Review of European Community & International Environmental Law

Environmental Damage

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Introduction

A question that inevitably arises when issues of environmental damage are discussed is whether traditional liability law, combined with insurance, is at all able to provide for the compensation of environmental damage. Issues of fault or negligence have been avoided in many legal systems by the trend towards strict liability. However, strict liability alone does not guarantee compensation for environmental damage, given the problem of insolvency. It merely creates a demand for insurance. However, it is well-known that there are many problems associated with the insurance of environmental damage. Therefore, the question asked in many legal systems is whether compensation for environmental damage should be provided through compensation funds. Well-known in this respect is the United States Superfund, introduced through CERCLA, which has led to much criticism. In several European legal systems, there is support for the establishment of compensation funds to cover environmental damage. The idea is now increasingly introduced in policy documents formulating proposals for the reform of environmental law, e.g. the Interuniversity Commission for the Reform of Environmental Law recently proposed the introduction of a compensation fund in the Flemish Region, and a Dutch study which was carried out on behalf of the Ministry of the Environment proposes the introduction of an environmental compensation fund in the Netherlands. In addition, the European Green Paper on remediing environmental damage includes provisions on the role of compensation funds. Hence, there are ample reasons for taking a close look at compensation funds and comparing them with traditional insurance.

This article begins with an overview of the various funds. Following an attempt to formulate a few general principles of fair and efficient compensation, we consider the differences between compensation funds and insurance, and examine the reasons for the insurability of environmental damage. Finally, we examine the type of environmental damage for which funds could play a role.

The Various Funds

The impression seems to be that often – especially at the political level – funds are advocated as a miracle solution for all problems of environmental damage without any clear definition being given of the specific funds. This can be misleading since the term ‘fund’ is often used for a variety of private or public financial arrangements that may be quite different. This section outlines the kind of funds that might play a role in the field of environmental damage. This overview will make it clear that very different goals are usually achieved by these various funds.

Limitation Fund

In American literature, the idea of a fund is sometimes used to refer to the situation where mass damage is caused by similar products or services. The problem that usually arises in these cases of serial damage (e.g. with toxic torts) is that the liable enterprise may be willing to agree to a settlement with the victims, on condition that it can offer a fixed sum to all the victims in a final settlement for the damage caused by the specific tort. The manufacturer then raises a fund that is used to compensate all the victims.
is known as a limitation fund since the enterprise agreeing to such a settlement will usually wish to limit its liability to the amount brought into the fund. In this case, the risk is not spread among other (potential) manufacturers since the fund is financed only by the liable manufacturer. Examples of such a fund are found in the field of civil liability for oil pollution damage. Article V of the Convention on Civil Liability for Oil Pollution Damage provides that a liable tanker owner may establish a limitation fund to compensate victims. In return for the payment of a particular sum, the duty to compensate is usually limited to the amount made available. Recently, it has also been argued in the Netherlands that a solution in the form of a limitation fund would make compensation for health damage caused by exposure to toxic substances much easier. A problem that will inevitably arise, however, with environmental damage is latency; but it is essential for the limitation fund that latecomers are excluded. Therefore, it may not be the ideal solution for environmental damage. The goal of a limitation fund is not so much to provide a remedy against, for example, disappearing perpetrators, but to have an adequate instrument to divide the available proceeds among the victims in cases of serial damage.

Limitation funds may nevertheless still play a role in respect of environmental damage. Where it is feared that an activity might cause harm in the future, then at the start of the operation, the enterprise involved in the activity could be asked to pay a substantial amount ex ante which would become available in the event of damage to the environment. If damage occurs, the liability would be limited to the amount that was paid into the fund. This regime has recently been proposed by Bocken in a Flemish Decree on Environmental Policy. The advantage of such a regime for the enterprise is obvious: (i) it would know the amount to be paid, which is never the case when an enterprise is subjected to unlimited liability, and (ii) the amount reserved for compensating environmental damage (through either insurance, a payment in cash, a bank guarantee or any other financial guarantee to be approved by the agency) can be paid back after the operations if no environmental damage occurs. Thus, the money is not lost as with the payment of insurance premiums. From society’s point of view, the advantage is that there is at least certainty that an amount of money deemed adequate to compensate environmental damage will be available in case an accident happens.

Case of asbestos victims, it has been argued that it is highly unfair for the (relatives of) victims to receive compensation post mortem. This arises because of the relatively short time between the discovery of the illness and the victims’ death. For this reason, an advancement fund has been proposed in the Netherlands as a remedy for asbestos victims.

Examples of advancement funds can also be found in environmental legislation. In Belgium, the Act of 10 January 1977 provides for an advancement fund for damage caused by groundwater extraction. However, it is again uncertain whether this fund can play an effective role in the case of environmental damage. The reason why compensation funds are sometimes defended with respect to environmental damage is not so much related to the long court procedures but rather to the uninsurability of certain environmental risks or to the fact that no individual injurer can be identified. If these are the problems which will need to be overcome, an advancement fund may not necessarily provide the appropriate solution.

Guarantee Fund

Guarantee funds are well-known as instruments used to protect victims against the possible insolvency of a liable insurer or his insurer. The advantage of a guarantee fund is that it only intervenes for the so-called excess risk for which no insurance coverage has, for various reasons specific to each case, already been made available. It is essential, however, that a guarantee fund intervenes only when the compensation mechanisms, such as insurance, have failed. The possible role a guarantee fund can play in relation to environmental damage will be discussed below in more detail.

General Environmental Fund

A fourth alternative could be an environmental fund that would generally operate as a substitute for liability and insurance. Although not often stated, the impression is that the term compensation fund is usually used in this sense. However, if these compensation funds were to be used as an alternative to the liability system, the question that will inevitably arise is how would they be adequately financed. The next section considers the basic differences between compensation funds and liability combined with insurance as devices for providing compensation for environmental damage.

General Principles of Fair and Efficient Compensation

No matter how a compensation system is organized, it must always include incentives to prevent environ-
mental damage. It has often been stated that liability rules do not just have a compensatory effect, but also a preventive one. Liability rules can only have a preventive effect if the duty to compensate attaches to the actual contributor to the risk. This means that a duty to compensate should, in principle, only be on the contributor to the risk.

A second principle is that the duty to contribute should also be related to the degree to which a specific activity or entrepreneur contributed to the risk. This principle is generally included in the civil law on liability. The duty to compensate under tort law is indeed usually limited to the damage that the specific tortfeasor caused himself. Further, even if there is a collectivization of the compensation, it remains important to guarantee that the tortfeasor contributes financially in proportion only to the amount which he contributed to the risk. In insurance policies this is reflected in the idea of risk differentiation. It simply means that a higher premium is paid for bad risks than for good ones. The principle should also be applied if a compensation fund is established, meaning that bad risks should contribute more to the compensation system than good risks. This is an important aspect since it provides the contributors with incentives for prevention. Essentially, bad risks will be punished and good risks should be rewarded.

These principles are not only important from an efficiency point of view (providing optimal incentives for prevention) but also include a fairness element. Indeed, if they are not followed, it would mean that the good risks would have to pay for the bad risks and would therefore be effectively subsidizing the bad risks. Such a negative redistribution should be avoided and therefore the compensation mechanism, whether fund or insurance, ought to be financed principally by those who really contributed to the damage. Accordingly, the compensation mechanism should aim to differentiate between the contributions due. This differentiation is only possible if the insurance company or agency administering the fund possesses relevant information regarding the amount which each specific activity contributed to the risk. A key question, therefore, in helping to determine the choice between insurance and funds, is which system is better equipped with the information regarding the potential risks, so that these may be controlled in the best way.

### Funds versus Insurance

#### Risk Differentiation

Bearing in mind the principles discussed above, it does not appear that a compensation fund can provide better protection against insolvency than the private insurance markets. The assumption is that an insurer is better able to differentiate risks, being a specialist in risk differentiation and risk spreading. Insurers have the techniques to determine the share their insured contributed to the risk. Insurance funds might therefore be the preferred option provided the insurance markets are competitive. In the absence of competition, the supply of insurance coverage might be too limited or premiums might be excessively high and this could justify a preference for a compensation fund. Thus, if insurance markets are competitive, the assumption is that insurers are better able to deal with classic insurance problems, such as moral hazard and adverse selection, than the administrators of a compensation fund. In theory, it is difficult to see why a government agency, acting as administrator of a compensation fund, would have access to better information on risks than an insurer. If, however, highly technical risks are involved, then operators of certain facilities would be in a much better position than an insurance company to monitor each other. This point has been made in relation to compensation for nuclear damage. It is arguable that a risk sharing agreement between nuclear plant operators could lead to an optimal monitoring between the operators since they would possess more information on prevention and on good and bad risks, than would an insurance company. In relation to the maritime insurance market, the Protection and Indemnity Clubs, which are based on a mutual risk sharing agreement between the tanker owners, play a crucial role. With respect to these highly specialized matters, therefore, it is arguable that the operators themselves might in some cases be better suited than an insurance company to control moral hazard since they are better able to process information on particular risks. However, the given examples indicate that the use of risk sharing agreements would be of no use in a government run compensation fund.

Thus, if both insurance and compensation funds are made available, there seem to be no clear reasons why a fund would be the preferred option. There may, however, be reasons why insurance may not be able to provide coverage for certain risks, in which case a comparison should not be made between funds and insurance since the former is not an alternative. It should not, however, readily be concluded that environmental risks are uninsurable. Moreover, the question is whether a compensation fund is able to solve the insurability problems that occur with environmental damage. This is discussed below.

#### Costs

The comparative costs of insurance and compensation funds must be addressed when comparing the two instruments. Insurance will generally be cheaper
because liability insurance policies are not concluded
for one activity, but for a whole set of risks. There is
therefore one insurance policy with transaction costs
incurred only once; and the administrative structure
within the insurance company will be forced by compe-
titive pressures to be cost-effective. The costs of
risk spreading with an insurance company might also
be less than with a compensation fund. As mentioned
above, insurers are highly specialized in the use of
methods to acquire information on risk differentia-
tion. In addition, some authors argue that
insurance provides for a reduction of transaction
costs between contracting parties, because parties
can *ex ante* agree on a distribution of risks and losses
in case of an incident.20

The type of compensation fund will no doubt have a
bearing on the cost factor. With a compensation fund
run by a regulatory authority, it can be argued, by
reference to the literature on the negative effects of
bureaucracies, that such a publicly operated compensa-
tion fund would not necessarily provide compensa-
tion at lower costs than the private insurance mar-
et. The costs could be reduced if the fund is
administered privately, but in this case, there would
have to be competition with other funds to provide
incentives for cost reduction.

There would be cost advantages to a fund if it is not
considered as a substitute for the liability and
insurance systems, but takes the form of a limitation
fund à la Bocken, whereby potential injurers make an
*ex ante* reservation for potential future losses.

**Uninsurability**

**Longtail Risks**

A first problem that is often stated for the uninsur-
ability of environmental risk is latency.21 Gradual pol-
lution may cause a longtail risk which is a worry to
many insurers since they might be confronted with
claims even after the insurance policy has expired.
The longtail risk is, however, not uninsurable.22 Some
of the technical difficulties can be overcome by intro-
ducing so-called ‘claims made policies’ meaning that,
the claim to the insurance company must be made
during the period of coverage. If these claims made
policies are legally sound, insurance would in fact
cover even the longtail environmental risks.

**Retroactivity**

A second problem that may seriously limit insur-
ability is the retroactive application of liability rules.
This means that insurers are suddenly held liable in
retrospect for risks which were not foreseeable at
the time when the insurance contract was concluded.
This leads to uninsurability because no premium was
commanded nor any reserve set aside for these
risks.23

However, compensation funds cannot provide, in our
opinion, a solution for ‘old diseases’ either. A problem
within the current political debate is that compensa-
tion funds are usually advanced as a solution for
damage that already occurred in the past and for
which no ‘deep pocket’ can be found. Since a respon-
sible party or insurer cannot be found any more, it is
hardly possible to introduce a duty to contribute to
a fund for historical pollution that respects the prin-
ciple of efficiency (prevention) and justice (payment
by the contributor to the damage). A compensation
fund for historical pollution will inevitably lead to a
duty to contribute by parties other than the ones who
originally caused the damage and whose incentives
therefore had to be influenced. No matter how a fin-
ancial contribution is organized, it will never be able
to have a positive preventive effect, since the one
who caused the harm will not be the person who con-
tributes to the fund. If that person is known and is sol-
vent, there would be no need to establish a compensa-
tion fund in the first place. Therefore, if one
believes in the principles set out above, a compensa-
tion fund cannot be used for historical pollution,
and does not provide a solution for the uninsurability
of retroactive risks.

Most legal systems, therefore, now finance clean-up
operations for historically polluted sites for which no
solvent polluter can be found through the tax system.
By spreading these costs among the population at
large the negative distributional consequences are
kept as low as possible.

**Causal Uncertainty**

A third reason for the uninsurability of environmental
damage is causal uncertainty. This is generally the
case when insurers are required to provide coverage
for damage which may possibly have been caused by
parties other than the ones they have insured.24 How-
ever, the establishment of a compensation fund does
not extinguish the problem of causal uncertainty. As
soon as the financial contribution to the fund is estab-
lished, causality will have to determine the amount a
specific enterprise or activity contributed to the risk.
In addition, when a specific victim claims compen-
sation, it would have to be determined whether the
specific disease of the victim (e.g. cancer) was caused
by the activities for which the fund was erected in the
first place. There is, in general, no reason to assume
that the fund is better able to deal with these ques-
tions than a judge in the civil liability system. If a
judge is able to deal with these causality questions in
a fair way, meaning that, by using a proportionate
liability rule, he orders an enterprise to compensate
in proportion to the amount it contributed to the risk,
then all corresponding insurance problems would dis-
appear as well.

In summary, there are not, at first sight, that many
solid reasons for arguing that compensation funds
would be better able to provide compensation for environmental damage than the private insurance market. Most problems associated with the liability and insurance system also arise with compensation funds, so long as either the duty to contribute or the entitlement to compensation from the fund still need to be determined.

■ A Compensation Fund for Environmental Damage

Generally, therefore, there seems to be very few reasons to expect a compensation fund to make better provision for compensation than the private insurance market. This does not mean, however, that funds do not have a role with respect to the compensation of environmental damage.

Guarantee Fund

A compensation fund may be used to guarantee compensation in case of the injurer or his insurer’s insolvency. In this case, the fund will not replace the liability and insurance system, but will only intervene when the injurer or his insurer become insolvent. Such a combined use of the liability and insurance systems with a guarantee fund has the advantage that the incentives of the liability system remain and the fund will only need to intervene in the event of insolvency.

However, the question that arises is whether such a fund could at all be used separately from compulsory insurance. Indeed, if the insolvency of the injurer is feared, it seems more logical to discuss the introduction of a duty to insure rather than advancing too hastily a fund-solution. Looking at the present use of guarantee funds indicates that they are usually used only to guard against the bankruptcy of the insurance company. This raises the issue of whether it is at all useful to provide a general duty to insure for environmental damage. So far, only a few countries have introduced compulsory environmental liability insurance, and the Green Paper on Remedying Environmental Damage seems reluctant to impose such a duty. However, it is important to stress that in order to protect against the injurer’s insolvency, it would be more appropriate to focus on a variety of financial mechanisms which force a potential polluter ex ante to provide for compensation for future losses than to search for an ex post fund-solution. Generally, it is doubtful whether focusing on a guarantee fund that would, for example, intervene in the case of the insurer’s insolvency, is more useful than paying attention to other ex ante compensation mechanisms to provide coverage.

Restoration Fund

There is one other situation where insurance is not suitable and a compensation fund could prove to be useful. This relates to the situation where it is not possible to identify the enterprise which caused the harm. Since there is no individual who is liable, there will logically also be no insurer who will be bound to compensate. Such a situation could arise, for example, in relation to the deterioration of a specific habitat through acid rain. A compensation fund should be considered for these specific cases where no individual injurer can be found. However, the compensation fund should only be limited to these situations, so that liability rules and insurance can still exercise their preventive effects in all the other cases where an injurer can be found.

In terms of who should contribute to such a fund, ideally it would be funded by all those who contributed to the risk. However, unlike the case of, for example, a traffic accident, it is not easy to identify ex ante the kind of activities that contributed to the loss. If it is possible to argue, for example, that sulphur dioxide emissions caused the loss, economists would obviously advocate a tax on sulphur dioxide emissions to finance the fund. One reason, however, why environmental taxes are still relatively scarce in practice is that often it is hard to determine the proportion a specific activity contributed to the risk and hence to determine the optimal marginal tax rate. If this is not possible, the only alternative then is for the government to pay for the restoration of the specific site, either directly or by financing a compensation fund that would in turn finance the clean-up activity. However, since in both cases it is the taxpayer who will have to provide the finance, it is questionable whether the establishment of a compensation fund has any added value, apart from the certainty that specific public funds will be reserved for the compensation of environmental damage.

■ Conclusion

Many phenomena that include a private or public compensation scheme for environmental damage are referred to as 'Fund' solutions. In this article, we reviewed some of these solutions and compared them to traditional liability and insurance, discussing their potential to completely replace traditional insurance. However, we doubt whether a compensation fund can play the important role it is expected to play. Generally insurance seems better able to control risks and can be provided at lower costs. In addition, some problems such as the longtail risk can be addressed through adequate insurance policies. Other problems related to uninsurability, such as retroactivity and
causal uncertainty, will not be solved by the fund approach. It seems, therefore, more appropriate to use traditional liability and insurance as far as possible and to use funds only in cases where insurance markets fail and there is reason to believe that funds would be able to provide adequate compensation. In this respect, a guarantee fund could provide coverage if an insurance company falls into insolvency. However, a guarantee fund should only be introduced with a corresponding duty to insure.

It might be more interesting to focus on various legal instruments that aim to provide protection against the insurer's insolvency. The Lugano Convention on Civil Liability for Damage Resulting from Activities Dangerous to the Environment provides for such a flexible regime in Article 12 where operators are required to participate in a financial security scheme or to have to maintain a financial guarantee up to a certain limit, which need not necessarily be insurance. More flexible than a duty to insure is the proposal by Bocken to force a potential polluter ex ante to provide any kind of compensation, bank guarantee, or other kind of payment ex ante as guarantee of compensation in the event of environmental damage. The advantage of this solution is that it does not replace liability and insurance, nor does it force the potential polluter to take out insurance coverage. It provides for a flexible system whereby the potential polluter can choose any market solution provided that it is able to adequately compensate environmental damage ex post.

There is still the issue of compensation for environmental damage where no individual insurer can be identified. In these situations a fund might be warranted, although it is still unclear how it would be financed. If the polluters can be adequately identified and the degree they contributed to the risk established, the fund could be financed through a tax on the polluting activities. Otherwise the general tax system should intervene, but then there would no longer be the need for a fund.

Generally, it seems important to carefully analyze the joint use of liability rules, insurance and funds. This may lead to a combined use of these systems whereby the incentives provided through liability rules can remain unaffected and a fund might provide a useful contribution for the specific case in which the environmental damage cannot be attached to one particular polluter.

### Notes

1. See generally on the limits of insurability M. Faure, 'The Limits to Insurability from a Law and Economics Per-


7. See the inauguration address of L. Doomering-Van Rongen, Schade Vergoeden voor Fondsvoering, (Deventer, Kluwer, 1996).

8. This was the reason that the European Directive on Product Liability also incorporated the idea of a limitation fund in art. 16 which gave Member States the option to limit liability for serial damage to an amount which may not be less than 70 million ECU. However, only a few Member States have made use of this option.


12. For an overview concerning the current use of various compensation funds, see H. Bocken, 'Systemen Alternaties voor Indemnisation des Dommages du a la pollution', Revue General des Assurances et des Responsabilites, (1990), 11698-11714 and H. Bocken, 'Alternatives to Liability and Liability Insurance for the Compensation of


18. These 'joint compensation systems' are also discussed in the Green Paper on Remedying Environmental Damage (Com (93) 47 final).


25. As has been suggested in the literature, among others by E. Hulst, Grondslagen van Milieuzaansprakelijkheid, 518.


27. Other causes of failure of traditional liability and insurance are discussed by H. Bocken, 'Deficiencies of the system of liability and liability insurance as a mechanism for the indemnification of environmental damage suffered by individual victims', in H. Bocken and D. Ryckbosch, (eds.), Insurance of Environmental Damage, (1994) 47.


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