AAE
DISCUSSION
PAPER

ENVIRONMENTAL LIABILITY DIRECTIVE

FINANCIAL SECURITY AND THE POLLUTER PAYS PRINCIPLE

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SUMMARY

All economic activity can result into damage to the environment. Some activities are riskier than others. When damage occurs remedial actions are necessary. Such actions are more or less costly depending on the damage. It is important that the one who has caused the damage also pays for the remedial action. This is called the 'polluter pays' principle.

The European Union has adopted in 2004 the Environment Liability Directive (ELD), the purpose of which is to implement the 'polluter pays' principle. There are now plans to renew the ELD. One of the difficulties of implementing the 'polluter pays' principle is that the actor responsible for the liability might no longer exist when the damage is found out. It is therefore often next to impossible to charge the costs according to the 'polluter pays' principle.

It is therefore clear that the assets covering the costs should be collected ex ante, i.e., during the time when the polluter is still in business. Insurance could be one possible tool to make this happen.

Insurance means collecting assets in advance to cover losses arising some time in the future. An essential part of insurance is that this collection is risk-based, i.e., based on a scientific assessment more risky undertakings pay a higher premium than the less risky ones. It is probably not correct to say that the use of the insurance technique results into an exact implementation of the 'polluter pays' principle. Instead, the use of insurance means that each undertaking participates in the costs of pollution in a fair risk-based way.

It needs to be said that the use of insurance techniques does not mean that only insurers can offer the cover. There are also other actors in the financial market capable of using actuarial techniques to create ex ante preparedness. At least in principle it is also possible to create financial market instruments that provide the financial means to finance the costs of the remediation of pollution.

Additionally, insurance is never only about collecting premiums and paying claims. Instead, insurance is about risk management on a broader scale. Insurance is about creating incentives to take care and prevent risks to the extent possible. As losses still happen insurance covers the losses arising after good risk management.

The aspect of insurance being risk management is of particular importance to environment liability. The existence of insurance or any other cover implementing the 'polluter pays' principle should never mean that actors can be reckless and neglect their responsibility for environmental damages. As damage is often irreversible, actors should always be required to take best possible care. Preventing the risk is important – financing

is not an alternative to that. But there should also be a financial backstop, in the form of insurance or some other way.

The paper addresses the prerequisites for the use of insurance techniques. It also addresses the pro's and con's of using insurance.

The conclusion is that insurance could be one possible tool to implement the 'pollutes pays' principle. Much further work is needed to make sure the risks can be covered with insurance. Also market research is needed in order to make sure that the market participants will offer suitable cover in case insurance will be used as a technique in the renewal of the ELD.

CONTENTS

1 INTRODUCTION

The purpose of this paper is to support the European Parliament in respect of its consultations about updating the Environmental Liability Directive. The original directive, adopted in 2004, put into practice the 'polluter pays' principle to deal with environmental damages. One of the key aims of the updated directive is to ensuring sufficient availability of financial security, in particular for large losses or in case of insolvency.

Our aim is to help facilitate the discussion regarding the 'polluter pays' principle and the need for associated mechanisms for financial security. We outline some of the key questions and challenges which should be considered on the road to a sustainable solution. Although this paper is written from an insurance-based perspective, we do not conclude that insurance is the only potential way to provide financial security. Under the ELD many alternative forms of financial security can be considered, as long as they all satisfy the requirements set by the directive.

This paper first discusses the history of the ELD, focusing on the introduction of the polluter pays principle in 2004 and the challenges the new framework presents to operators. We then move on to consider the need for the financial security, as a mechanism to allocate cost to operators in line with the 'polluter pays' principle and in particular how the insurance industry might help provide a sustainable solution.

Environmental liability risk is a relatively new insurance risk and the insurance industry is still learning about aspects of the risk, most notably:

- the long-term environmental impact of various substances and human activity;
- the types of claims that can arise and the best way to settle and mitigate the effects on the environment;
- the best risk prevention and mitigation practices; and
- the level of financial security needed by operators.

We acknowledge that existing insurance policies already cover some elements of environmental liability. However, there isn't a standardised cover/approach across the European market. As such, we believe that, before any new legislation takes effect, it is necessary to ensure that all operators have access and ability to buy cover which would satisfy the requirements of the ELD, regardless their EU domicile.

The European Union and national regulators will play a key role in the development of financial security solutions by setting minimum requirements via the legislative process. The EU and national regulators can also support the operators through education, and enabling the creation of a platform to share knowledge, which would promote risk mitigation and thereby minimise the impact on environment.

2 HISTORY OF FINANCIAL SECURITY IN THE ELD

SCOPE OF THE ELD

The scope of the ELD is in respect of the accidental pollutions or damage, caused by economic operators undertaking risky activities, such as such as industrial and agricultural activities, to

- **Land**
  Any land contamination that creates a significant risk of human health being adversely affected as a result of the direct or indirect introduction, in, on or under land, of substances, preparations, organisms or micro-organisms.

- **Water**
  Any damage that significantly adversely affects the ecological, chemical and/or quantitative status and/or ecological potential, as defined in the Water Framework Directive (2000/60/EC), of the waters concerned, with the exception of adverse effects where Article 4(7) of that Directive applies.

- **Protected species and Natural habitats**
  Any damage that has significant adverse effects on reaching or maintaining the favourable conservation status of such habitats or species.

THE POLLUTER PAYS PRINCIPLE

The ELD was adopted by EU on 21 April 2004. The polluter pays principle is the cornerstone of the ELD as Article 1 of the directive states that '*The purpose of this Directive is to establish a framework of environmental liability based on the 'polluter-pays' principle, to prevent and remedy environmental damage'.*

The main idea of the polluter pays principle is to allocate the cost of preventing, managing and remediating pollution to the person responsible for it. The Organisation for Economic Co-operation and Development (OECD) introduced the principle in 1972 in the context of international trade.

The ELD allocates the costs of preventing and remediating pollution (and other environmental damage) without regard to ultimate liability. Recital 2 of the ELD illustrates the emphasis on cost allocation by stating that the *''fundamental principle' of the ELD is 'that an operator whose activity has caused the environmental damage or the imminent threat of such damage is to be held financially liable, in order to induce operators to adopt measures and develop practices to minimise the risks of environmental damage so that their exposure to financial liabilities is reduced.'*

It should be noted that application of the polluter pays principle in the ELD does not mean that an operator is necessarily liable. As the European Court of Justice stated in one of the cases concerning ELD[1]: *'in accordance with the 'polluter pays' principle, the obligation to take remedial measures is imposed on operators only because of their contribution to the creation of pollution or the risk of pollution'.*

There must be a causal link, however remote, between an operator and environmental damage in order for the operator to be liable under the ELD.

POLLUTION RISKS NOT WITHIN THE SCOPE OF THE ELD

It is important to note that the ELD does not cover environmental damage caused by society generally or for more generalised risks such as air pollution. It would not be practically possible under the ELD to impose liability on all those who contribute to air pollution. These more diffuse polluters would include for example every car driver and every person using fossil fuels for domestic heating. As such the ELD does not address the air pollution that leads to climate change.

Therefore, a different mechanism is required to apply the polluter pays principle in these cases, for example carbon taxes.

FINANCIAL SECURITY AND INSURANCE[2]

The insurability of the costs of preventing or remediating an imminent threat of, or actual, environmental damage and the potential introduction of mandatory financial security for such costs have been controversial throughout the long history of the ELD. A major reason for this was the fact that liabilities for remediating environmental damage were relatively new in the EU during the 1990s when the European Commission began discussing the legislation that ultimately became the ELD.

1 C-378/08: https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A62008CJ0378

2 This history of the ELD given here is drawn from the report 'Improving financial security in the context of the Environmental Liability Directive': https://ec.europa.eu/environment/legal/liability/pdf/Final_report.pdf

General liability policies in the EU (well as in the US), are structured to provide compensation for bodily injury and property damage. Their intent is not to provide cover for remediating pollution following a demand from a competent authority to remediate it. However, in the US, many courts have construed general liability policies to provide such cover (*even retrospectively before CERCLA[3] or Superfund were ratified).*

The US retroactive cover resulted in many EU domiciled (re)insurers paying significant amount of claims by their US insureds for remediating contamination under CERCLA. Therefore, they understandably opposed improving financial security in the context of the Environmental Liability Directive and any EU legislation that resembled the US Superfund, however remotely, especially its retroactive provisions.

This resulted in growing gap in cover for ELD liabilities, which created a market for specialised environmental insurance policies and/or specific extensions to general liability policies. The introduction of standalone environmental insurance policies and extensions across the EU was relatively slow before introduction of the ELD in 2004 and since that time it has increased, albeit with a wide variance in the rates of increase across the EU. The main advantage of specific environmental insurance policies is that they provide cover for remediating gradual as well as sudden pollution and include remediating pollution at an insured's site, which would not be covered by a traditional general/public liability policy.

Over the years the European Commission carried out many consultations with representatives of the insurance sector, the financial sector, industry, and environmental non-governmental organisations (NGOs) concerning financial security for liabilities under the potential regime, as well as the scope of liability, the remediation of environmental damage, and access to justice.

Throughout the process (re)insurers reiterated two main concerns in respect of environmental liability systems:

- **Increased vulnerability** to exposure from historic pollution, especially if retroactive liability was to be introduced.

- **Compulsory insurance** There are other potential options of financial securities available, and insurance should be only one out of many different options available.

3 The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), commonly known as Superfund, was enacted by Congress on December 11, 1980. This law created a tax on the chemical and petroleum industries and provided broad Federal authority to respond directly to releases or threatened releases of hazardous substances that may endanger public health or the environment. CERCLA was amended by the Superfund Amendments and Reauthorization Act on October 17, 1986.

The EU trade organisations of operators and insurers are generally opposed to mandatory financial security for environmental liabilities under the ELD, on the basis that damage to natural resources, as discussed and then proposed by the European Commission, is difficult to quantify and hence such exposure is in many cases uninsurable. Their view is strongly opposed by the environmental non-government organisations who argue that financial security should be mandatory in order to create a strong incentive for organisations to prevent environmental damage and, if it was caused, to remediate it, whilst minimising the risk of bankruptcy, due to the potential high remediation costs and ultimately passing the costs to the member states / public funds.

INSURANCE AND THE POLLUTER PAYS PRINCIPLE

It should be noted that the ELD highlights insurance as one of many types of financial securities to satisfy ELD. For the purposes of this document, we will focus solely on insurance.

There are numerous benefits of using insurance as a type of security to satisfy the ELD. We summarise below those which we consider the most important from the perspective of the Polluter Pays principle.

- **Financial Security**

  - The insurance market is heavily regulated, and each insurer's financial stability is monitored both internally and externally to ensure that standards are met. Based on the Solvency II framework, insurers need to hold enough capital to meet all their obligations over the next one-year period with 99.5% probability. In many cases the insurers and reinsurers hold capital in excess of the required minimum Solvency II capital, which provides policyholders with even greater security.

  - Insurance provides a particular role in the context of liability cover. In the case of liability insurance, the insured and the beneficiary of the claim are not the same entity (as would be the case for many other types of insurance). Therefore, the insurer plays an important role in protecting the third party beneficiary.

  - Premiums are collected ex-ante, which provides greater security to claimants as, even in the event of the bankruptcy/closure of the insured, the potential future claimant is protected. This is particularly important for latent claims (e.g. asbestos) which can arise many years after the triggering event originally occurred. The concept of ex-ante payment ensures that all potential polluters as defined by the ELD are contributing towards future claims and have a common interest to invest in risk prevention and to set higher standards, so as to reduce the market cost of insurance.

- **Risk Assessment**
  Insurance, and pooling of risks, is a very old and tested concept. Premiums are calculated using the combination of data on past events, expert assessment of the type of risk and the risk characteristics of the individual insured. Together these form the basis for the level of premiums the insured pays for coverage. This step is hugely important as it can bring to light some strength and weaknesses within the insured operation, which can subsequently be used by the insurer to set new, better standards for the rest of the market.

- **Risk Prevention**
  Insurers continuously monitor the market, trends, and claims to help them understand the risk and help to create a sustainable solution with an acceptable level of risk. This is particularly useful as insurers are well positioned in helping to set new risk prevention standards in order to either underwrite the risk in first place or to offer insureds the benefit of a reduced premium (in exchange of insured investing into risk prevention).

- **Claims Handling**
  Insurers are well positioned and equipped for quick and efficient claims handling. The ability to assess the damage and issue funds quickly without any unnecessary delay is critical to mitigate any potential further damage and speed up the recovery process.

As noted above, insurance is just one of several mechanisms that operators may use to satisfy the financial security requirements of the ELD. Other approaches such as self/captive insurance, special purpose bonds, guarantees, collateral etc. could also potentially provide security. However, it is important to recognise that these various approaches to security are not necessarily equivalent, especially in respect of time limitations, latent claims, legal risk transfer etc. To address this problem, we believe that minimum standards for financial security, which would apply across all forms of security, should be set out in the ELD. This would set a level playing field and also reduce the risk that any overarching public risk-pool would not effectively subsidise one form of private security over another.

There are two key issues when considering insurance as a type of financial security for measures to prevent or remediate environmental damage. Those are

- insurability; and
- accessibility

These are discussed in the following sections.

3 INSURABILITY

THE CONDITIONS FOR INSURABILITY OF RISKS[4]

An insurance transaction involves the insured assuming a guaranteed and known relatively small loss in the form of payment to the insurer in exchange for the insurer's promise to compensate the insured, (or, in the case of liability insurance, to compensate third party claimants) in the event of a covered but uncertain loss. The insured receives a contract, called the insurance policy, which details the conditions and circumstances under which the insurer will compensate the insured. The insurer may manage its own risk by taking out reinsurance, whereby another insurance company agrees to carry some portion of the risks.

In order for a risk to be considered insurable it needs to have certain characteristics:

- **Large number of similar exposure units.** Insurance operates through pooling of resources and the majority of insurance policies are provided for individual members of large classes, allowing insurers to benefit from the law of large numbers.

- **Definite Loss.** The loss takes place at a known time, in a known place, and from a known cause.

- **Accidental Loss.** The event that constitutes the trigger of a claim should be fortuitous, or at least outside the control of the beneficiary of the insurance. The loss should be 'pure,' in the sense that it results from an event for which there is only the opportunity for cost.

- **Large Loss.** The size of the loss must be meaningful from the perspective of the insured. Insurance premiums need to cover both the expected cost of losses, plus the cost of issuing and administering the policy, adjusting losses, and supplying the capital needed to reasonably assure that the insurer will be able to pay claims.

- **Affordable Premium.** If the likelihood of an insured event is so high, or the cost of the event so large, that the resulting premium is large relative to the amount of protection offered, it is not likely that anyone will buy insurance, even if on offer (unless they are legally required to do so).

- **Calculable Loss.** There are two elements that must be at least estimable, if not formally calculable: the probability of loss, and the attendant cost. Probability of loss is generally an empirical exercise, while cost has more to do with the ability of a reasonable

4 This section draws on a recent AAE paper on Insurability and Pandemics: https://actuary.eu/memos/insurability-and-pandemic-or-more-generally-shared-resilience-risk/

person in possession of a copy of the insurance policy and a proof of loss associated with a claim presented under that policy to make a reasonably definite and objective evaluation of the amount of the loss recoverable as a result of the claim.

- **Limited risk of catastrophically large losses.** Insurable losses are ideally independent and non-catastrophic, meaning that losses do not happen all at once and individual losses are not severe enough to bankrupt the insurer; insurers may prefer to limit their exposure to a loss from a single event to some small portion of their capital base.

While these general characteristics make a risk insurable there are additional requirements that are considered before any risk is assumed by insurer. The main issues in this area are:

- **control of adverse selection,** i.e. to avoid the insured collective of risks being biased towards those risks that are more risky than the average

- **control of moral hazard,** i.e. the situation where insurance cover leads to behavioral changes leading to an increase in claims, (insured financial position is improved due to the loss event)

- **insurance fraud,** where fraudulent claims increase compensations to be paid too much, and

- **public support crowding out private risk mutualization**

Insurance is not a static concept remaining the same over time. Insurers have developed different solutions to adapt the insurance technique in face of different challenges:

- Risk prevention can limit risks to a tolerable level and reduce the cost of insurance.

- Adjustments to terms and conditions can play a role, e.g., deductibles and co-payments to combat moral hazard, and cover limits to transform unquantifiable underlying risks into known maximum exposure.

- Risk selection and pricing to reduce adverse selection and enable reacting to loss experience.

- Innovation to respond to demand for new risk covers.

- Reinsurance and securitization to provide additional capacity.

- Private/public partnerships when the free market fails to cover a critical risk.

INSURABILITY OF ENVIRONMENTAL LIABILITY RISKS

Expertise and capacity to assume the risk

The nature of environmental insurance requires active co-operation between the insurer and insured. The insurer will focus on risk reduction and enhancing risk management.

Insurers will tailor their approach to the size and risk profile of the insured. For larger and riskier insureds, this may involve detailed risk-auditing of the insureds sites, analysis of accident history, and evaluation of safety measures and protection systems. For smaller and less risky insureds, insurers may instead apply minimum risk management standards. As well as lowering the overall risks to environment and society, this approach also helps to reduce the information asymmetry that would drive anti-selection.

The need for this highly specialised expertise, in addition to the requirement to have the capacity to assume the risk means that environmental insurance market is naturally dominated by large international insurance groups

Ability to price the risk

In order to confidently define the premium to be paid for a risk, the insurer must be in a position to reliably estimate the probability of a particular risk materialising and also the likely cost of compensation for that risk as well as the associated expenses.

For its initial pioneers, environmental insurance was an extremely risky business due to the lack of experience in environmental risk assessment, and hard data to underpin premium pricing. This is a risk that should reduce over time as experience and data are accumulated and as a degree of legal stability is achieved.

Retrospective cover and the legal system

Environmental risks can present difficulties for insurers, as they involve elements of both factual and legal uncertainty. This is particularly the case for gradual pollution incidents where the adverse effects develop slowly and may not be apparent for many years, or even decades. Furthermore, insurers can be exposed to claims arising from an ever-expanding range of environmental risks in response to changes in the legal environment and the interpretations made by courts. These expansions in the scope of environmental liabilities tend to transfer more and more risks to insurers, sometimes retrospectively. As such the legal environment is a key driver of the insurability of environmental liability risks.

In order to address this, many Insurers offer environmental policies issued on ‘claims-made’ basis rather than a ‘loss occurrence’ basis. This limits coverage in time and helps overcome problems with the latency of gradual pollution incidents. Policies are also generally written for a term of one year, although arguably longer-term policies could promote more stable relationships and contributes to enhanced risk management by the insured.

Skin in the game

In order to minimize the risk of moral hazard, insurers will apply deductibles and expect insurers to maintain significant self-insured retentions. Without such mechanisms there is a risk that insureds will simply see the premium as a cost of doing business (or a license to pollute!) and are not appropriately incentivized to manage and minimize risk. Limitation of moral hazard can also be underpinned by a legal regime imposing personal responsibility on owners and directors of economic operators.

Catastrophic and latent losses

The history of environmental liability insurance clearly illustrates the potential for the emergence of catastrophic losses. An example of a low-frequency, but high-cost catastrophic event is the 1986 radiation leak from the Chernobyl nuclear power reactor in the Ukraine.

In some cases, these arose from risks that weren't contemplated or allowed for when pricing the insurance many years before. An example here is the retrospective liability imposed by the US Superfund. There remains the very real risk that such claims could again arise from some currently unknown risk.

Insurance can handle such risks to an extent, by employing well diversified modes of risk transfer. However, there is likely to remain a level of residual risk which can't be absorbed by private sector insurance. This raises the potential requirement for a public fund of last resort, possibly financed by levies on operators or insurance premiums.

Benefits of Insurance

Although environmental liability insurance faces several challenges in terms of the insurability of risks, there are also several benefits provided by using insurance as a mechanism to underpin financial security. Clearly the essential purpose of insurance is to provide financial capacity and security. In addition, the discipline of insurance can:

- drive the development and implementation of better risk management standards and risk awareness.

- this in turn promotes better risk management by insureds, and reduces the risk of damage in the first instance; and

- help ensure that the cost paid by insureds reflects the risks posed by those insureds, i.e. aligning with the polluter pays principle.

Insurers are also experienced in claims management and assessment, which should help to better assess the cost of incidents once they arise.

Finally, insurers are no strangers to innovation in both on-the-ground risk management and also in risk transfer. This ability to rapidly respond to change is an important factors in the success of the insurance industry.

4 ACCESSIBILITY

Insurance offerings are continuously evolving and developing based on client needs and in the face of existing, emerging, and new risks and/or regulatory changes.

An important element in respect of insurance offerings and accessibility is knowledge and appraisal of clients' risk assessment. Clients need to be aware of the risks they are facing and how their existing insurance covers would respond in various situations. This is particularly important when dealing with a new risk (either following a regulatory change and/or a new emerging risk, for which the policy is untested).

Traditional liability covers respond to a very diverse range of 'common' risks. However, their lack of cover for environmental liability risks makes them unsuitable for managing these types of risks. The key thing to remember is that the insuring clause of traditional liability policies covers environmental liabilities established in tort but does not cover liabilities established under the statutory environmental liability system. This point was highlighted in the 2006 *Bartoline*[5] decision where a company was made liable by the UK Environment Agency for significant statutory remediation costs and its public liability policy did not respond.

As such environmental risks are not wholly new type of risk which operators need to deal with. However, the relatively recent changes in regulation put these risks in a different perspective. There are already number of insurance market products specific to environmental liability, however these offerings vary across the EU market, which can make certain localised SME's exposed to this type of risk, without a possibility to purchase relevant cover.

INSURANCE COVER COMPARISON IN RESPECT OF ENVIRONMENTAL RISKS

Recent legal cases and legislation changes in the EU market have prompted insurers to consider how and where cover for environmental liability exists. The reality is that cover is available under different policy forms, some of which were never really intended or designed to cover pollution and/or environmental damage.

The table[6] below is designed to provide a high-level overview of the coverage available under the following insurance policies and how these would respond under different scenarios:

5 Bartoline Ltd v Royal & Sun Alliance Insurance plc [2006] EWHC 3598 (QB).

6 Association of British Insurers; Comparison of Insurance Policies in Respect of Pollution and/or Environmental Damage (https://www.iua.co.uk/IUA_Member/Publications/Environmental_Liability/IUA_Member/Publications/Environmental_Liability.aspx).

- Public Liability
- Property
- Environmental Liability

Please note that individual policy terms and conditions can differ and the table below should be used only for indication purposes. Coverage offered may differ from those indicated in the table for individual policies. Please note that there are different variations of Public Liability policies available across the EU markets, which may cover some elements of environmental risks.

TYPE OF LIABILITY	PUBLIC LIABILITY	PROPERTY	ENVIRONMENTAL LIABILITY
Statutory liability for remediation of polluted water or soil caused by a 'sudden' incident	NO	NO	YES
Statutory liability for remediation of polluted water or soil caused by a 'gradual' incident	NO	NO	YES
Statutory liability for enforcement/ remediation costs incurred by regulator following 'sudden' incident	NO	NO	YES
Statutory liability for enforcement/ remediation costs incurred by regulator following 'gradual' incident	NO	NO	YES
Statutory liability for biodiversity damage or for 'compensatory' or 'complementary' remediation	NO	NO	YES
Statutory liability for dealing with imminent threats of pollution or biodiversity damage	NO	NO	YES
Tort liability for third party property damage resulting from pollution caused by a 'sudden' incident (property damage could include damage to third party's buildings, destruction of third party's fish in a fish farm or in waters subject to third party's fishing rights, damage to third party's crops, etc)	YES	NO	YES
Tort liability for third party property damage resulting from pollution caused by a 'gradual' incident	NO	NO	YES
First party: cost of remediation of own property due to pollution caused by a 'sudden' incident, where the remediation is not required by law	NO	NO	NO
First party: cost of repairing damage to own buildings due to pollution caused by a 'sudden' incident (or named peril[7]), where the work is not required by law	NO	YES	NO
First party: cost of remediation of own property or of repairing damage to own buildings due to pollution caused by a 'gradual' incident, where the remediation or work is not required by law	NO	NO	NO

7 We assume property policy covers loss arising from named perils, however it should be noted that other forms of property insurance can be obtained (such as property all risks), where coverage from pollution/environmental damages can differ to the above.

TYPE OF LIABILITY	PUBLIC LIABILITY	PROPERTY	ENVIRONMENTAL LIABILITY
Tort liability for injury/illness to employee caused by pollution of air, water or soil	NO	NO	NO
Tort liability for injury/illness to third party resulting from pollution of air, water or soil caused by a 'sudden' incident	YES	NO	YES
Tort liability for injury/illness to third party resulting from pollution of air, water or soil caused by a 'gradual' incident	NO	NO	YES
Tort liability for damage to amenity arising from nuisance caused by a 'sudden' incident	YES	NO	YES
Tort liability for damage to amenity arising from nuisance caused by a 'gradual' incident	NO	NO	YES
First party costs incurred to prevent or minimise anticipated liabilities under statute or in tort.	NO	NO	YES
First party economic loss arising out of pollution or remediation caused by a 'sudden' incident	NO	NO	YES
First party economic loss arising out of inability to use building damaged by pollution caused by a 'sudden' incident (or named peril)	NO	YES	YES
First party economic loss arising out of pollution or remediation caused by a 'gradual' incident	NO	NO	YES
Tort liability for third party economic loss where there has been property damage or a nuisance arising out of pollution caused by a 'sudden' incident	YES	NO	YES
Tort liability for third party economic loss where there has been property damage or a nuisance arising out of pollution caused by a 'gradual' incident	NO	NO	YES
First party economic loss arising out of biodiversity damage	NO	NO	YES

Please further note that:

- None of the policies provide indemnity for a criminal fine or penalty although an environmental liability insurance policy will cover legal defence costs associated with a criminal action arising from a covered event.

- For each potential loss scenario as per above table, the response also accounts for associated legal defence costs and whether those would be covered or not.

Other types of traditional policies to consider:

- **Directors and Officers Liability Insurance (D&O)**
  Traditionally, D&O policies have contained an absolute pollution exclusion, with the result that they do not indemnify directors or officers in respect of liabilities stemming from most forms of environmental harm. It should be noted that since the mid 1990s, some D&O policies applied a sub-limit of indemnity for costs incurred by the insured in defending criminal or civil environment-related claims.

- **Employers Liability**
  These policies will provide cover to an insured in respect of a claim by an employee who has suffered injury or disease as a result of exposure to a dangerous substance. However, there is no cover for anything other than claims made by employees.

- **Motor**
  Motor policies cover the driver's liability to third parties for personal injury and property damage arising out of use of a vehicle. They can also cover injury to the driver and damage to his or her property. The liability sections of motor policies are structured in the same way as public liability policies, with the result that, although the sudden, identifiable, unintended and unexpected incident requirement for pollution incidents would not generally cause a problem in relation to motor accidents. However, it should be noted that any transportation of dangerous substances would require a different, standalone, policy and traditional motor insurance would not be sufficient, should any environmental damage occur.

COMPONENTS FOR ESTABLISHING INSURANCE MARKET SOLUTION

There are several components, which need to be in place before the insurance industry develops an accessible solution.

- **Clients Need**
  New type of risks impacting clients and ultimately creating the need for insurance solution. Clients willing to pay a premium to the insurance market can significantly speed up the development of suitable insurance products.

- **Insurability Criteria**
  As per the above section, any new risk coverage offering needs to satisfy the insurability criteria. Insurability criteria define whether the product offering is viable and sustainable from the long-term perspective.

- **Appetite (Risk vs. Reward)**
  Risk appetite defines the level and type of risk insurance company is willing to expose themselves to. It generally considers:
  – *Size of limits*
  – *Market size*
  – *Pricing strength*
  – *Historical performance*
  – *Risk / Capital assessment*

  Setting a risk appetite is a rather complex process, which differs between companies. Each company might target different type of markets / clients to maximise their expertise and sets different levels of appetite for new type of exposure / new product offerings.

- **Limited Liability**
  This element is particularly important for new types of risks as it is critical for insurance companies to know their ultimate exposure in terms of claims type, latency, size. In order to minimize the effect adverse of events on the companies' income statements and balance sheets, insurance companies offload a portion of the risk to the reinsurance market. This is particularly important in the early stages, when dealing with a new risk, or new type of product as it provides the insurance company with time to understand the risk, and to gather knowledge and data to understand the risk. Understanding the risk is important for the insurance market and its clients as insurers can set the standards (under which the cover is provided), which mitigate the risk and help to create accessible solution.

- **Regulatory / Legal**
  The insurance market is very sensitive to any changes to the regulatory system and/or legal framework.

  – *Threats:* The largest threat for the insurance market is in respect of changes in coverage and 'silent' covers, and retrospective changes to covers. Companies do not factor in unforeseen circumstances/risks into pricing, but, as we have seen, the insurance market can be exposed to an event it has not priced for, or to be exposed to cover claims it has not envisaged (e.g. pandemic losses within property covers). This usually leads to disputes and significant legal fees, which outlines the importance of the risk appetite process and the caution which companies adopt when deploying capacity to new offerings and risks.

  – *Opportunities:* Regulatory and legal changes do however represent a great opportunity to the market as well, especially in terms of mandatory covers impacting licences and business continuity.

SMALL-MEDIUM ENTITIES (SME) VS. MULTI-NATIONAL ENTITIES

Small and medium size entities are backbone of the European economy, accounting for about half of EU GDP and playing a key role in all sectors. Across the EU market they represent about 99% of all businesses and employ millions of people. Yet, when it comes to insurance, the balance is different. As an example, in the United Kingdom, SMEs account for around £8bn[8] of insurance premium, compared with around £62bn for the whole commercial market.

The main issue for brokers and insurers is the difficulty in serving SMEs due to their diversity. Insuring and providing a solution to smaller companies is often significantly more complicated as they come in all kinds of shapes and sizes, with different operating models across different industries. The levels of uncertainty often lead to additional risk loadings on premiums by insurers resulting in widening gap between client's views of costs versus benefits. Furthermore, in many cases SMEs struggle to understand the details of different policies and the benefits of more expensive, but comprehensive cover. This often leads to SMEs being underinsured due to lack of resources and expertise to assess their needs and, therefore, underestimating the level of cover they require.

Larger entities have an obvious advantage in this respect as their business models and risks can be properly assessed by brokers and insurers and level of premium should be sufficient to cover these additional expenses. As mentioned above, the real challenge in the SME market is the lack of homogeneity and that deploying the same level of resource to assess the individual SME's needs may not be financially viable for insurers and brokers.

Another advantage, which is often presented for large entities is ability to buy 'Group' cover. Group cover is effectively a single policy covering all company's operations across all geographies. There are generally two benefits of such cover:

- **Price.** Group covers are comparatively cheaper than a set of individual national covers due to diversification benefit, where exposures are spread across variety of areas and geographical locations.

- **Product Offering.** Insurance covers differ between individual markets and large entities operating across various jurisdictions have an option to find the best possible cover on the global market, rather than being constrained to single *national* product offerings. Furthermore, larger entities can benefit from a bespoke one-off policy, written at the specialty insurance market. This option is often not available to the SMEs as the additional expenses would not make the product financially viable.

8 2017 estimate; Global Digital Small Business Survey. 2017 PwC Strategy https://www.strategyand.pwc.com/gx/en/insights/digital-sme-insurance-survey.html

To summarise, it is important to advertise and explain any potential changes to the regulatory or legal framework and allow sufficient time for consultations. Understanding the impact of the systemic changes is critical for the businesses and insurance market so that suitable products are available to all market participants at a reasonable price in a timely manner to:

- minimize the impact on their operations;
- ensure risk awareness and that they have the right cover for their business needs; and
- promote active risk mitigation and ability to enhance their operation

Awareness and active risk mitigation, where possible, should be paramount to any insurance cover and are to the benefit of the individuals, businesses and society as whole.

5 MANDATORY VERSUS VOLUNTARY INSURANCE

Mandatory insurances are generally applied across the EU for motor third party liability, and are also common for employers' liability and public liability insurance.
The mandatory approach works well in these markets because the risks being insured are well understood and quite homogeneous. There is a well-developed and competitive insurance market to support the imposition of mandatory insurance cover. Insurers are also able to ensure that the insured is incentivised minimise claims cost, for example via policy excesses, no claims discount or bonus malus systems.

By contrast, the imposition of mandatory insurance coverage for environmental risks is more complex. We discuss below the reasons why this is the case.

Firstly, we distinguish between different models for mandatory insurance. Under a strict form of mandatory insurance. the terms & conditions of the cover provided are tightly defined by regulation and participating insurers cannot deviate from those conditions. Under a more flexible model the environmental operator is still obliged to be insured, but the insurer has more scope to set the terms and conditions of the cover provided.

The key difference here is that, under the strict model, the insurer cannot tailor the cover provided to the specifics of the operator's risk profile. As such, the insurer is limited in how it can minimize moral hazard and align incentives by ensuring the operator has skin in the game.

ADVANTAGES

The main advantages of mandatory insurance are:

- **Financial security:** society is financially protected from the costs arising from environmental damage. The insurance industry is well developed, highly regulated and well placed to fill this need;

- **Incentive:** The requirement for mandatory insurance acts an incentive to the insurance market to provide the cover required, i.e. there is a ready market for the insurance product;

- **Risk management:** the requirement for insurance promotes a risk management mindset and risk awareness by providing a price signal and professionalising the approach to risk management.

DISADVANTAGES

The main disadvantages of mandatory insurance are:

- **Moral hazard:** If there is a strict mandatory insurance regime, then insurers are limited in their ability to select and define the risks they take on. In other words, they may lose the ability to ensure that the insured keeps some 'skin in the game' and does not just treat insurance as simply one of the costs of carrying out environmentally risky activities.

- **Capacity:** If the insurance market is not well developed, there may not be the capacity to support a mandatory insurance system. Furthermore, where only a nascent market exists, the incumbent insurers may operate an effective monopoly and introduce economic inefficiencies.

- **Pseudo-regulatory role:** Under a mandatory system, insurers can effectively become gatekeepers or pseudo-regulators because a licence to operate cannot be achieved in the absence of insurance cover.

Clearly while a carefully designed mandatory insurance scheme may have a role to play under the ELD it is not a panacea. The is a clear a-priori requirement for a well-developed environmental liability insurance market to underpin the imposition of mandatory insurance. While insurance can impose discipline, improve risk management and provide a price signal for the cost of risk, it is important that the environmental operator retains skin in the game and that insurers have the scope to tailor cover to the circumstances of each situation

Finally, when considering whether insurance should be mandated as a form of financial security, consideration should be given to other alternatives such as self/captive insurance, special purpose bonds, mutual/pooling systems etc. It may be the case that no one tool is the best in all circumstances.

6 INSURANCE SCHEME / TIERS

The world is continually evolving and challenging society's preparedness for new and emerging risks, with the potential to have significant impacts on both people and property. The need for insurance continues to grow in response to these changes, and society relies on insurance to respond as quickly and efficiently as possible to new risks to which we are exposed (e.g. pandemic, cyber, environmental damages etc).

As noted in the previous sections, insurers rely on risk pooling, diversification, and the ability to limit their overall exposure and downside risk. The ability to transfer onwards a portion of the risk is critical, especially in respect of new risks, where the insurer has limited or no prior experience, as it allows insurers to gradually gather data and claims experience, and to develop a better understanding of the risk dynamic, types of claims and client needs.

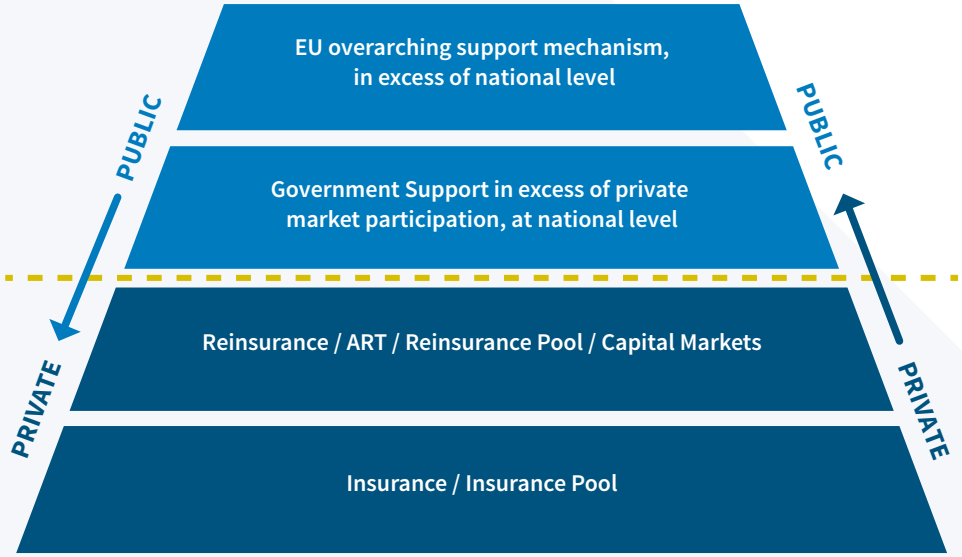
ENVIRONMENTAL RISK

Claims arising from environmental risk in particular can have significant impact on local communities, societies, and/or the general health of our wider environment. It is in the utmost interest of society that any environmental damage is dealt with as quickly as possible, so as to minimise and prevent further damage *(e.g. spread of contamination in rivers, soil contamination impacting groundwater etc.)*.

These types of claims can be very significant and can require a large amount of funds and resources to be deployed (*e.g. excavation and safe disposal, business interruption, compensation*). Therefore, to cover their environmental liability risk, operators will need relatively large limits which insurers may not be ready to deploy without a suitable onward risk transfer infrastructure in place. One possible solution for such infrastructure is described in the recent EIOPA paper *Issues Paper on Shared Resilience Solutions for Pandemics*[9].

9 https://www.eiopa.europa.eu/document-library/other-documents/issues-paper-resilience-solutions-pandemics_en

FIGURE 1: THE CONCEPT OF SHARED RESILIENCE CONSIDERS FOUR LAYERS



For many risks, only the lower two layers are necessary. Private market insurers pass a portion of their risk onwards to the global reinsurance and capital markets. For some risks it may be necessary to supplement the private risk transfer infrastructure with some national or even international/EU public risk-pooling mechanisms.

The four-layer solution requires active cooperation between private and public sector, enabling risk transfer between the different layers. It should be noted that these individual layers are interconnected as they impact each other, and any measures taken at the EU/National level will impact the lower layers. Similarly, any measures taken by insurers and reinsurers need to be factored into the construction any national / EU pools.

The main benefit of public layers when dealing with any new and potentially significant risk is that they enable insurers to offer larger capacity to operators at reasonable cost, as any excess risk can be transferred onwards, and insurers have the ability to limit their overall exposure. The idea is that, over time insurers' understanding of the risk evolves, as they gather data and develop a better knowledge of the nature and efficacy of various risk prevention measures. In this way, the private insurance sector will be willing to increase their retentions and the need for public layer capacity will therefore diminish over time.

Furthermore, the involvement of national governments can help in promoting risk prevention, incentivising the embedding of risk prevention measures, and providing support and coordination following significant environmental catastrophes. The EU, as the overarching body, can assist by setting a consistent framework across the market, by coordinating data sharing and offering aid and financial support in the case of events large enough to exceed the reasonable level of national resources.

THE ACTUARIAL ASSOCIATION OF EUROPE

The Actuarial Association of Europe (AAE), founded in 1978 under the name of Groupe Consultatif Actuariel Européen, is the Brussels-based umbrella organisation, which brings together the 37 professional associations of actuaries in 36 countries of the EU, together with the countries of the European Economic Area and Switzerland and some EU candidate countries.

The AAE has established and keeps up-to-date a core syllabus of education requirements, a code of conduct and discipline scheme requirements, for all its full member associations. It is also developing model actuarial standards of practice for its members to use and it oversees a mutual recognition agreement, which facilitates actuaries being able to exercise their profession in any of the countries concerned.

The AAE also serves the public interest by providing advice and opinions, independent of industry interests, to the various institutions of the European Union - the Commission, The Council of Ministers, the European Parliament, ECB, EIOPA and their various committees - on actuarial issues in European legislation and regulation.

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