Ad-Hoc INDUSTRY

NATURAL RESOURCE MANAGEMENT GROUP

WHITE PAPER
ENVIRONMENTAL LIABILITY FUNDS IN THE CONTEXT OF THE EUROPEAN UNION ENVIRONMENTAL LIABILITY DIRECTIVE

PREPARED BY, FOR AND IN COOPERATION WITH THE EU INDUSTRIAL COMMUNITY

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EXECUTIVE SUMMARY

This White Paper discusses fundamental policy and legal issues associated with environmental liability funds, including the key issues with respect to the need for and justification of a fund, in the context of the 2007 Environmental Liability Directive (ELD).

Based on an analysis of the developments in the area of financial security, the provisions of the ELD, a comparative assessment of available options, and other relevant considerations, this White Paper reaches the following conclusions:

- Any fund proposal should be considered in the context of the ELD process, not separately.

- To reach sound conclusions, any fund proposal should be compared to other policy options. Far from being a panacee for all problems, an environmental liability fund has limited application in certain specific situations.

- Given the current developments in the market for financial security, including insurance, a fund will likely not be necessary or justified to enhance financial security. Recent developments in the insurance market are encouraging.

- If an environmental liability fund is deemed necessary for certain operations or companies, or in certain Member States, it should be optional and operators should be allowed to put other financial security (such as self-insurance, mutuals, and captives) in place. As a fund raises many of the same issues that are raised by insurance and other financial security instruments, a flexible mix of instruments tends to produce better results and increase efficiency.

- The scope of an environmental fund should be appropriately limited. The ELD regime does not require that an operator prevent or restore each and every instance of environmental damage: thresholds apply, certain damage is exempt, or an exception or defense may apply. A fund, of course, cannot go further than liability under the ELD.

- By emphasizing remediation, a fund tends to adversely affect the incentives to prevent damage. The prevention of damage is a key objective of the ELD, and any negative effect on prevention hinders achievement of this objective.

- A fund is not a stopgap for poor corporate environmental management and non-compliance, or the government's failure to enforce the law. If a fund effectively remedies the consequences of poor management and non-compliance at the cost of companies that are not responsible for them, it fails to meet the ELD's objectives and the polluter pays principle.

- An environmental liability fund at the EU level is likely to produce significant diseconomies of scale, and it is doubtful whether such a fund could be established consistent with EU law requirements.

- Any national environmental liability fund should have a limited scope in terms of damages and sectors of industries covered. There is no reason for bringing damages other than environmental damages within such a fund's scope.

- If a fund is established, it should be designed and operated in well-informed ways to increase its chances of success. Past experience points to the critical conditions for success. Specific expertise is required throughout the process.

This White Paper has been prepared for broad industry use to provide a framework for discussion concerning compensation or relief funds for environmental damage in the context of other financial security and insurance aspects of the ELD. As warranted, this White Paper will be revised or expanded in the future.

1 THE ELD AND FINANCIAL SECURITY: WHY ANY FUND PROPOSAL SHOULD BE REVIEWED IN THE CONTEXT OF THE ELD

This White Paper is intended to address fundamental issues associated with environmental liability funds, including some of the key policy issues. It discusses how funds relate closely to liability, and why any fund proposal should be considered in the general context of financial security and the recent developments in the market for financial security, including insurance. There are significant issues around the necessity and desirability of a fund, which require careful analysis. A proposed fund can be rationally compared to other policy options. This White Paper illustrates the complexities of the fund approach and discusses key structuring and design issues, as well as the operation and management of funds.

This paper should be read in conjunction with the Ad-Hoc Industry Natural Resource Management Group's (Group) White Paper on financial security,[1] which provides a general analysis of financial mechanisms to secure funding for the restoration of environmental damage. A copy of the White Paper on financial security is attached hereto as Annex 1. Unfortunately, the current discussion on funds has been separated from the ongoing process regarding financial security pursuant to the 2007 Environmental Liability Directive (ELD).[2]

Financial security has been linked to the ELD by design. The ELD implements the 'polluter pays principle' and establishes a liability regime for damage caused to natural resources, water, and land. Under the ELD, operators are required to take measures to prevent environmental damage, and, if covered damage occurs, as a general rule, they must restore it.[3] Liability under the ELD is triggered only if the damage caused is significant and several other conditions are met. Past experience has shown that the restoration of environmental damage caused by industrial accidents and other events can require substantial amounts of money. As the ELD limits liability only qualitatively, and subject to the discretion of the authorities, there is a risk that the liable operator does not have sufficient assets and credit to finance the full restoration costs. Financial security, of course, is aimed at ensuring the availability of funds if damage is caused and, conversely, limiting the insolvency risk. A specific financial security mechanism that invariably is proposed in environmental liability discussions involves funds.

1.1 The Commission Review of Financial Security

The ELD does not require that operators provide *ex ante* financial security, but leaves this issue to the Member States. Pursuant to Article 14(2) of the ELD, the Commission was to prepare a report on "the availability at reasonable costs and on

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[1] Ad-Hoc Industry Natural Resource Management Group. White Paper: Financial Security and Insurance Aspects of the European Union Environmental Liability Directive. Brussels, February 2009. See Annex 1 to this document.

[2] Directive 2004/35/CE of the European Parliament and of the Council of 21 April 2004 on environmental liability with regard to the prevention and remedying of environmental damage, OJ L 143, 30.4.2004, p. 56–75. (ELD).

[3] For the detailed rules, see Directive 2004/35/CE, OJ L 143, 30.4.2004, p. 56–75.

conditions of insurance and other types of financial security for the activities covered by Annex III." The report was to cover several aspects in relation to financial security: "a gradual approach, a ceiling for the financial guarantee and the exclusion of low-risk activities." In the light of that report, and of an "extended impact assessment, including a cost-benefit analysis," the Commission was to submit, "if appropriate," a "proposal for a system of harmonised mandatory financial security."

In response to this reporting obligation, the Commission hired a consultant in 2008 to carry out an exploratory study, followed by a more comprehensive study in 2009. In addition, as part of the follow-up study, a workshop on "Implementation efficiency of the environmental liability directive (ELD) and related financial security issues" took place on 10 July 2009. The issue of funds was not discussed in any of these studies, nor at the workshop.

In October 2010, the Commission adopted a report on the effectiveness of the EU Environmental Liability Directive in terms of remediation of environmental damage and on the availability of financial security to cover environmental liability.[4] This report refers to funds as a possible security instrument, but does not discuss the fund option. The Commission found that "[d]espite the financial crisis, evidence suggests that the ELD insurance market is growing in the EU and that an increasing variety of products is available." It concluded that "[b]ecause of the lack of practical experience in the application of the ELD, the Commission concludes that there is not sufficient justification at the present time for introducing a harmonised system of mandatory financial security." With respect to financial ceilings of established financial security in light of potential large scale accidents, the Commission makes the following observation:

> "The ability of existing financial security instruments to cover massive incidents needs to be assessed in connection with applicable financial ceilings and the potential of different types of instruments, such as funds, insurance, guarantees, etc. In this context, the review will aim at discovering the most efficient ways of ensuring sufficient financial resources in case of large scale incidents that involve responsible parties with mediocre or even low financial capacity."

1.2 The 2014 Commission Report

By April 2014, the Commission will submit a further report on the ELD's implementation, which will discuss, inter alia, the "results of the actions to promote and the implementation of the financial security instruments used in accordance with" the ELD. This report will likely also "re-examine the option of mandatory financial security."[5]

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[4] Report from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions under Article 14(2) of Directive 2004/35/CE on the environmental liability with regard to the prevention and remedying of environmental damage. Brussels, 12.10.2010, COM(2010) 581 final.

[5] In its 2011 report, the Commission suggested that it might do so even earlier, although that seems unlikely at this juncture.

As long as there has been environmental liability (long before the ELD's adoption), environmental funds have been suggested as the solution for the kinds of issues discussed above. In the long process leading up to the ELD, the Commission's 1993 Green Paper already discussed environmental compensation funds.[6] In 2000, the Commission's White Paper provides analysis of some of the issues relating to funds (see further below).[7] Recently, another fund proposal has been submitted, and is currently being reviewed on behalf of the Commission. A summary of this proposal is set forth in Annex 2 attached hereto.

This review process, however, should not stay separate from the ELD process. Because a fund is a possible financial security instrument, any fund proposal should be assessed in the review process pursuant to the ELD process. In the context of that process, any proposal for a fund-based approach could be considered as one of several policy options. Any proposals for funds should be evaluated in light of the developments in the market for financial security. The strengths and weaknesses of a fund should be weighed carefully against the strengths and weaknesses of alternatives, in the context of the assessment framework described above.

[6] European Commission. Green Paper on remedying environmental damage. COM (93) 47 final, 14 May 1993.

[7] European Commission. White Paper of 9 February 2000 on environmental liability. COM(2000) 66/

2 DEVELOPMENTS IN FINANCIAL SECURITY AND CONTEXT FOR CONSIDERING FURTHER MEASURES

Recent developments in the market for financial security, in particular insurance, play a major role in assessing the need for any fund. Pursuant to the ELD, Member States "should take measures to encourage the use by operators of any appropriate insurance or other forms of financial security and the development of financial security instruments and markets in order to provide effective cover for financial obligations under this Directive."[8] The extent to which financial security and insurance have developed, varies between Member States, but overall the trend appears to be positive.[9]

2.1 Insurance Market

Proponents of funds have suggested that a fund would be necessary because the market fails to provide adequate insurance covering environmental and related liabilities (insurance market failure). Insurance coverage offered in the private market would be too limited in scope and covered amounts. This kind of argument, however, is problematic for at least two reasons.

- First, it ignores the fact that the insurance market is still evolving and that the situation may be very different in two or three years. There appears to be no reason why liability under the ELD would be inherently uninsurable, although enhanced predictability in ELD application (which is within the control of the ELD authorities) would help to increase insurability.

- Second, to the extent that insurance coverage for certain risks is currently not offered in the insurance market, it is important to understand the reasons. They may point to a risk that would only be aggravated by a fund approach.

Since the ELD's introduction, the development of insurance products has made significant progress, and the last several years have shown steady growth of the ELD insurance market. How quickly and how full insurance develops, however, is to a large extent a function of the specific country and legal system concerned; the ELD-transposing legislation of countries such as Hungary, have not helped the development of the insurance market.

In general, problems that hold the ELD insurance market back include the lack of data necessary for accurate prediction of risk, the lack of precision of key legal concepts, and the broad discretion of the authorities in applying the ELD in practice, all of which make it harder for insurers to predict the risk. These problems do not require funds, but targeted approaches to creating a reasonable, balanced, and predictable ELD

[8] Recital 27, ELD.

[9] Presentation, "The environmental liability insurance market and feasibility of a fund or risk-pooling scheme for industrial liabilities", Carmen Bell, Insurance Europe, 7 November 2012 Workshop "Study to explore the feasibility of creating a fund to cover environmental liability and losses occurring from industrial accidents".

environment. A premature move to create a fund would risk disruption of the evolving insurance market and thus cause very substantial set-backs.

If insurance is not offered for all ELD-related risks, an analysis should be made to understand what risks are not covered and why they are not covered. Importantly, this analysis should focus on the question whether the issue is a temporary one that will be resolved over time, or a structural one that may require a different approach. If the issue is not likely to be resolved with time, there may be good reasons why no coverage is extended. Insurance relates in complex ways to risk, and is a complicated mechanism for managing risk. To understand how and why this is relevant, the relation between insurance and risk should be understood.

In addition to risk spreading, insurance has important risk-reducing effects,[10] which are hard (or even impossible) to mimic through a fund. Insurance reduces risks in two ways: first, it reduces the underlying injury rate and, second, it reduces the effective cost of remaining injuries by lowering the magnitude of total risk.[11] This works as follows:

- Through risk aggregation[12] and risk segregation, insurers reduce risk variance and, thus, insurance premiums. By segregating an insured into a risk pool with a sufficiently narrow range of exposures to risks, the insurance premium remains attractive to persons in the low end of the range. This technique will keep the risk pool intact. Once the disparity between the insurance premium and the exposure of the low-risk pool members becomes too great, the risk pool will unravel. Segregation reduces both pool risk and insurance cost, and, accordingly, adverse selection.[13] Compensation funds cannot offer these advantages, because they do not operate on the basis of sophisticated risk aggregation and segregation techniques.

[10] L. Bergkamp. 'Environmental Risk Spreading and Insurance', Review of European Community & International Environmental Law(2003), 12: 269–283.

[11] G.L. Priest, 'The Current Insurance Crisis and Modern Tort Law', 96 Yale Law Journal (1987). at 1521-1590; G.L. Priest, Internalizing Cost, Working Paper (Yale Law School, 12 January 1989). Insurance's risk-reducing effects, according to Priest, are likely to be far more significant than the risk-spreading effects.

[12] Since an insurance company aggregates many potential losses incurred by the insured pool, the law of large numbers makes the total loss to the insurance company more predictable, as a result of which the insurance company's reserves for anticipated losses is much smaller than the total of all reserves of individual risk bearers and, thus, losses can be dealt with more efficiently. The law of large numbers makes the total loss more predictable. In other words, the law of large numbers states that where one has a pool, there is a spread in numbers and an average, and if one takes a sample from the pool, the larger the sample, the more likely it is that the average number in the sample will be identical to the average for the whole pool. Consequently, the reserves aggregated losses are less than the total of individual reserves for non-aggregated losses. See R Riegel. J,S. Miller and CA Williams Jr. Insurance Principles and Practices - Property and Liability. 6th edn, (Prentice Hall. 1976), at 15-21; J.M, Marshall. 'Insurance Theory; Reserves v. Mutuality', 12 Economic Inquiry (1974), at 476-492.

[13] Adverse selection refers to the phenomenon that high-risk actors are more likely to purchase insurance than lower-risk actors. Legal uncertainty may aggravate adverse selection. American Law Institute. Reporters' Study: Enterprise Responsibility for Personal Injury. Vol, I, (American Law Institute, 1991), at 86.

- As noted above, insurance can help also to reduce the level of injuries actually suffered. This effect flows directly from the risk-segregation function of insurance. Through the amount of the premium charged, insurance informs decisions as to whether and how much to engage in the covered activity: high risks are charged a high premium and thus there is an incentive to scale down the activity.[14] As a result of very high premiums, high-risk undertakings may not be able to contract insurance and may refrain from engaging in the pertinent activity, which tends to make the overall activity safer.

- In addition, to the extent that insurance companies possess superior knowledge about risk reduction and bring this expertise to bear in their relations with insureds, insurance can also play a direct role in risk reduction. Insurance companies, for instance, may monitor the activities of insureds[15] and require preventive measures in situations in which they are known to be efficient.

Thus, in addition to possible benefits through increasing utility, insurance may result in increased efficiency through reduced total risk and reduced total costs. None of these processes can be effected through compensation funds, at least not without a very sophisticated approach. Thus, relatively, funds increase the underlying risks and total costs.

2.2 Other Financial Security Options

The Group's White Paper on financial security discusses, in addition to insurance, other financial security instruments, such as self-insurance, credit lines, parent guarantees, bank guarantees, bonds, etc. Each of these instruments have their own cost/benefit profile, and their costs and benefits tend to vary depending on the company involved; self-insurance, for instance, may be an expensive option for a single, small company, but an attractive option for a group of companies.

Any proposed fund therefore should be compared not only to insurance but also to other financial security instruments. As discussed below, such comparisons should take into account variability in the needs of companies, adaptability of the instruments involved, and other factors. As the Commission has observed, "[n]o financial security system, be it insurance, bank guarantee or a trust fund, will provide unlimited liability."[16] A flexible mix of instruments adapted to the operators and the Member States in which they operate will therefore likely provide the best possible coverage.

[14] In addition to risk transfer and risk spreading. according to the American Law Institute reporters, insurance performs a 'risk-allocation function by charging each policy holder in proportion to the risks the latter poses', See American Law Institute. Reporters' Study: Enterprise Responsibility for Personal Injury. Vol, I, (American Law Institute, 1991). at 66-67

[15] Insurance may provide a valuable function by monitoring the activities of the insured. P.K. Freeman and H. Kunreuther. Managing Environmental Risk Through Insurance (Kluwer. 1997), at 25.

[16] 2011 Commission report, p. 8.

3 THE IMPORTANCE OF FLEXIBILITY IN FINANCIAL SECURITY AND IMPLICATIONS FOR ANY FUND APPROACH

As discussed in the Group's White Paper on financial security, it is important that systems for financial security be flexible and accommodate all possible instruments.[17] This is important because the needs of companies subject to the ELD differ widely, as do the laws and practices of the Member States. Flexibility and choice are critical to an efficient financial security system. Mandatory financial security requirements are not helpful because they tend to reduce the requisite flexibility and increase cost. Likewise, any fund should be optional, so that companies that need it can participate and those that rely on other financial security instruments, are not required to participate. Beyond the question of the mandatory nature, the concept of a fund is far from obvious and further clarification is required.

3.1 Issues Raised by Funds

Funds raise a series of critical issues. The most important set of issues relate to the effects on prevention. Given that funds focus on financing restoration, they tend to undermine incentives for prevention. Under a fund approach, financial contributions are to be made by the companies operating the activities that create the covered risk. A fund requires from companies financial contributions that do not accurately reflect the risk their activities pose (e.g. levies based on revenues). Compared to insurance, funds are inferior in terms of risk reduction. By allowing covered companies to transfer the risk of causing environmental damage, a fund directly diminishes incentives for taking preventive measures. In other words, funds are not capable of managing 'adverse selection' and 'moral hazard' as well as insurance is.[18] Moral hazard, of course, is a big problem because it inflates cost.

Its adverse effects on incentives to prevent damage imply also that a fund tends to conflict with the ELD's prevention objective. This, in turn, implies that a fund tends to work against the 'polluter pays principle' on which the ELD is based. In the context of the ELD, the 'polluter pays principle' is a cornerstone because it enables the ELD to pursue prevention and remediation simultaneously. A fund, however, tends to sacrifice prevention to restoration.

Where financial contributions made to a fund do not reflect individual risk or reduce incentives, prevention suffers. A fund cannot solve this problem by pursuing the actual polluter at a later stage. Such cost recovery tends to result in the fund recovering only from large, solvent companies, not from any insolvent companies, which would basically mean that solvent corporations would pay not only for damages they cause, but also for damages caused by insolvent competitors. The proponents of funds may

[17] White Paper, p. 12-13.

[18] Moral hazard causes insureds to be less careful and to incur higher costs than they would have had they not been insured. To control moral hazard, insurers employ instruments such as deductibles, co-insurance, caps, exclusions, premium differentiation, bonus/malus mechanisms, and the like. J.E. Stiglitz. 'Risk, Incentives and Insurance: The Pure Theory of Moral Hazard', 8 Geneva Papers on Risk and Insurance (1983), at 7-33.

not think this is a problem, but it is inconsistent with the polluter pays principle and the ELD's prevention objective.

3.2 Comparison of Funds and Other Options

As noted above, a fund is often advocated because regulation, liability, and financial security do not provide a perfect solution in all cases. This argument is pointless, however, because a fund cannot provide a perfect solution in all cases. The right method for assessing financial security instruments, including funds, involves a comparative cost/benefit analysis. Along with other options that can pursue the same objective, a proposed fund should be analyzed in terms of costs and benefits. As part of this analysis, the objective needs to be understood, and, inasmuch as a fund proposal invariably is a response to an actual or perceived problem, the gap, shortcoming, or other issue needs to be analyzed carefully. Moreover, the objectives and rationale of the proposed fund should be understood in the specific context and in light of the limitations of funds in general. Key questions are: what specific issue will the fund solve, and why is a fund the preferred solution?

There are several frameworks for analyzing funds versus other options. A comprehensive, efficiency- and justice-based framework is the preferred way to conduct this comparison. One such framework focuses on the extent to which an option reduces the total costs (including both economic and non-economic costs) associated with managing environmental damage.[19] Conventional cost/benefit analysis provides a somewhat broader framework for assessment. In due course, the issue of financial security under the ELD will have to be considered pursuant to the Commission's 2009 Impact Assessment Guidelines.[20] Impact assessment is a tool to ensure that Commission initiatives and EU legislation are prepared on the basis of transparent, comprehensive and balanced evidence. This kind of assessment will identify the policy options and flesh out the costs and benefits of each,[21] as well as the 'trade-offs' that may have to be made.

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[19] These total costs can be broken down into three components:
• Primary cost: This is the damage caused by the accidents and incidents themselves. Prevention, of course, reduces this cost. Efficient prevention measures should be taken to reduce this cost.
• Secondary cost: This is the cost associated with bearing the losses caused by accidents and incidents. Risk and loss spreading, and loss transfer to less risk-adverse parties, are ways to reduce this cost.
• Tertiary cost: This is the administrative cost associated with managing primary and secondary cost.
Cf. Calabresi G. The Cost of Accidents. New Haven: Yale University Press, 1972. In general terms, in choosing between available options, the one that produces the lowest total cost is to be preferred.

[20] European Commission. Impact Assessment Guidelines. SEC (2009)92. Brussels (2009).

[21] In direct comparison of options, for instance, one may find that the administrative cost of a fund exceeds the administrative cost of another option.

4 DESIGN AND OPERATION OF FUNDS: KEY ISSUES TO CONSIDER

4.1 Types of Funds and Objectives

The term 'fund' is employed for many different types of arrangements, which tend to have one element in common: a certain amount of money is set aside (or can be set aside in short order) to address a certain issue that requires funding. A first, important distinction is to be made between funds that are established prior to any incident (*ex ante*), and those that are established after an incident, or series of incidents, has occurred, or is certain to occur (*ex post*). An example of an e*x post* fund is a compensation fund for people who have suffered personal injury from exposure to asbestos. In this case, it has been proven that asbestos exposure causes certain specific diseases, liability for the harm has been established, and the liable persons have been identified; only they pay into the fund. If a liable person pays an agreed amount into the fund, that person will no longer be liable. Thus, in this case, the fund solution is combined with a liability limitation (i.e. the amount paid into the fund is the total amount of liability).

For present purposes, *ex ante* funds are the relevant category. They come in many forms. The main categories are as follows:

- *Humanitarian relief funds*: These funds provide humanitarian relief when disasters have occurred. At the EU level, there is a Solidarity Fund, which provides relief with respect to natural disasters. The rules governing this fund could be amended to permit relief payments also with respect to industrial disasters, which would meet one of the objectives pursued by the Hungarian proposal (for the details of this proposal, see Annex 2).

- *Environmental subsidy fund:* Such a fund provides subsidies for certain projects that benefit the environment. The scope of eligible projects can be broad or narrow. Where the Hungarian proposal would make loans or grants available to operators for prevention measures, it would involve an environmental subsidy fund (with an environmental loan component).

- *Emergency response fund*: This kind of fund provides financing for measures that are necessary immediately following an incident or accident to limit or mitigate the ensuing damage. In the context of environmental damage, such a fund could finance spill control measures intended to limit contamination of soil, groundwater, and surface water; it would not fund remediation of damage caused. The Hungarian proposal includes such an emergency response fund.

- *Orphan damage fund*: This kind of fund provides funding in respect of damage for which no liable person can be identified, or where the liable person is insolvent or has a defense. If the damage falls within the fund's scope and there is no liable person, the fund could finance restoration of the damage. This, too, is part of the Hungarian proposal.

- *Excess liability fund*: Such a fund would address the issue that potentially liable persons are unable to procure insurance coverage for the full amount of their potential liability. The fund would step in if a covered person causes covered damage, but only to the extent the amount of the liability exceeds the coverage threshold. Since the fund's threshold is directly linked to insurability, the relevant insurance coverage limits must be known, including the limits of excess liability insurance. The Hungarian proposal includes also an excess liability fund.

- *Environmental liability (or compensation) fund*: This fund provides funding for the restoration of environmental damage falling within its scope, but not on an excess liability basis. The coverage conditions can vary, depending on the context in which the fund operates. A common form is a fund that guarantees the obligations of liable operators (also known as a *guarantee fund*). In the form of 'pre-financing,' the Hungarian scheme would include this kind of fund too.

It is conceivable that a fund performs more than one of these objectives, but for such an option to be viable two conditions must be met. First, with respect to each objective, it must be ascertained that a fund is the best option to address the specific issue identified. If a proposed fund pursues several of these objectives, one should determine whether it is a sound option with respect to each objective. Second, the pursuit of multiple objectives by the fund must not create conflicts. For instance, the objective of providing grants or loans for prevention measures conflicts with the objective of providing actuarially sound coverage of excess liability, which requires building up adequate reserves, not making grants for prevention measures.

Some, but not all, of these funds are tied to an environmental liability regime. An environmental compensation fund is often tied to liability program, but not necessarily so. Of course, a compensation fund can also completely replace a liability and/or insurance program. In the context of the ELD, a fund would be tied to a liability program.

4.2 Successful Funds

Successful funds tend to share certain characteristics. The key characteristics are the following:

- They are tied strictly to a well defined liability program, and related specific financial security arrangements, such as insurance.

- They are very targeted, have a limited scope, and operate in a specific sector and in relation to a specific activity (for instance, oil pollution caused by transport by ship over sea, or off-shore production of oil).

- They do not reduce prevention incentives, avoid cross-subsidies between participants, do not distort competition, and do not affect international competitiveness of the European industry.

- They have been established and/or are operated by the direct stakeholders or at least with extensive stakeholder participation, so that specific expertise can be brought to bear in the fund's design and operation and there are incentives to avoid inefficiencies and unnecessary cost.

4.3 Level and Scope of Fund

4.3.1 EU or National Funds

If a fund is a viable option, the issue arises whether a fund should be considered at the EU level or at the Member State level. This is a particularly important question because the level at which a fund operates will be relevant to its efficiency and ability to meet specific needs. For example, a fund at EU level may produce diseconomies of scale, because the fund will have a harder time meeting the specific, diverging needs of all Member States.

There are also legal requirements that need to be considered. First, does the EU have the legal authority under the Treaties (the 'principle of conferral') to establish an ELD-related fund at EU level and require funding directly from private entities? Second, if the EU is competent, is the subsidiarity requirement met? The Member States are currently free to establish funds if they wish. They have decided against an obligation to set up a fund when adopting the ELD and insisted on a process for evaluating financial security after some period of time; this does not suggest that the EU should step in now with a fund proposal. It is not obvious that a fund solution "cannot be sufficiently achieved by the Member States, either at central level or at regional and local level, but can rather, by reason of the scale or effects of the proposed action, be better achieved at Union level."[22] The fund option may be of interest to only a minority of Member States. The proportionality principle[23] should also be met, which requires further analysis based on a specific proposal.

Further, although the regulatory and liability regimes in the environmental area to a large extent have been harmonized, there are substantial differences in the relevant laws and practices of the Member States. The extent to which environmental insurance is available differs widely (and this is, in part, a function of the Member State's performance in implementing the ELD). In addition, there is a big difference in the appetite for funds in general among the Member States. These differences suggest that any fund, if any, should be tailored to the specific needs of the Member State concerned, rather than imposed by the EU.

[22] Article 5(3), Treaty on European Union, Official Journal 115 , 9 May 2008, at 18.

[23] "Under the principle of proportionality, the content and form of Union action shall not exceed what is necessary to achieve the objectives of the Treaties." Article 5(4), Treaty on European Union, Official Journal 115 , 9 May 2008, at 18. The EU institutions must apply the principles of subsidiarity and proportionality as laid down in the 'Protocol on the application of the principles of subsidiarity and proportionality.'

4.3.2 General or Sector-Specific Funds

A separate issue is for which part of industry a fund should operate. In theory, it could operate for all of industry, or all entities subject to the ELD's strict liability program, or substantial parts of industry, such as the petroleum and chemical industry. As noted above, however, successful funds tend serve a very specific sector of industry and/or cover specific activities.

Like a fund at the EU level, a fund that operates for substantial parts of industry, as would be the case under the Hungarian plan, would run the risk of producing substantial diseconomies of scale. It would tend to involve significant cross-subsidies, cause adverse effects on prevention, and require significant administrative expense.

A fund approach works best if the risks covered by the fund are similar in nature and degree, so that cross-subsidies do not play any significant role. To prevent adverse effects on prevention, it is important that losses that could have been efficiently prevented, cannot be shifted to the fund. On the side of the participants, avoidance of perverse incentives requires sound, well-documented and verifiable risk management procedures and practices. At the side of the fund managers, this requires a system of risk assessment and monitoring to ensure that participants meet their obligations. Because insurance, as discussed above, generally does a better job at risk assessment and monitoring, a fund should not be considered if insurance is available.

4.3.3 Types of Damages Covered

Another critical design question is which types of damages are covered by the fund. The ELD imposes strict liability for damage to protected habitats and species, land, and water, and fault liability for damage to protected habitats and species. It would therefore make sense for any fund to cover only these kinds of harms. If the ELD is amended to cover also damage to the marine environment off-shore, that type of damage could also be covered. (This, of course, does not mean that there should be only one fund for all, or a substantial part, of industry.)

It has been suggested, however, that an environmental fund should cover also 'traditional damage,' i.e. personal injury and property damage, and sometimes even economic loss is added. The proposed policy rationale for doing so is that large incidents often cause, in addition to environmental damage, property damage and personal injury, and that there is no reason to single out environmental damages. Irrespective of whether this argument is sound, there is a fundamental difference between ELD-covered damages and other types of damages in terms of the applicable legal regimes. Environmental damage is subject to EU law, i.e. the ELD, while there is no comprehensive EU framework for personal injury and property damage (except where, in some cases, the Product Liability Directive[24] may apply), which means that

[24] Council Directive 85/374/EEC of 25 July 1985 on the approximation of the laws, regulations and administrative provisions of the Member States concerning liability for defective products, as amended by Directive 1999/34/EC.

these conventional types of damage are subject to diverging national laws and practices. Only for that reason, this decision should be left to the Member States.

There is also an important issue as to whether a fund should guarantee only obligations under the ELD, or also cover environmental damage more broadly. Clearly, an ELD fund would cover only environmental damage that falls within the ELD's scope of application. But would it cover environmental damage that is exempt or excluded from the ELD, or that does not meet the conditions set out in the ELD, or as to which the operator has a defense or is otherwise not liable? Covering damage beyond the scope of ELD liability would conflict with this legal regime and raise unnecessary complications. Any pay out by the fund should therefore be linked strictly to the presence of an operator that has been found to be liable under the ELD for the damage concerned.

4.4 Funding and Financing

Funding is a critical aspect of any compensation fund. In general terms, as long as a fund functions in a way that provides proper incentives for prevention, financial contributions are to be made by the companies operating the activities that create the covered risk. In setting contributions payable by covered companies, four principles should be followed:

- The amount payable in advance should be a function of the risk posed by the individual company, and not be based on an average for the whole group. This will require a sophisticated system of risk assessment and monitoring, and cannot be based on proxies that are easy to measure (such as production volume) but do not accurately reflect individual risk.

- Consistent with the 'polluter pays principle,' at the end of a given period of time (e.g. five or seven years), in a further settlement, the companies that actually caused damage should pay additional amounts and those that have not caused any damage should receive a refund. This could be in the form of 'bonus/malus' system or some other system for reflecting actual risk, as opposed to predicted risk.

- The rules should not discriminate against companies based on size or sales volumes. The contributions should reflect only the risk brought by the company concerned to the fund.

- This implies also that contributions are set and assets are managed on an actuarially sound basis (not on a 'pay as you go' basis). The level of reserves built up in the fund should not be excessive, but be consistent with best insurance industry practice.

The amounts payable should be set by independent fund managers based solely on these principles, and not reflect political or other considerations.

From this perspective, the Hungarian proposal is problematic; financial contributions do not reflect individual risk, and reserves would disappear through the prevention subsidies program. The Hungarian program contemplates that the fund would recover its expenses from the polluter, but this may result in the fund recovering only from large, solvent companies, not from any insolvent companies, which would basically mean that solvent corporations would pay not only for damages they caused, but also for damages caused by insolvent competitors.

Under the Hungarian proposal, pay-out would occur immediately, apparently before it has been ascertained that the damage concerned is covered by the ELD, or that there is a liable operator. It is unclear whether in such cases the fund would recover its expenses from the operator concerned, or whether they would be borne by all contributing companies.

4.5 Control and Claims Management

An environmental fund should be controlled and managed in a proper, actuarially sound manner, without a profit objective. The following two concepts can guide the governance of a fund:

- An environmental fund is managed by an independent fund manager that is not subject to political and policy influence.

- The fund manager is accountable to an independent board of overseers. The companies that contribute to the fund are represented on the board.

In accordance with a set of principles, the fund manager determines the amount of the contributions payable by participants, as well as the rules and procedures for the management of claims. Thus, all claims are verified and handled in accordance with pre-established rules. A requirement for immediate pay out before claim verification proposed would be inconsistent with proper claims management procedure.

5 A SUGGESTED PATH FORWARD FOR FURTHER CONSIDERATION OF THIS ISSUE

Like any liability program and, indeed, any regulatory program, the ELD liability regime is not a perfect solution to the prevention and restoration of environmental damage. The polluter may be unidentifiable or insolvent, the damage may be exempt, the operator may have a defense, the causal requirements may not be met, or it may not be possible to prove that the prerequisites for liability are met. In all of these cases, the operator does not, or is not required to, remedy the environmental damage or pay for its restoration. At the same, all of the cases should be clearly distinguished and cannot be treated as one and the same issue that can be addressed with one and the same solution. No program provides a perfect solution, and this is true for financial security and funds too. In some of the cases, an obligation for the Member States to restore environmental damage may be the appropriate solution.

The current debate on the feasibility of an environmental fund cannot be conducted outside the context of the ELD regime and the ongoing process regarding financial security. As discussed in this White Paper, given the current developments, a fund will likely not be necessary or justified to enhance financial security. If a fund is deemed useful for certain operations or companies, it should be optional and operators should be allowed to put other financial security in place. Specifically, insurance will often be a much more efficient financial security option. The fund debate should therefore be folded back into the process under the ELD for evaluating financial security and insurance.

Needless to say, a fund raises many of the same issues that are raised by insurance and other financial security instruments. Assumptions and generalizations are dangerous; any fund proposal should be analyzed in the specific context and be subject to a comparative assessment involving all policy options. Policy makers should also keep in mind that the design and operation of a fund requires specialist expertise.

Note: This White Paper has not been reviewed or endorsed by the full membership of the Ad-Hoc Industry Natural Resource Management Group.

Annex 1

Ad-Hoc Industry Natural Resource Management Group. White Paper: Financial Security and Insurance Aspects of the European Union Environmental Liability Directive. Brussels. February 2009

WHITE PAPER
FINANCIAL SECURITY AND INSURANCE ASPECTS OF THE EUROPEAN UNION ENVIRONMENTAL LIABILITY DIRECTIVE

PREPARED BY, FOR AND IN COOPERATION WITH THE EU INDUSTRIAL COMMUNITY

FEBRUARY 2009

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FOREWORD

This document has been prepared by the Ad-Hoc Industry Natural Resource Damage Group (Group)[1] -- a group of multinational industrial companies representing all major sectors -- for Europe-based business and industry and other interested parties. Since the European Union (EU) Environmental Liability Directive (ELD) was enacted in 2004, the Group has served as a formidable resource to industry on this matter and has assumed a key role in facilitating communication and practice exchange between industry and government officials. The Group has held numerous meetings, seminars and workshops involving industry and government and it has prepared many documents aimed at fostering a reasonable, balanced and predictable practice as the ELD is implemented by Member States. Additional information on the Group and its activities related to the ELD can be found at www.NRDonline.org/EUELD . We also invite you to contact us at group@NRDonline.org .

[1] Note: At the time this paper was prepared, the Group was known as the Ad-Hoc Industry Natural Resource Damage Group.

EXECUTIVE SUMMARY

This White Paper discusses financial security and insurance in the context of the Environmental Liability Directive (ELD). Financial security and insurance in particular are of great interest to policymakers because they are viewed as ways to guarantee that funds for restoration are available in all cases. The conditions for, and limits of, financial security and insurance, however, are not always well understood. Further, appropriate distinctions should be made between various financial security instruments, including insurance, and the relevance of any differences should be understood. In short, the proper role of financial security in the context of environmental liability requires careful analysis.

To contribute to the debate on financial security and insurance in connection with liability under the ELD, this White Paper discusses a series of issues that are key to an informed debate. Attention is paid to the basic differences and similarities between insurance and other financial security. The paper reviews conditions for insurability of environmental damage. It focuses in particular on the much debated topic of mandatory insurance, which is an issue that will continue to come back regularly in discussion on the ELD. The paper analyzes how financial security and insurance can be usefully employed in the context of the ELD, and how the debate on insurance should inform the processes in connection with the ELD's implementation and application.

The paper comprises five parts:

- The first part provides a brief introduction to the issue and some background and context, referring to the relevant provisions of the ELD.

- In the second part, we review key differences and similarities between the various instruments of financial security, addressing also their relevance. Functions of financial security and insurance are reviewed too.

- The third part analyzes conditions for insurability of risk and the implications for insurance of ELD liabilities.

- The fourth part focuses on the limits of financial security and the problems associated with mandatory insurance. It illustrates the point that markets for financial security can be supported if the proper means are employed, and that mandatory insurance may be counter-productive.

- In the fifth part, we place the issue of financial security and insurance in a broader context, and discuss its proper role and how it should inform the implementation of the new environmental liability regime itself.

CONTENTS

1 INTRODUCTION

The ELD does not require that operators provide financial security or contract insurance. The issue of financial security and insurance has been discussed extensively in the course of the ELD's legislative process, and arguments have been exchanged about the necessity and desirability of mandatory financial security and insurance. In the end, as discussed further in section 2, below, the EU legislature, for good reasons, decided not to require any form of financial security.

Although there are some early signs of emerging markets within the EU, currently, no comprehensive financial security products for environmental damage are being offered in the market place. There are several explanations for this lack of a market. Most importantly, environmental liability is a recent phenomenon, the detailed rules are still being developed, experience is very limited, and the conditions for a market to develop do not yet exist. Due to factors such as the unavailability of sufficient data on the risk involved and on the assessment and quantification of damage, at this moment, it is still difficult for insurance companies to develop products. A study for the European Commission dealing with insurability from a theoretical perspective, concluded that "it will be the insurance and financial markets which will decide in practice whether they are willing to provide coverage for a certain risk." This may sound like an obvious statement, but it is important to realize that law cannot force a market into existence. Law can only help to create conditions that will allow financial security markets to develop, and to be able to do so law must meet certain requirements.

1.1 Reasoning for Financial Security in the Context of Environmental Liability

Policy makers and legislators are interested in financial security mechanisms because these are viewed as ways to ensure that there *always* are funds available to pay for restoration of environmental damage. Companies may become insolvent, go bankrupt or disappear, and the liabilities associated with environmental damage may exceed a company's assets. Whenever an operator incurs liabilities that he is unable to meet, the financial security mechanism in place would make the necessary funds available. Individual financial security instruments, however, do not help if there is damage but no liable party (e.g. because the polluter is unknown, or an operator has a defense or is exempt from liability). To deal also with this kind of "orphan" damage, calls have been made for collective solutions. One possible collective solution, the Commission's proposal for the ELD included a provision that would make the member states responsible for restoring environmental damage where there was no liable person, but the Council rejected this proposal. Another commonly proposed collective solution for "orphan damage" is a compensation fund of some sort. Compensation funds, in turn, raise a whole set of issues of their own, including the question of who should contribute to the fund and who is entitled to receive money from the fund, and under what circumstances and conditions. A fund, of course, could also make resources available for the restoration of damage for which nobody is liable. The money that allows the fund to step in when there is no liable person, by definition, has to be collected from persons that are not the polluters. Funds are therefore not necessarily consistent with the polluter pays principle.

Individual financial security instruments, which are the key focus of this White Paper, include a broad range of products with very different characteristics, although there are also similarities. This issue is explored further below but it is important to be understand this from the outset. Insurance has received much degree of attention because it is such a

visible and omnipresent instrument of financial security. Even though it is a common instrument, it is not the only instrument. Moreover, it is not always the most appropriate instrument.

1.2 Financial Security Under the Environmental Liability Directive

As noted above, the ELD does not require that operators provide financial security, either before or after commencing activities covered by the ELD. The ELD does employ the terms "financial security" and "security," however. In Article 8(2), the ELD requires that the member state authorities, subject to certain exceptions, "recover, inter alia, *via security over property or other appropriate guarantees* from the operator who has caused the damage or the imminent threat of damage, the costs it has incurred in relation to the preventive or remedial actions taken under this Directive." This, however, is not a requirement that operators provide *ex ante* financial security. Rather, it requires that, once an operator has caused environmental damage and the authorities have taken measures and incurred cost, the authorities recover their cost from the operator, if necessary by taking a conservatory security interest in the operator's property. That, of course, is a different issue and is not the topic of this White Paper. We mention it, however, because there has been confusion about the scope of Article 8(2) of the ELD. Where we use the term "financial security" in this White Paper we refer to *ex ante* financial security, i.e. an arrangement entered into by an operator before environmental damage occurs, which is designed to enhance the availability of funds for restoration should environmental damage be caused.

Although the ELD does not require financial security, it is not entirely silent on the issue. Article 14(1) of the ELD requires that Member States "take measures to *encourage* the *development of financial security instruments and markets* by the appropriate economic and financial operators, including financial mechanisms in case of insolvency, with the aim of enabling operators to use financial guarantees to cover their responsibilities under this Directive." By 30 April 2013 at the latest, Member States must report to the Commission on the experience gained in the application of this Directive, and this report should cover also "results of the actions to promote and the implementation of the financial security instruments used in accordance with this Directive." Before this date, however, by 30 April 2010, the Commission must prepare a report for the Council and European Parliament, which, among other things, must address "the availability at reasonable costs" and "conditions of insurance and other types of financial security" for the activities covered by the ELD. This report is to consider, in relation to financial security, the following options: "a gradual approach [i.e. according to the type of damage and the nature of the risks], a ceiling for the financial guarantee and the exclusion of low-risk activities." On the basis of this report, and of an impact assessment, including the economic, social and environmental aspects, as well as a cost-benefit analysis, the Commission must, if appropriate, submit proposals for a "system of harmonised mandatory financial security." Through this set of provisions, the EU legislature avoided premature conclusions on financial security, and ensured that, in due course, it will be informed of developments in the market for financial security and of the costs and benefits of various regulatory options. It would be ironic, if member states were now to rush to adopt financial requirements with unintended adverse consequences.

2 CONDITIONS FOR INSURABILITY

Insurance is a way to manage risk. The term "risk" is not entirely self-explanatory. It denotes a *specifiable* probability of loss. Uncertainty, on the other hand, involves *unspecifiable* probability of loss. Uncertainty can relate to the chance that a loss will be incurred, or to the extent of the loss. The difference between specifiable and unspecifiable probability of losses is important. Although it may sound counter-intuitive, the more uncertain a risk is, the less insurable it is. Not each and every risk can be insured. For a risk to be insurable, it must be possible to calculate the risk for which insurance is sought. Thus, the more uncertain liability risks under the ELD, the less insurable ELD liabilities are.

2.1 Risks Must Have A Sufficiently Probabilistic Character

To be insurable, and for insurance to deliver benefits, risks must meet certain prerequisites. The main requirements are the following. First, the risks to be insured must have a sufficiently probabilistic character. Insurability requires that risk is probabilistic either as to whether it will occur (e.g. a fire risk), or as to when it will occur (e.g, death). If there is no reliable information on whether or when, on average, damage occurs, insurability will be adversely affected. If the damage will likely or certainly occur (and timing is not a factor), the aggregation advantages of pooling (which is the main source of the benefits delivered by insurance) are not obtainable.

If risks are entirely unpredictable in terms of chance and size of potential harm, they cannot be insured. The magnitude of risks and size of potential harm do not have to be fully understood and quantifiable, but the risk must be "assessable." Insurers can handle some degree of uncertainty in this regard but there are limits; they must be able to compute an "expected liability" by multiplying the average probability by the average extent of liability. In other words, risks must be sufficiently predictable and quantifiable in monetary terms. If the risk posed by any given pool of policy holders cannot be predicted with a reasonable degree of confidence, insurance is impeded. In some cases, and within limits, uncertainty can be accounted for by adding a surcharge ("loading") to the premium, but when a new risk factor is new and unfamiliar to insurers, there are no statistics and no probability can be calculated. In such cases, it will not be possible to calculate an "adequate premium."

If the risk to the insured is the risk of being held liable for damages, the applicable liability rules govern the size and scope of the risk. This, in turn, means that the liability regime itself must generate sufficiently certain and precise results, both in terms when the regime is triggered (and thus liability is imposed) and how the extent of liability will be assessed and quantified. One particular risk seriously undermining insurability is the risk of retroactive changes in the law increasing the scope of liability, as insurers have not set premiums and policy conditions on the basis of such an unforeseen expanded liability regime, but on the "previous" narrower regime. Note that retroactive changes include not only legislative amendments, but also, and more importantly, unforeseen expansive interpretations of existing rules. Retroactive expansion of liability regimes, by definition, is uninsurable, since the relevant risk in this case is the risk of an unforeseeable administrative or court ruling, which is very uncertain and not quantifiable. Note also that where the time lag between the relevant occurrence and the damage increases (i.e. long-tail damage), informational and causal uncertainties increase, retroactive changes in liability law become more likely, and the insurability of the risk decreases.

2.2 Risks Must be Statistically Independent

A further prerequisite is that the risks to be insured are random or *statistically independent*. Risks are statistically dependent if, when one insured suffers damage, the chance increases that another insured suffers damage. In the case of a nuclear war, many insureds would suffer damage at the same time, and thus these risks are statistically dependent. In insurance language, this risk is known as a 'common factor,' which has been recognized as a major portfolio risk and is often dealt with through exclusions. In the context of liability insurance, changes in the law, including unforeseen interpretations, present a common-factor risk and thus undermine insurability.

This analysis suggests that risks under entirely novel and untested liability regimes, such as the ELD, present huge challenges for insurers. Liability for the kinds of environmental damages covered by the ELD (land damage, water damage, and damage to protected habitats and species) is not a common feature of other legal systems (with the possible exception of land damage, where many member states have some experience). The ELD's definitions of damage and the rules regarding restoration are imprecise and leave much room for interpretation. This, in turn, results in uncertainty as to (i) what will be considered damage for which an operator can be held liable and, if he is deemed to be liable, (ii) what restoration measures are required and, thus, as to the size of the damage. The definition of environmental damage covers also intangible harms, such as "functional" damage. How the authorities and courts will interpret and apply these rules cannot be predicted. Further, the cost of restoration of environmental damage is highly unpredictable, since there is no experience and past record, and many options with very different cost ramifications are to be considered. These uncertainties explain why liability risks under the ELD are currently not regarded as insurable.

2.3 Insurers Must Be Able to Manage and Reduce Threats to Insurability

A further condition for insurability is that insurers must be able to manage and reduce threats to insurability. Two major threats are adverse selection and moral hazard. Adverse selection results from ineffective risk segregation. It refers to the phenomenon that persons presenting higher than average (or median) risk are more likely to contract insurance than those presenting lower risk. If it is difficult or expensive for the insurer to distinguish between higher and lower risks, risk pools are more likely to unravel as low risks drop out, and insurability is adversely affected. Legal uncertainty may aggravate adverse selection. Insurers are able to control adverse selection through a number of tools, including screening and selection procedures (sophisticated questionnaires, rejecting applicants presenting higher risks and applying more targeted policy conditions). Moral hazard increases risks for insurers in a different way. Moral hazard causes insureds to be less careful and to incur higher costs than they would have had they not been insured. To control moral hazard, insurers employ instruments such as deductibles, co-insurance, caps, exclusions, premium differentiation, bonus/malus mechanisms, and the like.

In respect of liabilities under the ELD, adverse selection my result in operators that pose relatively high risk seeking insurance, while the low risk operators find insurance unattractive. Assuming the necessary data can be generated, insurers can handle this problem by creating separate pools for low and high risk operators. The moral hazard, at least in theory, may result in insured operators investing less in environmental protection

and prevention than they otherwise would, which might result in increased environmental damage. Insurers can manage this problem by imposing conditions in insurance policies, requiring compliance with best practice standards, etc. For insurers to be able to manage and reduce threats to insurability of ELD risks, in general, they should not be restricted in terms of the products they offer and the conditions under which they offer such products. Absent conditions restricting competition, regulation of ELD insurance products that imposes restrictions on insurers is likely to be counter-productive. In any event, insurers offering coverage under the ELD, as well as operators covered by the ELD, will be exposed to the risk that authorities impose exaggerated or excessively expensive restoration requirements. There is not much insurers or operators can do to protect against this risk, but it should caution authorities applying the ELD to be reasonable.

These conditions are necessary, but not sufficient. In the end, a risk must also be "economically efficient," and it must be possible for the insurer to charge a premium that covers the risk, sell policies, and earn a profit. Without these conditions present, an insurance company might find itself exposed to claims it is unable to cover, which may well result in bankruptcy. When that happens, the objective pursued of policymakers will not be achieved and environmental damage will go uncompensated.

It should be noted that the conditions discussed above apply not only to insurance, but, to varying degrees, also to other instruments of financial instruments. The more predictable a risk is, the better one can decide which kind of financial security is required (e.g., if it turns out a risk is small, an operator may be able to self-insure) and how much financial security is required (i.e. the amount of financial security that should be regarded as sufficient can be determined with more precision).

3 FINANCIAL SECURITY INSTRUMENTS AND THEIR FUNCTIONS

The concept of financial security covers a range of different instruments. The term includes, but is not limited to, cash deposits, blocked bank accounts, bonds, bank guarantees, other third party guarantees, guarantees issued by parent companies for their subsidiaries, industry pooling schemes, internal reserves or self-insurance, and insurance offered by external insurance companies. The most simplistic form of financial security is a cash deposit or a blocked bank account, while insurance the most sophisticated instrument, which does not imply that insurance is a superior instrument in all cases.

In the ELD, the EU legislature has articulated a rather narrow view on the function of financial security. In a recital, it is stated that "Member States should take measures to encourage the use by operators of any appropriate insurance or other forms of financial security and the development of financial security instruments and markets *in order to provide effective cover for financial obligations under this Directive*." There is more to financial security, however, than just providing cover for restoration of environmental damage.

The economically most efficient financial instruments are those that do not just promote the availability of funds, but also promote other objectives. Specifically, some financial security instruments promote risk spreading and risk reduction objectives. Each of these two objectives require some further explanation, which is provided below. Risk spreading and risk reduction objectives are promoted by, inter alia, insurance, risk pooling arrangements, and self-insurance by groups of affiliated companies that are part of larger entities.

3.1 Risk Spreading

It is not difficult to see how insurance spreads risks. In simple terms, insurance involves a choice to incur a small and certain loss (the premium) now in exchange for not being exposed to a larger, uncertain loss in the future. When an insured incurs a loss, that loss is borne by the insurer who has effectively spread it over the entire pool of insureds through the premium mechanism. Like risk spreading generally, insurance is attractive to risk-averse persons and risk-averse societies. Put differently (and maybe more precisely), insurance meets needs in society because it shifts risks from persons with inferior risk-bearing capabilities to persons with superior risk-bearing capabilities. Risk spreading is regarded as useful based on the theory of diminishing marginal utility of money, which suggests that a EUR 100 loss to one person is more than a EUR 1 loss to 100 persons, or, conversely, that the value of the 100th EUR to a person is less than the 1st EUR.

In the context of environmental damage, risk spreading is a rather ambivalent objective. Many types of environmental damage, specifically those labelled natural resource damages, involve harm to common resources, *res communes* and *res nullius*. Because these resources are owned by all of us, any damage to them is automatically maximally spread. As one author has pointed out, '[t]he concept of 'pollution' itself implies that primary costs in their initial incidence are already spread rather widely among victims." Broader spreading is simply not possible. This logic applies also to the cost of restoration, which the state is able to finance directly from tax revenues or otherwise. Thus, liability for these types of environmental harms does not further the risk-spreading objective; on the contrary, it reduces risk spreading. It is conceivable, in theory, that shifting the risk of natural resource damage to polluters would reduce the underlying

rate of harm through the risk-reduction functions of insurance. Unfortunately, the problems in a liability context that hamper the insurance functions, generally, are compounded in the case of environmental damage. This suggests that, in the context of the ELD, insurance is not able to spread the risk of environmental damage. It suggests also that there is no obvious rationale for liability for environmental damage that is beyond the operator's control and which he thus can not prevent.

3.2 Risk Reduction

In addition to risk spreading, insurance has important risk-reducing effects. A leading insurance scholar has argued that insurance's risk-reducing effects are likely to be far more significant than its risk-spreading effects. Insurance reduces risks in two ways: first, it reduces the underlying loss rate and, second, it reduces the effective cost of remaining injuries by lowering the magnitude of total risk. Since an insurance company aggregates many potential losses incurred by the insured pool, the "law of large numbers" makes the total loss to the insurance company highly predictable, as a result of which the insurance company's reserves for anticipated losses is much smaller than the total of all reserves of individual risk bearers and, thus, losses can be dealt with more efficiently. Insurance thus permits corporations to reduce or eliminate their reserves for anticipated losses so that their capital can be put to more efficient uses. In addition to risk aggregation, insurance employs risk segregation by defining risk pools and setting premiums according to the average level of risk brought to the pool. Both risk aggregation and risk segregation serve to reduce risk variance and, thus, insurance premiums. By segregating an individual into a risk pool with a sufficiently narrow range of exposures to risks, the insurance premium remains attractive to persons in the low end of the range. This technique will keep the risk pool intact. (If, on the other hand, the disparity between the insurance premium and the exposure of the low-risk pool members becomes too great, the risk pool will unravel.) Segregation reduces both pool risk and insurance cost, and, accordingly, adverse selection.

While the moral hazard inherent in insurance may tend to cause injuries to increase, insurance can also exercise a positive influence on the level of injuries actually suffered. This effect flows directly from the risk-segregation function of insurance. Through the size of the premium charged (assuming competitive conditions), insurance informs decisions as to whether and how much to engage in the covered activity: high risks are charged a high premium and thus there is an incentive to reduce the risk so as to attract a lower premium. It is conceivable that insurance premiums for operators of relatively high-risk activities (or activities that are perceived to involve high risk), in particular in the environmental liability area, are set at such a high level that these operators may not be able to contract insurance. This should not be taken as an indication that these activities are too risky or undesirable. Rather, such a situation will require careful analysis to understand the underlying risks and market dynamics.

4 LIMITS OF FINANCIAL SECURITY AND MANDATORY INSURANCE

This section explores the limits and some properties of financial security and of insurance. It also reviews some of the disadvantages associated with mandatory insurance requirements.

4.1 Limits and Properties

Financial security cannot solve all issues that may arise in respect of funding of restoration of environmental damage. It is simply not possible to require a level of financial security that will always provide sufficient funds to cover restoration cost. Moreover, all financial security comes at a cost. Financial security presents an issue of balancing: the benefits of financial security are to weighed against its costs. This weighing should be done at the margin; will the benefit of an additional unit of financial security exceed the cost of providing that unit? On the basis of such a marginal cost/benefit analysis, an appropriate level of financial security can be established.

The flip-side of this analysis is that, where low-risk activities are at issue, the added benefit of financial security is small. It is entirely conceivable that for some activities the cost of any financial security outweigh the benefits. This suggests that appropriate distinctions should be made between categories of activities. The ELD indeed a broad range of activities, which differ widely in terms of the risks they pose and include also low-risk activities. While financial security may be desirable for certain relatively high-risk activities, there may be no justification for requiring financial security for low-risk activities.

Each financial security instrument has its own specific strengths and weaknesses. Not only do they each have their strengths and weaknesses, but what is a strength or weakness depends on the perspective from which the instrument is analyzed. For instance, while a large cash deposit might be viewed as strong in ensuring the availability of funds, it is weak in terms of its efficiency, since large sums will be tied up in the deposit that cannot be used for productive purposes. Insurance may be viewed as an instrument offering a high level of security, but the cost of contracting insurance can be substantial for some potentially liable operators and other instruments may be more attractive.

No financial security instrument is necessarily inferior to other financial security instruments in all cases. If law or policy gives preference to one type of financial security, some companies will be exposed to unnecessary additional cost. The cost of providing financial security differs widely, depending on the type of security provided and the specifics of the person providing the security. While the cost of providing, say, a third party guarantee, may be high for one person, it may be small for another person. For some, but by no means all, persons, it may be possible to self-insure, or book internal reserves. Other companies may be able to arrange for a guarantee issued by their parent company. Because the cost of securing different types of financial security differs widely between various potentially liable operators and no financial security instrument is consistently inferior, law and policy should recognize this and not in any way restrict the range of possible financial security instruments available to operators.

Insurance is only one form of financial security. It too has its limits. Insurance policies, for instance, may provide for deductibles, coverage conditions, and monetary caps. It is therefore conceivable that a particular instance of environmental damage is not at all

covered, or partially covered, by insurance. Insurers are more likely to provide only partial coverage in situations where the level of uncertainty is relatively high. In respect of environmental damage, insurance policies may well use a range of instruments to limit the insurer's exposure to unforeseen costs. In the context of environmental liability insurance, a particularly difficult issue for insurers will be that national authorities and courts applying the ELD transposing legislation will have broad discretion in determining whether there is environmental damage, who is liable for it, and what restoration measures will be required. Authorities and courts thus determine whether an environmental liability policy is triggered and, if so, what the size of a claim under the policy will be. As discussed above, authorities and courts have much discretion because the ELD's provisions are vague and are designed to leave extensive room for judgment. The judgments made by the authorities and courts may effectively expand coverage, even retroactively. This, in turn, may result in an insurance crisis. In the US, the American Law Institute, commenting on the insurance crisis in the 1980s, stated that "heightened levels of legal uncertainty have been an important influence on the interaction of the tort and liability insurance systems and the related insurance crisis."

Further, the administrative cost (i.e, the cost associated with administering an insurance program, reflecting the portion of the total amount that does not go to compensation for harm suffered) of liability insurance can be significant. That is not to say, however, that the administrative cost of insurance is necessarily higher than the cost of other financial security instruments. In fact, insurance can be a very efficient financial security instrument, but, again, much depends on the specific circumstances and generalizations tend to be incorrect.

A problem common to several financial security instruments, financial security may diminish incentives on the part of operators to prevent damage. This problem is known as the "moral hazard" (see also under Section 2.3, above). In the environmental area, the moral hazard may result in a higher number of cases of environmental damage, or more extensive damage in any one case. In fact, there is a double "moral hazard" associated with insurance availability in an environmental liability context. Not only is there the tendency that insured operators invest less in prevention of environmental damage because they are insured, but there is also the issue that authorities and courts may be inclined to simply apply a "deep pocket" rationale for imposing civil liability for environmental damage, up to a point where an operator is liable for environmental damage because he is insured. Arguments to the effect that liability insurance justifies holding an operator liable confuses cause and effect. Insurance is secondary to liability; one contracts insurance because one can be held liable, one is not liable because one is insured.

4.2 Mandatory Insurance

In connection with the report that the Commission must prepare under the ELD, the issue of mandatory insurance for ELD liabilities will come up again. Under the ELD, member states are required to "*encourage*" the "development of financial security instruments and markets." Financial security includes insurance but is by no means limited to it. The reference to "markets" for financial security instruments indicates that the EU legislature does not necessarily contemplate any mandatory insurance requirements.

Mandatory assurance imposed by government is a very mixed blessing. It may result in funds being available for environmental restoration in some cases where they would not otherwise be available, but all financial security instruments will have that effect. There is no reason to prefer insurance over other financial security instruments, and imposing insurance is therefore selective and arbitrary. It is also unnecessary; if insurance is the most efficient instrument, operators will prefer insurance over other financial security instruments and thus contract insurance.

Another problem with mandatory insurance is that it creates a "captured" market. Since every operator must buy insurance, and insurers tend to pool risks and re-insure, competition in the insurance market will be impeded. This, in turn, will tend to have an adverse effect on premium levels. Mandatory insurance tends to be good for insurance companies (if they are able to offer coverage), but does not necessarily serve the public interest. It tends to distort insurance markets and is bound to result in inefficiencies. Small- and medium-size enterprises would be disproportionately affected by a mandatory insurance requirement because they generally have less self-insurance and risk-spreading capability.

There is also a potential for insurance-coverage conditions and the rules of the liability regimes to diverge. The result of such discrepancies is that insured operators are exposed to liabilities for which their insurer does not provide coverage, which might result in a significant number of disputes. In some cases, these disputes, in turn, would lead to insurance coverage litigation, which can be protracted and expensive. It is therefore important that the liability rules and coverage conditions do not diverge too much.

Further, insurance is based on market transactions and willingness to insure, and cannot be forced. Where the market does not "spontaneously" offer insurance, it often does not make sense for the government to require it. Although other types of financial security may, in general, be less efficient than insurance in terms of risk-spreading capability and loss handling, competition between all financial security instruments should be unrestrained.

A requirement imposed on operators that they contract insurance is no guarantee that the market will in fact offer insurance coverage. To the extent that risks are not insurable, insurers will not offer coverage, irrespective of any mandatory insurance rule applying to operators. Indeed, the interest group that has most to benefit from mandatory insurance, i.e. the insurance industry, is hesitant to get into this market, which strongly suggests that that there are problems with the ELD regime's insurability. Governments, of course, could require that insurers offer coverage under conditions imposed by law, but this would likely make things worse and produce Draconian results and enormous inefficiencies.

It should also be noted that mandatory environmental liability insurance is likely to aggravate potential threats to insurance itself. In 1988, a liability and insurance scholar detailed how environmental liability in the USA had undermined insurance, observing that:

> [E]nvironmental liability tests the limits of insurance in three ways. First, it has created new forms of statutory liability against which it is difficult to insure. Second, judicial strategies of interpretation have made it difficult for insurers to rely on the meaning of insurance policy

> language designed to avoid covering uninsurable risks. Third, the distinct threat of other, common-law expansions of liability creating additional uninsurable risks that cannot be reliably excluded by policy language renders the scope of an insurer's future obligations uncertain.

Expansion of liability through unforeseen interpretations of the ELD's rules can also undermine insurance in Europe. This is a real threat, but there are ways in which governments can reduce this threat.

5 PROPER USE OF FINANCIAL SECURITY AND INSURANCE

Needless to say, financial security instruments have a role to play in managing liabilities under the ELD. Markets for such instruments are only just beginning to emerge. Currently, these markets are very limited and fragile. Governments have to careful that their actions will not disturb these early and tentative developments. Encouragement is useful and can be help to nurture the emerging markets. But it is important that governments understand how they can be supportive and helpful, rather than counter-productive.

In September 2007, it was reported that the German insurance association is expected to release a non-binding insurance model to help insurers develop environmental liability coverage and deal with the new exposures under the ELD. The same report, however, also stated that the model clauses are likely to fall to short of buyers' expectations and will leave gaps in coverage. It is important the governments understand the reasons for these coverage gaps and address them as appropriate.

Based on the analysis presented in this paper, a number of principles can be stated that should guide government action in the area of financial security. These principles reflect both experience with financial security in the environmental liability are and theoretical considerations. Simplistic "solutions" that are not well thought through will have adverse effects and be counter-productive.

These are the principles that follow from the analysis presented above:

BEST PRACTICE PRINCIPLE 1: Financial security requirements are premature, the focus should be on gathering information and analyzing developments in the market.

The EU legislature did not impose financial security because such products were not available in the marketplace at the time. That is still, by and large, the case. Premature action will be counter-productive. Government should gather information on the availability of financial security, applicable terms and conditions, pricing, and limits, and analyze the barriers that impede broader availability. Before considering any financial security regimes under the ELD, member states should await the Commission's report, which is due by April 2010. In the next several years, the market may well start to offer products that operators may find attractive, but the market cannot be forced. As the Commission stated in the debate on mandatory versus voluntary financial security in connection with a possible liability regime pursuant to the Biosafety Protocol, "the EU's position is driven by the desire to create a regime that is effective and workable and so we favor voluntary financial security. We consider it important to learn lessons from previous attempts to deal with the complex and difficult issue of liability so that we avoid similar difficulties." This is also good advice in the context of the ELD.

BEST PRACTICE PRINCIPLE 2: All instruments providing financial security should be accommodated and promoted.

Insurance may well become an important tool for many operators. Insurance, however, is not inherently superior to other instruments. Each instrument has its own strengths and weaknesses, and the cost of employing a particular instrument may differ

dramatically between various operators. All instruments should therefore be treated on equal footing, and no instrument should be given preference over other instruments.

BEST PRACTICE PRINCIPLE 3: If and when financial security requirements are considered, low-risk activities should be excluded.

The cost/benefit ratio of financial security in respect of relatively high-risk activities is likely to be different from the cost/benefit ratio of financial security for low-risk activities. In respect of low-risk activities, the cost of financial security will outweigh the benefits. It is therefore appropriate to exclude low-risk activities from any financial security requirements. The concept of low-risk activity should be defined with reference to actual physical risk posed.

BEST PRACTICE PRINCIPLE 4: Mandatory insurance is likely to be counter-productive.

Mandatory insurance is one way in which the non-discrimination principle stated above can be violated. Insurance is just one tool, and is not always the best tool for everybody. Imposing an insurance requirement will distort the market for financial security and cause inefficiencies. It will not help to resolve the preliminary issue of how to promote insurability of environmental liability risks. There are better strategies to promote financial security markets.

BEST PRACTICE PRINCIPLE 5: Financial security presents an issue of balancing security against cost, and levels of financial security should be reasonable.

There is a cost to providing financial security. Bank guarantees, insurance polices, etc. will all command a price, and this price will likely be significant. No level of financial security will always be enough. Financial security thus presents an issue of balancing. In deciding whether and, if so, how much, financial security should be required, it is important to focus on cost, including the marginal cost of providing an additional unit of security. The level of financial security should be capped at a reasonable level.

BEST PRACTICE PRINCIPLE 6: The best and most direct way to promote financial security is to improve the predictability of the underlying risk.

There is significant uncertainty in respect of liability risks under the ELD. The rules are imprecise, employ novel concepts, and leave much room for discretionary judgment. Uncertainty as to the scope and size of liability seriously undermines financial security and insurability. Financial security and insurability require risk assessability, and predictability of risk. Thus, the best way in which government can promote financial security is by promoting the predictability of risk. This can achieved by creating predictable, reasonable (i.e. non-excessive), and fair environmental liability regimes under the ELD. The common and optional defenses are one way to move toward this goal. Once risks can be predicted, assessed, and quantified better, financial security will become more widely available.

BEST PRACTICE PRINCIPLE 7: Markets for financial security instruments should be competitive, and products offered in the marketplace should compete also with instruments that are internal to operators.

Competition in the markets for financial security is important to promote efficiency, control prices, and avoid monopolies. Regulation that creates "captured" markets (e.g., by requiring that insurance be contracted) is likely to result in efficiencies. If providers of financial security instruments can compete fairly and freely, such instruments will become more widely available and be offered at competitive prices. To further enhance competition and promote flexibility, "internal" financial security tools (e.g. self-insurance, or a parent company guarantee) should be also be allowed.

6 CONCLUSIONS

The Commission's report, which is due by April 2010, must address the availability at reasonable costs and conditions of insurance and other types of financial security for the activities covered by the ELD. The analysis presented in this White Paper suggest that the Commission should pay equal attention to all financial security instruments, rather than focus mainly on insurance. It suggests also that if governments want to promote financial security, they should work on improving the environmental liability regimes implementing the ELD to make them more predictable, balanced and reasonable.

Once it is understood that financial security and insurance are secondary to and depend on the liability system itself, the roadmap becomes clear. Currently, financial security and insurance are impeded due to the significant uncertainty over the scope and size of potential liability exposure under the ELD regime. No reliable assessment of the monetary size of the potential liability exposure is possible, the rules regarding restoration of environmental damage are abstract and vague, rather than specific and precise, and leave wide discretion to the authorities with limited rights of appeal for operators. The government's first and foremost responsibility should therefore be to promote the predictability of environmental liability risk, ensure that the ELD regimes are balanced and reasonable, and take measures to avoid excesses and extravagance.

Once that has been accomplished, financial security may not be a big issue any longer and financial security instruments, including insurance, may become widely available. Thus, any further government measures specific to financial security will become unnecessary.

Annex 2
Hungarian Proposal for Industrial Risk Sharing Facility

A recent proposal by Hungary refers to the "insufficiency of the ELD" to argue that "a European Industrial Risk Sharing Facility" is necessary. Unfortunately, this proposal does not reflect a sound understanding of the history and the pertinent theoretical and practical considerations. The proposed facility would be necessary because the ELD is based on the polluter pays principle, covers only environmental damage, and does not require financial security, while private insurance would be too limited.[1]
The proposed 'risk sharing facility' would:

(1) cover not only environmental damage, but also personal injury and property damage (which is not subject to the ELD or any EU legislation, except in rare cases where the Product Liability Directive applies);
(2) serve as a 'pre-financing tool', i.e. provide immediate access to funding in the form of loans and grants (before it has been ascertained whether any of the operators involved are liable under the law);
(3) provide grants for preventive actions and safety investments;
(4) be funded through a levy of 0.2% of the net annual sales revenues[2] payable by the industry sectors involved in major disasters (not further specified);
(5) cover damage to the extent it "appears likely to" exceed EUR 100 million;
(6) limit the financial exposure of covered companies to EUR 100 million, which could be covered by private insurance; and
(7) settle the cost incurred after legal settlement in accordance with the polluter pays principle (i.e. a company that is held liable would be required to reimburse the costs incurred by the facility up to EUR 100 million).[3]

The Hungarian proposal has been prompted by the Kolontar Red Mud spill, which killed 10 people, injured 286 people, and contaminated approx. 1,000 hectares of land, at a total cost of approx. EUR 135 million. The red mud escaped from the MAL alumina facility after a dam wall of a pond collapsed. MAL had been privatized by the Hungarian government in 2005, and did not have environmental insurance. There were issues in relation to the facility's compliance with applicable laws and the inspections conducted by the government.

The Hungarian proposal raises a series of issues which are discussed in this White Paper. Here, we note that the proposed "European Industrial Risk Sharing Facility" is an example of a fund that tries to do much. Its design has not been thought through and reflects a lack of specialized legal and risk management expertise.

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[1] Varhelyi O. The case for a European Industrial Risk Sharing Facility. Presentation at Workshop "Study to explore the feasibility of creating a fund to cover environmental liability losses occurring from industrial accidents" , Brussels, 7 November 2012. http://eldfund.biois.com/meetings.
[2] This levy would be indexed. Bio Intelligence Service. Study to explore the feasibility of creating a fund to cover environmental liability and losses occurring from industrial accidents. Background document. 30 October 2012, p. 7.
[3] This aspect of the proposal, however, is unclear. The background document states that the facility would "limit the financial exposure of each company (…) to EUR 100 million." Bio Intelligence Service. Study to explore the feasibility of creating a fund to cover environmental liability and losses occurring from industrial accidents. Background document. 30 October 2012, p. 7.