may only be able to offer comprehensive and cost-effective policies in a very mature liability insurance market where the risks for all firms are well understood. It would be difficult to ensure that insurers do not charge excessive rates.)
- Compulsory financial security. (This could severely reduce lending to SMEs for investment. It would also be limited in duration and not match the timescale of potential liability to long-term problems.)
- Extending the scope to diffuse sources of damage, for example ongoing air pollution. (Without clear causation, liability is difficult and costly to prove.)
- Joint and several liability. (This is unlikely to produce efficient incentives for prevention and can lead to high transaction costs.)

Annex 3

LIABILITY FOR ECOLOGICAL DAMAGE AND ASSESSMENT OF ECOLOGICAL DAMAGE

Executive summary

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Introduction

In establishing directives containing emission norms, quality standards, obligations regarding assessment of environmental effects of certain projects and others, the European Union aimed to prevent and avoid damage to the environment. Unfortunately, pollution incidents and other harmful events can never be entirely prevented. As a consequence, damage to the environment will occur. An environmental liability regime might in such cases be a useful tool to recoup, restore and prevent environmental damage (see also in this respect the fifth environmental action programme).

In most EU Member States, environmental damage cannot be compensated in the absence of any personal damage or damage to property (see comparative legal study of McKenna & Co., June 1996). An environmental liability regime at EU level needs to address this issue, thereby remedying some of the gaps in the environmental protection regimes of the Member States. The background paper focuses on the compensation of ecological damage (hereafter also referred to as damage to natural resources), irrespective by what activity (inherently damaging or not), incident or event the damage is caused.

Scope

The scope of the proposed EU liability regime is limited to those injuries to natural resources that are not fully remedied by response actions, including clean-up, removal actions and preventive actions taken to limit environmental damage. Restoration measures are taken in addition to response measures and are aimed at the returning of the damaged natural resources to their baseline condition. The person who is responsible for the act, incident or event that caused damage to natural resources is held to be liable.

The term 'natural resources' is defined here as including living and non-living natural resources like land, habitats, fish, wildlife, biota, air, water, groundwater and ecosystems. Damage to natural resources is to be considered as the alteration, modification, injury to, deterioration, destruction or loss of such natural resources. The loss or impairment of public uses or services as a consequence of the harm to these natural resources is also to be considered damage. However, not every change in the quantity and quality of natural resources or the services provided by such resources is to be considered as damage. Certain threshold criteria have to be taken into account (see below).

Owned and unowned natural resources

The scope of the liability regime is limited to ecological damage and concerns damage to unowned and owned natural resources, but only in so far as these have a specific value to the public. The habitats and wild birds directives can be used as a point of reference in this respect. Under both directives, Member States have to designate special protection areas. The nature habitats and other natural resources located or dependent on these geographical areas are, because of their importance, to be qualified as of particular value to the public. It could be considered to give Member States the right to extend the scope of the regime to other areas that contain or support natural resources of particular value to the public, such as national nature reserves.

A special problem concerns the natural resources subject to private property rights. In case damage is caused to private property, it is in principle up to the owner to seek redress and restore the damage done. However, not in every case will the owner be willing to press claims or spend the compensation on restoration of the damaged natural resources. It might also be that the owner himself caused the damage. In the light of the objective of the habitats and wild birds directives, something also needs to be done if damage is caused to natural resources subject to property rights. Various approaches regarding the recovery of damage to particular privately owned natural resources are then possible. One is to give the State or public interest groups — depending on the choices made regarding *locus standi* — standing to bring a claim. Nevertheless, a State or public interest group should not be involved in the claim and restoration process, unless this has a significant benefit for the public. It is not the intention to include all natural resources that are subject to private property. Hence, only those natural resources should be included that are of particular value to the public.

Standing

A part of the natural resources that are falling within the scope of the liability regime are not assigned to anyone; they are either *res nullius* or *res communis*. The designation of the public authorities, public interest groups or both, to act on behalf of the public in case of damaged natural resources and to recover damages for the injuries to these natural resources is of crucial importance in order to ensure that restoration can be undertaken. As regards the natural resources that are subject to property rights, it is in principle up to the owner to seek redress and restore the damage done. In case the owner is not willing to press claims, caused the damage himself, or is unwilling to spend the compensation on restoration of the damaged natural resources, choices have be made regarding *locus standi* (see above). Again, the limitation of property rights and the restriction on the spending of compensation, should, however, only be considered in cases which concern damage to natural resources that are of particular value to the public.

Threshold

The proposed liability regime authorises the compensation of damage to natural resources as a result of all kinds of activities, incidents and adverse events. However, not every change to the quality or quantity of natural resources should be qualified as damage and give rise to liability. For the well-functioning of the liability regime, it might be beneficial to identify threshold criteria below which the responsible party will not be liable. In this respect, a few factors can be identified that are starting points in proving that a measurable adverse change is caused to natural resources and services. The quality standards and emission norms that are included in some of the EU directives can be helpful in this respect. At least the situation existing after the injury should, in every case, be compared with that existing before the damaging activity, incident or event.

Earmarking of compensation awards

In general, compensation obtained should be earmarked and used only to restore, rehabilitate, replace, or acquire the equivalent of the injured natural resources. The pooling of compensation is a possibility in a case where natural resource damage will exceed the threshold but will be too limited, for economic and technical reasons, to restore the damage.

Assessment

The proposed EU liability regime is of a compensatory and not a punitive nature. As a consequence, it is necessary to assess the damages in such a way that they represent the value of the natural resources and the services lost. It is therefore a necessity to measure the injury and value the damaged natural resources. Assessing damage to natural resources is a complex task, since many natural resources do not have a market value. Besides existing economic methodologies, one could develop abstract models with standard procedures, or use restoration costs as a measure of damage.

If restoration is technically feasible and the costs of such actions are reasonable using a cost–benefit analysis, the cost of measures taken to restore the damage to natural resources is the primary and preferred method to assess damages. Restoration measures are undertaken to return the damaged natural resources and services to their baseline condition. This is to reinstate the natural resources and services to what they would have been had the incident never occurred. In some cases, it might be difficult to determine the exact baseline condition. In that case, it might be helpful to use historical data, reference data, control data, environmental impact assessment data (if available) and information from areas unaffected but comparable to the damaged site. The appropriate size of the restoration measures can be determined by valuing the extent and nature of the damage, the type, quantity and quality of the natural resources and services lost and determining the measures necessary to replace and restore the quantity and quality of these natural resources and services.

In some cases, it will be difficult to decide on the reasonableness of the cost of measures taken to restore the natural resource damage or acquire the equivalent of such resources. The reasonableness criterion requires balancing of the economic and environmental costs of restoration measures against the environmental benefits of these measures. After determining the nature and extent of the impacts of the damaging activity on the natural resources, the claimant should identify a range of restoration alternatives with a comparable level of benefits and select the most cost-effective one. ‘Cost-effective’ means the least costly alternative taking into account the relevant factors and comparing the environmental benefits of each alternative.

In case the costs of restoration measures are clearly disproportionate and unreasonable, the acquisition of equivalent resources could be a valuable alternative

measure of compensation. Another solution might be to pay an amount to a fund, which is only to be used for restoration and other environmental purposes.

Interim losses

It can take years before natural resource damage recovers. Due to the damage, human uses of the natural resources are lost or impaired from the time of the damaging event until the time of full recovery. In order to compensate these interim losses, it is necessary to determine what actions have to be taken to replace the impaired and lost human uses. To assess this, one could quantify the lost and impaired services and develop measures that provide the same or comparable services.

Fund

Compensation could also be provided through a compensation fund. Industry and other sectors should be stimulated to set up voluntary liability funds. It could also be left to the initiative of the Member States to establish a safety net in case problems arise where damage is caused by, for example, cumulative incidents.

Outlook

In conclusion, the measure of damages under the proposed EU liability regime as regards natural resource damage should be the cost of restoring, rehabilitating, replacing, or acquiring the equivalent of the damaged natural resources, including compensation of interim losses and reasonable costs of assessing damage. Compensation should only be used for restoration purposes and be aimed at returning natural resources and services to their baseline condition.

Annex 4

LIABILITY FOR CONTAMINATED SITES

EXECUTIVE SUMMARY

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I. OBJECTIVES AND PRINCIPLES

An EC liability regime for damages caused by soil pollution is necessary in order to ensure the application of the precautionary, the prevention and the 'polluter pays' principles. In addition, competition distortions in the internal market, which result from divergent national regimes, need to be avoided or eliminated.

As far as liability for the clean-up of contaminated sites is concerned, an EC regime, in particular, should intend to achieve harmonisation with respect to the definition of 'contaminated sites' (including soil, surface water and groundwater) and the minimum clean-up standards, clean-up objectives and clean-up obligations which are decisive factors in establishing the scope of the liability rule and the extent of the clean-up costs.

The introduction of a liability system at EC level will not prevent Member States from organising their own administrative decision-making process as regards the clean-up of contaminated sites and choosing the most appropriate legal instruments to that end. An EC liability system should more particularly not affect the ways of identifying the pollution (e.g. by means of soil investigation or the constitution of a register of polluted soils) nor the imposition of an administrative obligation to carry out a clean-up and to finance the clean-up costs or the possibility to impose financial guarantees in order to avoid insolvency problems. Nevertheless, the EC rules should require Member States to ensure that a number of aspects of the clean-up procedure are regulated in order to guarantee a minimum of efficiency and due process.

The EC regime should only intend to deal with liability for future soil contamination.

II. FRAMEWORK OF A REGIME ON LIABILITY FOR CLEAN-UP COSTS

1. DEFINITION OF 'CONTAMINATED SITES'

The development of a European policy and strategy regarding liability for (the clean-up of) contaminated sites requires the use of a common European definition for that term. In the proposed EC regime, 'contaminated land' includes 'soil', 'groundwater' and 'surface water'. This is mainly justified by policy considerations related to how site pollution actually occurs. Since the upper layer of the earth, the subsoil, the groundwater and the surface water are directly interlinked, pollution of the upper layer of the earth is also a threat to the subsoil, the groundwater and the surface water. Moreover, pollution treatment cannot be effective if it is confined to the upper layer of the earth without tackling the groundwater, the surface water, the subsoil and air and other gaseous elements in the soil. Finally, by submitting soil and groundwater to the same clean-up rules, contradiction between rules will be avoided.

2. HARMONISATION OF CLEAN-UP STANDARDS AND CLEAN-UP OBJECTIVES

Clean-up standards and clean-up objectives are the cornerstone of any liability for clean-up of contaminated sites. Disparities between national provisions on the quality of the soil can also lead to unequal competitive conditions and have direct impact on the functioning of the internal market. Minimal harmonisation is therefore required.

2.1. CLEAN-UP STANDARDS

General standards are necessary to evaluate the soil pollution and decide whether or not clean-up is necessary.

Most Member States take the view that only site pollution which produces unacceptable effects for man and the environment requires clean-up. This view is based on the assumption that a certain minimal level of pollution is acceptable in an industrialised society and results from a realistic approach in view of the actual and plausible future use of the land and the availability of limited financial means to restore contaminated land.

The acceptability of the effects for man and the environment can be determined on the basis of specific numerically quantified clean-up standards or on the basis

of a general non-quantified criterion such as that of a serious threat for man and the environment. The presence of a serious threat can, among other things, be influenced by: the exposure risks for man, plants, animals, and water-collection operations; the properties and functions of the soil; the nature and concentration of the contaminating substances or micro-organisms and the possibility that these could spread; and the seriousness of the potential damage.

The use of non-quantified standards has the advantage of better dealing case-by-case with the specific conditions of the site, such as the type of pollutants, soil properties, hydrological situation and the use of the land. A case-by-case risk assessment has, however, the disadvantage of being time-consuming and expensive. Quantified clean-up standards give a less precise estimation of the actual risk and allow less flexible decision-making, but have several advantages, such as a greater degree of policy consistency, facilitating planning and action and faster and easier implementation.

In the present EC proposal, the concept of a serious threat to man and the environment is used as a general non-quantified minimum standard which is to be implemented in each individual decision on whether or not clean-up action is required. This rule implies that a minimum serious threat should be avoided in the future as this is regarded as having unacceptable effects on man and the environment.

In order to establish the presence of a serious threat, a differentiated approach which at least takes account of the actual and plausible future use of the land is proposed, rather than an approach which does not take account of the use of the land. This is in accordance with the approach taken by most Member States.

The application of the abovementioned non-quantified standard could be combined with the application of common quantified standards. In view of achieving further harmonisation, numerical clean-up standards could therefore be elaborated at EC level. When applying quantified standards, two different approaches can be distinguished. Firstly, quantified criteria can apply as guidelines. This implies that they constitute a non-binding element of the administrative decision-making process. The existence of an actual risk must then be determined on the basis of a case-by-case risk assessment and the transgression of numerical clean-up standards will only constitute one of the elements to determine whether clean-up is needed. Secondly, quantified criteria can be applied in a binding manner. In that case, the transgression of numerical clean-up standards imperatively implies that a serious threat is present and that clean-up is required. The existence of a serious risk is then generally defined for all cases. This last approach offers a greater degree of juridical technical certainty, but will imply a not always easily attainable consensus to ascertain these standards and less flexibility. In any case, in order to prevent a (temporary) legal vacuum, it is useful to provide that as long as no quantified criteria have been established, the existence of a serious threat (to be determined on the basis of a case-by-case risk assessment) will apply as the default criterion.

2.2. CLEAN-UP OBJECTIVES

Clean-up objectives will ultimately define the soil quality which can reasonably be expected to be maintained or restored. These objectives also can be left non-quantified (e.g. absence of serious danger for man and the environment, restoration of the functions of the soil) or can be quantified in numerical standards.

Ideally, the objective of the clean-up should be to restore the soil to a condition which does not present any contamination. Therefore soil clean-up must seek to achieve that the soil quality reaches natural background values (quantified objective). However, the limitations of the financial resources available and the dimension of the problem cause the Member States usually to limit the clean-up targets by using BAT-like elements or by referring to the actual and plausible future use of the land. Where as a result of BAT considerations the background values cannot be achieved, the prevention of further dispersion of the pollution or serious threat is usually referred to as a minimum non-quantified objective.

An EC regime should as a minimum include the non-quantified objective that any serious threat for man and the environment is eliminated in each individual case, taking into account the BAT principle and the actual and plausible future use of the land.

The application of this non-quantified objective should, where possible, be combined with the application of quantified numerical standards which indicate the soil quality to be achieved. In particular, the abovementioned clean-up standards could also be used to quantify the minimum clean-up objectives. If clean-up would not be feasible, for economic (disproportionate costs) or technical reasons, containment might be a possibility.

The EC clean-up objectives (quantified and non-quantified) should not prevent Member States from issuing more stringent objectives (such as natural soil quality values or 'multifunctionality' as a general goal).

3. Procedural aspects (clean-up obligation)

The EC regime should impose an obligation upon the Member States to assure quick clean-up procedures where necessary according to the above criteria, making the polluter liable and setting mechanisms ensuring that such clean-up action takes place.

The following aspects can be envisaged by Member States in order to guarantee a due process of law and efficient clean-ups. A specialised government agency could be given the authority to supervise the operations and carry out or continue the clean-up in case of imminent danger, for instance in the event the responsible party does not proceed voluntarily or not sufficiently. Other procedural aspects could be a right of access to the polluted land to overcome a refusal from the owners or possessors to cooperate with the clean-up activities, the participation of affected parties in the decision-making process and mechanisms for dispute settlement at administrative level.

4. Non-exclusive character of the liability; hierarchy of liable persons

The EC regime on liability for clean-up costs aims at implementing the 'polluter pays' principle. In general, national strict liability rules are not exclusive, which means that the victim is not restricted in his right to sue parties other than the liable person indicated by the specific liability rule. The EC regime should not intend to have an exclusive character either. This means that Member States on a subsidiarity basis can maintain other liability rules which make other persons liable (e.g. fault liability, liability of the owner of polluted ground). This coexistence has as a consequence that different parties can be sued to pay the clean-up costs.

Member States' laws often impose liability on the owner or occupier of polluted land, be it next to the actual polluter or other parties. A reason for justifying this rule is that the owner (or holder, occupant, etc.) has to control the risks presented by his land and thus eventually has to take precautionary measures. However, this rule is often mitigated by the specific 'innocent landowner' defence which may imply either a full exemption of liability or at least a restriction of liability to certain costs.

The proposed EC regime should include a mitigation of liability in favour of the landowner or the occupier of the land who did not cause the pollution. Member States should more particularly be obliged to ensure that the landowner or holder on the basis of mere ownership or surveillance of the land area in question can only be held liable for the clean-up costs if, after reasonable inquiry, no solvent polluters can be found. The most effective way to enforce this hierarchy seems to be to give the defendant the right to contest the claim against him if he finds the real polluters and they appear to be solvent. This rule also better implements the preventive principle, since potential polluters would know in advance that they will in the first place be held liable rather than other (may be more solvent) parties which did not normally contribute to the damage. Thus, it would also improve better internalisation of pollution abatement costs.

It should be noted that the mere application of the proposed hierarchy will not prevent that, in case there is no identified and solvent polluter and national law does not provide for a full exemption or limitation of the liability of the 'innocent landowner', the innocent landowner bears the full costs of the clean-up.

Annex 5

HISTORY AND SUMMARY CONTENTS OF THE LUGANO CONVENTION

1. In March 1992, the Council granted the Commission a negotiating mandate for the areas within Community competence with regard to the preparation of the Council of Europe Convention on Civil Liability for Damage resulting from Activities Dangerous to the Environment, which was opened for signature in June 1993.

Apart from the European Community and all Member States, the EFTA countries and a number of central and east European countries participated in the negotiations. The Convention provides for the possibility of non-members of the Council of Europe becoming parties to it.

2. The aim of the Convention is to provide adequate compensation for damage resulting from activities dangerous to the environment. The Convention also puts forward measures for damage prevention and restoration of the environment. The concept of damage covers impairment of the environment, damage caused to persons and property and the cost of preventive measures, i.e. measures taken to prevent or alleviate damage. Damage may be the result of a single action or a chronic process of pollution. It should be noted that the definition of 'environment' in the Convention is widely drafted.

In order to achieve the objective of repairing environmental damage adequately, the Convention introduces a strict liability regime. According to the Convention, the person liable is the operator, i.e. the person exercising control of a dangerous activity at the time the incident occurs or, in the case of permanent waste-disposal sites, at the time the damage becomes known.

3. The term 'dangerous activity' refers to a professional activity involving dangerous substances, genetically modified organisms or micro-organisms and also covers the operation of waste installations or sites. For a number of definitions, like those of dangerous substances and genetically modified organisms, reference is made to existing definitions in Community directives.

The Convention gives environmental associations the right to take court action to secure the implementation of preventive or restorative measures. However, contracting parties have the possibility not to apply the article concerned (Article 18). Furthermore, the Convention obliges contracting parties, 'where appropriate', to require a system of financial security. Conditions, limits and other elements of such systems are left entirely to the internal law of the parties.

4. The Convention leaves considerable flexibility to internal legal systems with respect to its implementation, and, moreover, allows them to have provisions which go further with a view to environmental protection and protection of victims. It contains a clause giving preference to Community law where the latter deals with a subject covered by the Convention.

5. The Convention makes provision for accession by the European Economic Community. The Community has voting rights within the standing committee responsible for monitoring problems of interpretation and implementation raised by the Convention, which it may exercise in the areas of its competence.

Signatories to the Convention

6. So far, nine countries have signed the Convention, six of which are Community Member States, namely Greece, Italy, Luxembourg, the Netherlands, Portugal and Finland. The other signatory countries are Cyprus, Iceland and Liechtenstein. There are no ratifications yet, but several ratification procedures are under way, for example in Greece, the Netherlands and Finland. The Convention will enter into force after the third ratification.

European Commission

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