

CRO briefing

Environmental Liabilities & Biodiversity Losses: Changing Liability Regimes

Emerging Risks Initiative – Position Paper

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Executive Summary

The purpose of this CRO Forum Emerging Risk Initiative position paper is to raise awareness of changing environmental liability regimes. These pose challenges to stakeholders such as public authorities and operators, as well as financial institutions like insurance providers. The paper aims to present a structured approach to these issues and to point out solutions that may be applied.

This involves:

- Illustrating the particular challenges of environmental liability and outlining the worldwide legal landscape.
- Raising awareness of major features including the implications of the EC Environmental Liability Directive¹ (EC ELD) as an example of one of the most recent pieces of environmental liability legislation.
- Presenting new approaches to environmental exposure assessment for risk management purposes.
- Outlining risk transfer solutions addressing both existing and possible future situations.
- Highlighting the importance of professional claims handling involving all affected parties and taking into consideration specific aspects of environmental liability.

Nature conservation is increasingly important to governments and other governmental institutions including the European Union. Regulatory bodies worldwide are aiming at the clean-up of historic contamination (e.g. US superfund legislation/ CERCLA) and the reduction of future negative impacts on the environment (e.g. EC ELD). Loss prevention, - as well as the polluter- pays principle - are important instruments for regulators, and have been given heightened attention in environmental legislation.

The implementation of the polluter-pays principle shifts responsibility to the operator who causes pollution, while the enforcement role is granted to public authorities. Under the EC ELD, public authorities have a responsibility to identify incidents and establish the liability of operators, as well as to instigate prevention or remediation action and financing of such measures. In addition, it requires a review by operators of current Enterprise Risk Management (ERM) practices to address potential environmental exposures stemming from operations.

¹ Directive 2004/35/EC of the European Parliament and of the Council of 21st April 2004 on environmental liability with regard to prevention and remedying of "environmental damage".

Lack of sufficient loss experience data requires new risk assessment approaches which may include scenario assessment based on geographic information. The operator – whether a small, medium or large sized enterprise – needs to improve risk management process (risk identification, reduction, avoidance and transfer information). Financial institutions can play a key role as an enabler of commercial operations through the risk transfer process.



*Rupture of an oil pipe, leading to the flooding of acres of a French nature reserve at Coussouls de Crau. Some 3000 cubic metres of oil spilled over two hectares.
Le Point, 07/08/09*

The better understanding of the environmental liability exposure created by new legislation is crucial for the risk management of operators. It will help to manage and reduce potential impacts on the environment. Furthermore, this enhanced understanding facilitates the implementation of suitable risk prevention / mitigation strategies including risk transfer to professional risk carriers.

Costs attached to environmental impairments need to be better understood in order to translate highly uncertain risks into quantifiable risks, facilitating appropriate risk management.

The claims management process requires close cooperation between the competent authorities, the operator and risk carriers.

This document establishes a basis for enhanced dialogue between stakeholders. This dialogue will increase the likelihood of preventing damage to the environment, but also facilitate restoration of the environment where damage has occurred.

In addition to risk dialogue, further consideration will be given to operators' risk management (including prevention) and risk transfer in order to meet these challenges.

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Worldwide Landscape of Environmental Liability Regimes

Challenges

Organizations (insurers, public authorities and corporate risk managers) in Europe as well as in the US will continue to face new challenges from evolving environmental liability threats. Assessing these emerging liabilities will be a continuous learning process. It will involve resolving conflicting internal and external objectives including the balancing of economic considerations and societal expectations. It will require careful compromises in selection of mitigation and environmental protection options based on cost-benefit analysis. It is about the role of the polluter-pays principle in environmental policy and, above all, the role of tort law and environmental liability litigation as one of a number of ways of implementing the polluter-pays principle and indirectly influencing people's behaviour.

The situation is complicated. "Environmental damage"² may not be limited to geographic boundaries and this can lead to complex cross-border litigation. In addition, there is a lack of clear baseline standards for contaminated sites, difficulties in treating persistent pollutants in a cost effective manner. The developing ability to measure trace pollutants at very minute levels, presents major challenges and may drive up the cost of clean up. Evolving theories of "duty of care" and new legal theories can create new liabilities and concerns for the reputation of businesses.

Environmental liabilities and litigation should be seen in the wider context of companies' global responsibilities, including both legal and moral accountabilities. These factors make an effective argument for consideration of social, political, regulatory and technical issues in lieu of expensive and extended litigation.

Although the protection of the environment and natural resources has been an expressed government goal in many countries, finding adequate funding for clean up of past contamination and future protection has been a challenge. Liability is generally fault-based for non-dangerous activities and strict for dangerous and potentially dangerous activities.

In the recent past, several cases of serious damage to the environment because of human activities have been experienced giving rise to various liability exposures.

² Refer to the EC ELD definition of « Environmental damage » page 7.



Types of Environmental Impairments

There have been many incidents demonstrating the potential for environmental damage. Catastrophes like the release of toxic gas at Bhopal in central India; the dioxin cloud at Seveso in Italy or the fire at a tank farm at Hemel Hempstead near London all clearly illustrate the enormous risk potential of industrial plants. Other incidents like the Exxon-Valdez disaster in Alaska and the sinking of oil tanker Erika in the Sea of Brittany in 1999 demonstrate the potential catastrophic dimension of transportation activities. All these events demonstrate the potential magnitude of environmental impairments and resulting damages and losses.

Gradual processes can also cause catastrophic damage as happened in a Japanese Prefecture in the mid-1950s when heavy metals were pumped into a river during the course of mining operations. Local residents suffered chronic cadmium poisoning, and terrible pain. Infectious diseases are another controversial aspect of environmental damage, while climate change, acid rain, ozone depletion and nuclear waste are global environmental issues with cross-border impact.

Ultimately, the use of certain products can lead to severe bodily injury and disability. Probably the most tragic example of this is the use of the defoliant Agent Orange³ during the Vietnam war, resulting in 400.000 unforeseen deaths and disabilities, and a further 500.000 children born with unanticipated birth defects⁴.

³ Agent Orange is the code name for a herbicide and defoliant used by the U.S. military during the Vietnam War causing unforeseen deaths and health problems.

⁴ The Globe and Mail, June 12, 2008. "Last Ghost of the Vietnam War" based on official Vietnamese sources

Pollutants are always dispersed via an environmental medium, i.e. water, land and/or air but it is not just the medium itself that may be polluted. Flora and fauna, people and property also suffer serious “collateral damage”. Seen from this perspective, the consequences of explosions or fires may be considered “environmental damage”.

Contamination and “environmental damage” can happen suddenly or as part of a gradual process.

If damage is confined to an industrial site, one talks of a first-party-loss; if adjacent properties are damaged, it is referred to as a third-party-loss.

Historical pollution is the contamination of soil or groundwater that remains undetected for many years.

The following illustration shows the relationship between incidents and environmental impairments as well as the kind of damage that may result:

- An accident leads to pollution of neighbouring property and harm to people (third-party-loss). The premises of the insured are affected as well (first-party-loss).
- A similar scenario but created by gradual pollution (for example, third-party and first-party-losses as a result of the normal licensed operation of the plant or perhaps as a result of repeated spilling).
- Historical pollution e.g. leakage from underground-storage tanks that has contaminated soil and groundwater.
- Release of sewage sludge or the application of pesticides pollutes land.
- Products containing hazardous substances (e.g. contaminated drinking water).

In most cases “environmental damage” involves private and public environmental liability claims. Some scenarios are currently not covered by insurers because in many markets, environmental risks are indemnified on the basis of sudden and accidental pollution only. It is also often the case that only third-party-losses (private environmental liability claims) are covered.

As a result of the EC Environmental Liability Directive (EC ELD), products with a wider coverage are being developed as liability insurers adjust to loss scenarios, which are new to them.

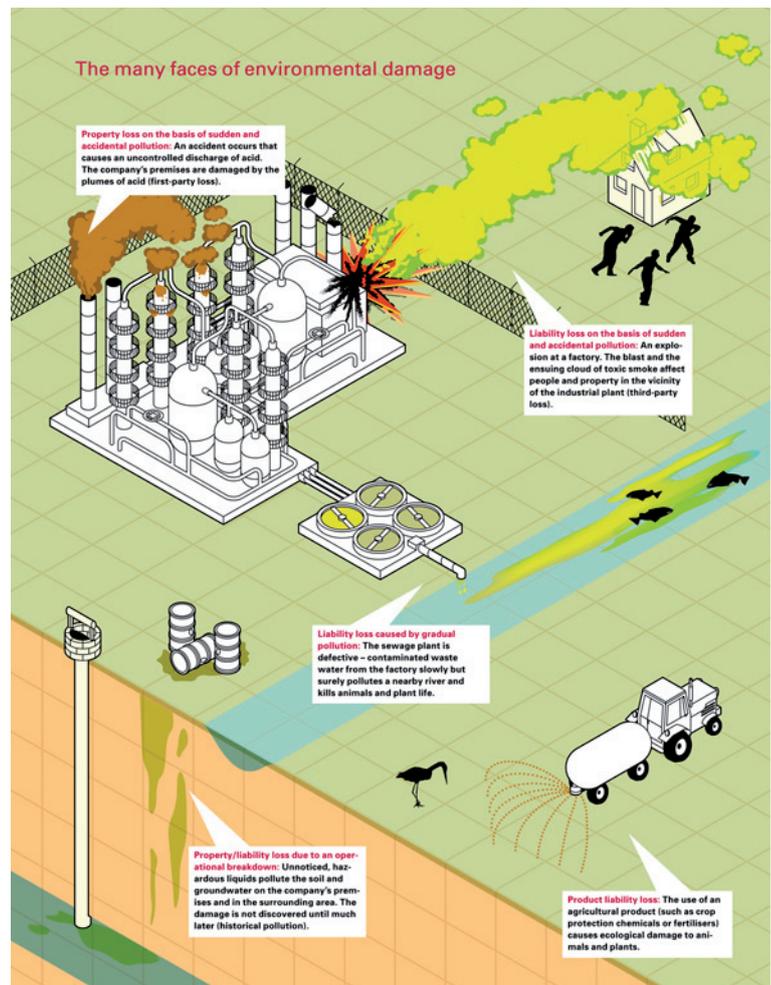


Fig1.1

See appendix 1 for the detailed illustration

Development and Enforcement of Laws and Regulation

The 1970s saw passage of many important environmental initiatives, laws and regulations in the US and Europe.

The environmental laws and regulatory framework in the US has a long history supported by well-developed practice and practical application. The European Union has developed comprehensive environmental legislation over a number of decades and has recently passed the EC ELD. Frameworks in Australia, Japan and Taiwan are similar to the US while Europe and some Asia-Pacific countries are still developing their laws and regulations.

The US Landscape

In 1973, the Environmental Protection Agency (US EPA) was established in the US as the lead governmental agency to regulate protection of the environment. The environmental laws and regulations in Canada are similar to the US. The early emphasis was mostly on prevention by deployment of a «command and control» framework. This often involves the regulation of industries by issuance of permits; responsibility for monitoring and reporting; and a regime of fines and penalties. The expectation when these regulations were introduced was that the threat of fines and penalties would reduce violations and encourage prevention efforts by companies.

In the 1980s and 1990s, enforcement regimes were further refined, transferring much of the statutory enforcement authority to the states and passage of additional regulations. The key US laws and amendments that have been enacted over the years, which drive environmental insurance products and associated liability, are summarized in appendix 2.

Laws of Individual States

Although many of the US environmental laws and regulations are administered at the federal (i.e. US EPA) level, States may enact their own laws as well.

Most state environmental law tends to follow the structure of federal law. Each state has an environmental regulatory authority very similar to the US EPA. States also often have state-level legislation governing such things as air pollution, water pollution, and hazardous waste management.

In certain cases, the state may be designated to enforce the national regulations, if the US EPA delegates this authority to them. In addition, some states have received authority to pass state-level legislation that is more stringent in its requirements than federal legislation.

Comprehensive Response Compensation and Liability Act (CERCLA) and the Superfund

As discussed earlier, enforcement of these laws was based on a «command and control» regime framework but they did not address clean up and restoration of existing and abandoned polluted sites. This gap was closed by the enactment of the Comprehensive Response Compensation and Liability Act (CERCLA) in 1980 and Superfund Amendments and Reauthorization Act (SARA) in 1986. This comprehensive law and subsequent amendment were enacted to create a trust fund to clean up abandoned hazardous waste sites when a responsible party for pollution could not be identified. This fund is referred to as the Superfund. CERCLA and SARA resulted in the development and codification of specific liability regimes and formalization of the polluter-pays principle for clean-up costs for abandoned hazardous waste sites.

The Superfund is financed with taxes assessed to the chemical and petroleum industry. To be eligible for funds for clean up, a site is ranked based on the risk it poses to human health and the environment. If the risk is sufficiently high, the site is placed on the National Priorities List (NPL) where it is then eligible for funding from the Superfund. Wherever responsibility can be assigned, regulation follows a polluter-pays approach.

The law outlines clean-up procedures that must be followed and establishes a liability framework that provides for strict, joint, and several liabilities for the cleanup of sites. This liability framework provides for broad flexibility in recovering Superfund funded clean-up costs from Potential Responsible Parties (PRP). The law also allows the US EPA to levy fines for those responsible parties that fail to take action. For example, if the US EPA conducts the site clean-up, and a responsible party is subsequently found liable, the government can charge the responsible party up to three times the cost required to clean the site up. The imposition of polluter-pays liability regime and fines are designed to encourage responsible behavior and implementation of preventive efforts.

The European Landscape

The commitment to environmental protection in the European Union is evident both at collective levels as well as at individual Member States level. The environmental policy in Europe is based on the «precautionary principle» and management and control of pollution at the source. Over the years, a comprehensive regulatory framework for the protection of air, water, soil, waste disposal and natural habitat has been established based on the principle of «polluter pays». Unlike the US a European Environmental Agency does not exist. Each and every single EU Member States has its own environmental protection agencies. The European Environmental Agency (EEA) is not a regulatory body but a reliable information source for the European Parliament and others. In addition to the EU environmental legislation (summarized in appendix 2) several EU associations have been created with a purpose of ensuring an effective implementation of environmental legislation.

EC Environmental Liability Directive 2004/35/EC⁵

EC ELD also follows the polluter-pays principle and is intended to address the liability for damage to natural resources and biodiversity. While CERCLA and SARA address the clean up of historic contamination, Europe's Environmental Liability Directive attempts to address proactive prevention of "environmental damage" with a framework to manage and control pollution at the source. This distinction is important and should be clearly noted.

In Europe, transposition of the EC ELD into national laws is now almost complete across Member States.

Box "Environmental Damage"

The term "environmental damage" is defined under the EC Environmental Liability Directive as the impairment or reduction of the ecological function of:

- Protected species and natural habitat.
- Surface and ground water.
- Land and soil which threatens to impair human health due to contamination.

Air quality is NOT protected, but air as transport medium of pollutants falls under the EC ELD.

Rest of the World

Most of the Asia Pacific countries have enacted legislation similar to US EPA. Nevertheless there is a potential risk of developed countries exporting their environmental hazards to emerging countries in the Asia Pacific and African regions.

Environmental policy in these countries may be stimulated by environmental principles enshrined in the constitution; collective redress legislation; consumer protection law; access to justice legislation; and / or private law enforcement. The result is environmental litigation which in turn stimulates environmental policy. Examples of environmental collective redress in the developing world include hundreds of public-interest cases in India and in Argentina, the Mendoza case in which private parties sued the state, province and city of Buenos Aires.

Elsewhere in Latin America in the early 1990s, Colombia introduced several new laws governing group actions and a suit has been brought by the state in the collective interest on grounds of "environmental damage", against 70 entities responsible for polluting the Bogotá River. Parallel to that, a group action was brought involving individual damages. 3.600 families suing the same 70 entities, alleging a fall in the value of their properties along the river and injury to health. These families sued or US\$ 1.6bn.

⁵ Directive 2004/35/EC of the European Parliament and of the Council of 21st April 2004 on environmental liability with regard to prevention and remedying of environmental damage.

2

The EC ELD Case: Main Features and Obligations

Main Features

The EC ELD contributes to harmonization of legislation across Europe by establishing a basic framework upon which national laws can converge. The EC ELD sets minimum standards which have to be transposed into Member States legislation while some other elements are elective. These laws are intended to provide protection to Natura 2000 sites and in some countries, nationally designated sites such as the UK's Sites of Special Scientific interest. For water and soil, the liability is limited to those carrying on defined hazardous activities. The EC ELD also follows the polluter-pays principle and is intended to address liability for damage to natural resources and biodiversity. The EC ELD assigns clear responsibility for precautionary measures and remediation. If the environment is impaired despite these precautionary measures, the responsible party (i.e. the polluter) is obliged to fully remedy the damage. While the US CERCLA and SARA address the clean up of historic contamination, the EC ELD attempts to foster proactive prevention of "environmental damage". Damage caused before 30 April 2007 is not covered under the EC ELD which means that there is limited liability to historic pollution.

It is noteworthy that the EC ELD is not a single consistent regulation across Europe. Instead each country was required to transpose the EC ELD into their national laws, leading to disparities among Member States, e.g. some countries have chosen a joint and several liability approach (e.g. Germany, Poland, Portugal) whereas others have adopted a proportional liability approach (e.g. Cyprus, France, Italy). *For more details on the country specific comments please refer to the CEA report, "Navigating the Environmental Liability Directive: A practical guide for insurance underwriters and claims handlers." April 2009 <http://www.cea.eu/>*

The EC ELD allows for three kinds of remediation:

- **Primary remediation** is the process whereby the damaged environment is returned to baseline condition, that is, the condition that pertained prior to damage.
- **Complementary remediation** involves measures taken to enhance an alternative environment where primary remediation cannot accomplish a full return to baseline condition at the damaged site.

- **Compensatory remediation** is action taken to compensate for the loss of natural resources between the time of damage and primary remediation has achieved its full effect. It does not consist of financial compensation to any party and the EC ELD does not incorporate any provision for penalties or fines.

The EC ELD provides two distinct but complementary liability regimes:

- **Strict liability** for specified, environmental hazardous activities as described in Annex III of the EC ELD.
- **Fault-based liability** for all other professional activities when damage is caused to protected species and natural habitats

Obligations

Operators

Under the EC ELD operators are financially liable for "environmental damage" caused by their business activities. Operator is defined as 'any person (natural or legal, private or public) who operates or controls an occupational activity, or to whom such an activity has been delegated'. For liability to become effective, polluters must be identifiable.

Operators need to understand their social, environmental and financial responsibilities arising from the EC ELD. These responsibilities cannot be completely avoided through risk transfer. Rather, there is a need to develop a risk culture that includes environmental liabilities. Operators also have to be prepared for crisis communication in the event of a severe biodiversity incident.

The necessary risk assessment processes and capabilities will lead to increased costs for the operator.

Both preventive and remediation measures are foreseen under the EC ELD. The operator must instigate preventive measures immediately if “environmental damage” has not yet occurred but the threat is imminent.

If, for example, “environmental damage” has occurred to a watercourse or protected species or natural habitat, the operator must instigate measures to restore, rehabilitate, replace or provide equivalent alternatives for the damaged natural resources and/or impaired functions. This is an obligation to remedy the situation, not an obligation to pay monetary compensation.

If land or soil pollution occurs, the operator must initiate the necessary measures to eliminate any danger to human health. The immediate aim in this instance is to eliminate the risk rather than restore original conditions.

It is essential for an operator to have a sound understanding of the main features of the EC ELD and how the EC ELD relates to their business activities. This understanding will facilitate the development of risk mitigation strategies, but will also enable the operator to request, and together with their chosen insurance partner, develop the best insurance solution.

Occupational Activities

The EC ELD does not make any distinction between, small- / medium-sized enterprises and large corporations. Instead, it could be argued, that more or less all occupational activities fall under the scope of the EC ELD. However, from an operator perspective, it should be possible to distinguish activities which pose lower risk of “environmental damage” from activities which pose a higher risk of “environmental damage”, and manage their environmental exposure accordingly.

National Operators vs. Global Acting Corporations

“Environmental damage” can occur locally (at the operational site where the incident happened) or extend to a broader territory for example;

- Cross-territory damage within an EU Member States.
- Cross-border damage between EU Member States.

- Cross-border damage between Member States and non-EU countries.

Operators need to be aware of the implications of potential trans-boundary “environmental damage” which may expose them to different legal environments.

However, there are areas of awareness that differentiate small- / medium sized, mainly local or national operating enterprises, from global acting large corporations. For instance, global acting corporations, meaning corporations with cross border operations are exposed to different national and regional legislative frameworks.

It is important that risk mitigation strategies are structured in such a way that these exposures are covered by, for example, an adequate multinational insurance solution.

Public Authorities

Under the EC ELD administrative liability applies, it is not based on common law/civil law. The party entitled to claim is not an injured or damaged third party but the public administrator that has the authority to protect the damaged natural resources.

Designated public authorities are granted an enforcement role under the EC ELD. This incorporates a responsibility to identify incidents and liable operators, as well as the instigation of prevention or remediation plans and actions, and where applicable, the financing of such measures. In the short term, authorities will have to cope with a lack of data/experience as they adapt to their new claimant role and seek to enhance prevention.

In order to prepare for the new role as claimant, authorities need to build up expertise (e.g. in assessing and handling claims).

This new role for authorities requires:

- The identification of incidents and liable operators as well as the instigation of prevention or remediation plans.
- Data and experience which have to be gathered to cope with this new role (e.g. via round tables with operators, NGOs, risk carriers).
- New competencies for:
 - shifting from financial to non-financial compensation actions.
 - adapting “action/reaction” conduct rules.
 - claims handling.
 - developing and assessing preventive and remedial actions.

Key issues overview

The following table (page 11-12) illustrates some of the new requirements coming from the EC ELD in EC countries or other new liability regimes in US and the rest of the world. These changes result in new obligations and challenges for operators, risk carriers and competent authorities

Risk Carriers

The responsibility of insurers is only to provide cover for insurable risks and develop products to cope with the new requirements, but also claims handling expertise and help with ERM. By including both experience and exposure rating in the risk assessment process, risk carriers will be able to help with future risks issues.

The insurance industry should not only play a major part in risk transfer but should also support risk management through a proactive approach, giving the operator support in identifying environmental liability risks, implementing preventive measures and by moving from claims experience to an exposure rating. The insurance carrier can also enhance the dialogue between the parties and assist insureds in crisis communication.

| Topics | Operator perspective | Insurance challenges and solutions |
|--|--|--|
| Which new requirements come from EC ELD and new liability regimes for companies? | Which obligations are the result of these new regimes for the Enterprise Risk Management? | Which challenges for the insurance industry are arising and which solutions are offered? |
| Liability regime on prevention and remedying of environmental damage. | Operator must identify imminent threat of damage or reasonable grounds to believe there is environmental damage. Operator must take steps to limit/prevent further damage. Operator must notify authorities. Operator must conduct restoration of damaged environment. | Existing products often limit protection to civil liability claims for damage caused by pollution – irrespective of the damage to the resources. Requires adaptive philosophy – the trigger is the environmental damage. Requires insurers to alter their risk assessment protocols – technical, environmental, legal as well as corporate elements. |
| The EC ELD marks a shift from traditional civil liability regime to a distinct administrative approach. It introduces a comprehensive regime for damage to certain elements of biodiversity, specifically protected species and natural habitats. | Claims will be initiated not by the injured or damaged third party but by the public administrator with authority to protect the damaged resource. Claim position is weaker than in the case of traditional liability insurance. Compensation in not monetary – rather remediation. This will likely result in complex projects with long execution periods requiring demanding and specialised monitoring activities. | There is very little experience regarding damage to protected species and habitats. This inquiry involves difficult technical issues as to how to restore damage done to natural resources. |
| The EC ELD is prospective in application - only applying to damages caused by emissions, events or incidents that took place on or after 30 April 2007. | Establish a baseline framework – e.g., chronology of releases to differentiate pre-and post EC ELD emissions, events or incidents. | Developing products to respond clearly to the liabilities assumed – that is differentiating between pre and post EC ELD emissions, events or incidents. |
| EC ELD defines two distinct but complementary liability regimes, fault-based and strict liability. | Check undertaken business activities with respect to relevant liability regime and assess legal impact. | Developing products to respond clearly to the liabilities assumed. |
| Strict liability regime: An operator who conducts certain covered activities listed in Annex III to the EC ELD (e.g., permitted industrial and agricultural activities, waste management operations) can be held strictly liable for remediation action regardless of fault or negligence. | Identification and status of operator as defined in the EC ELD as implemented in the local jurisdiction. Some jurisdictions define more/less broadly. | Trans-jurisdictional challenges. Availability of defenses – some member states have limited certain defenses (e.g., state of the art). |
| Fault-based liability regime: Any professional activities (other than those listed in Annex III), which cause damage to protected species and natural habitats or pose an imminent threat of such damage will incur liability if there was negligence or fault. | Identification and status of activities as defined in the EC ELD as implemented in the local jurisdiction. | Trans-jurisdictional challenges. Availability of defenses – some member states have limited certain defenses (e.g., state of the art). |

| Topics | Operator perspective | Insurance challenges and solutions |
|--|---|---|
| <p>Which new requirements come from EC ELD and new liability regimes for companies?</p> | <p>Which obligations are the result of these new regimes for the Enterprise Risk Management?</p> | <p>Which challenges for the insurance industry are arising and which solutions are offered?</p> |
| <p>EU Member States have enacted the EC ELD differently.</p> | <p>Check legal impacts of local regime (e.g. applicability/availability of state of the art defence) of new liability regime for each country-specific locations.</p> <p>For example, some Member States (e.g., Spain, Portugal and Czech Republic) are imposing a system of compulsory financial security.</p> | <p>Development of tailored solutions for coverage.</p> <p>Member state specific policy amendments.</p> <p>Cross-boundary coverage.</p> |
| <p>Protection of Natura 2000 and nationally designated sites.</p> <ul style="list-style-type: none"> About 20% of the European territory is covered by Natura 2000 sites. | <p>Identify risk scenarios that could cause environmental damage especially to Natura 2000 sites.</p> <p>Model preventive or remedial action plans and develop risk mitigation strategies including insurance solutions.</p> | <p>Development of new coverage solutions incl. adequate risk assessments based on GIS models.</p> <p>Parts of the new liability are already covered by new developed insurance products.</p> |
| <p>One of the key provisions of the EC ELD is the requirement for operators to take preventative action. It's the obligation of the operator to instigate the necessary measures (e.g. restoration) in case an environmental damage has occurred or preventive measures if damage has not occurred but the threat of happening is imminent.</p> | <p>Review and adjust emergency/contingency plans – should be comprehensive – who is responsible for each action and stage in responding to the emergency including reporting to authorities?</p> <p>Proper training for employees in environmental protection awareness and best practices.</p> <p>Adequate testing and maintenance of plant equipment to assure in good working order.</p> <p>Regular audits to monitor performance.</p> | <p>Balancing scope of EC ELD – particularly with preventative elements against traditional insurance notions that there must first be a casualty and then mitigation.</p> <p>Offer consulting services with focus on clients risk management capabilities (incl. processes, management, trainings).</p> |
| <p>Environmental damage can occur locally (at the operational site where the incident happened) or extend to a broader territory (e.g. spreading along water bodies or driven by wind).</p> <p>Beside new environmental liability risks from fixed installations operators are exposed to:</p> <ul style="list-style-type: none"> Risks connected to product liability. Liability for work carried out by own employees on property belonging to third parties. Motor vehicle third-party liability. Professional liability. | <p>Check implications of potential transboundary environmental damage which exposes operations to different legal environments.</p> <p>Check potential liability from non-site specific installations.</p> | <p>Offer of adequate multinational insurance solutions.</p> <p>Cross border accumulation control.</p> <p>Check potential impact on already existing Insurance products and solutions, identify gaps and overlaps and elaborate on new insurance concepts.</p> |
| <p>High degree of uncertainty regarding the impact of the EC ELD on the insured's and the insurers, in terms of how scope and degree of cover will be assessed and taken in account of.</p> | <p>Implement an early warning system to monitor court rulings and legal proceedings which will be prejudicing.</p> | <p>Implementation of an early warning system to monitor court rulings and legal proceedings which will be prejudicing.</p> |

3 The EC ELD Case: An Adequate Risk Management Approach

An adequate risk management approach for EC ELD including a risk dialogue between all parties would help to identify risks. The risk assessment results offered by e.g. insurers can provide the basis to implement preventive measures and to mitigate specific risks via risk transfer/insurance solutions.

Risk Learning

An effective dialogue and working relationship between all the involved parties (operator, risk carrier and authorities) will be key to fostering a continuous learning process.

The authorities' role will involve resolving conflicting economic considerations and societal expectations.

Operators will have to understand that liability cannot be transferred to insurance carriers completely as the new public claimant requires more than monetary compensation.

Therefore, new considerations in manufacturing processes and internal risk management tools will have to be adopted, e.g. Geographic Information Systems (GIS) models to establish proximity and potential hazards to neighbouring habitat areas.

Insurers face a new risk and need to develop new claims handling and risk assessment skills using little or no historical data.

Risk Assessment

Scope

Previous environmental liability regimes (strict or fault based) required the verification and assessment of various factors during a risk assessment survey. These included but were not limited to:

- Production processes and organisational structure of the company.
- Historical data about former use of the site.
- Local conditions and adjacencies e.g. sensitive occupancies (hospitals, schools, residential areas), vicinity of other industrial plants with relevance in the case of an incident, soil conditions, prevailing wind direction, hydrological conditions, natural perils (e.g. earthquake and flooding risk).

- Preventive measures, e.g. plant security, fire protection and fire water retaining measures, fire brigade.
- Development of incident scenarios (incl. domino effect with adjacent plants) and quantification of resulting costs.
- Environmental management and organisation, e.g. certified management system, specialist officer, environmental ratio, audit reports.
- Environment-relevant installations, e.g. storage areas for hazardous substances, waste storage, waste water treatment plants, transformer, sewage discharges, separating installations.

The operators are held responsible for all damage to the flora, fauna, soil and water, even if they don't belong to a third party. This applies in particular to Natura 2000 areas⁶, an EU-wide network of protected sites. (See appendix 3).

As this extended liability may be covered under new insurance products it has a major impact on the risk assessment of locations.

Approach and Tools

The different liability regimes (strict or fault based) can be used for a first differentiation during the risk assessment process.

The key factor of the hazard analysis under the new liability framework is the assessment of the facility in relation to protected natural areas. GIS models assess ambient conditions particularly the distance of the industrial site to the nearest surface water body (river, lake, and sea), residential areas within a specified radius, industrial emission sources in the vicinity (e.g. based on the European Pollutant Emissions Register (EPER) and the vicinity of protected areas (e.g. Natura 2000). Natura 2000 sites account 20% of the EU's land area. In Germany more than two thirds of all industrial sites are at a distance of less than 2.5 km from the next protected area.

Hazard potential is primarily assessed by reference to the quantities and handling processes of harmful substances and the quality of the operator's safety management is also evaluated.

⁶ *The definition of protected species and natural habitats refers to species and habitats listed in the 'Birds Directive' 79/409/EEC, OJ 1979 L103/1 and the 'Habitats Directive' 92/43/EEC, OJ 1992 L206/7.*

For multiple locations the GIS assessment can be used to orientate further in-depth and on-site analysis. However, taking into account time- and cost-efficiency perspectives it is necessary to streamline site surveys. Operators with several hundred locations worldwide or locations with large site areas and complex operational processes can not be assessed in a time-efficient way. Therefore insurers use a top-stage risk analysis approach. Using this approach, the first step is to assess the exposure potential via GIS models and the hazard potential using the operator's general risk data to select high-risk locations for on-site survey. It is also important to focus on top management to analyse and assess the internal risk management processes of the company. Key themes for this assessment are:

- Commitment at all levels to implementation of risk improvement measures.
- Risk awareness and risk culture.
- Paradigm shift awareness from external cost (e.g. lawyer cost) to environmental (including the restoration) cost.
- Implementation of formal Environmental Management System (EMS)⁷.
- Employee training in awareness of environmental protection.
- Emergency plans.
- Contingency plans.
- Compliance with statutory requirements and regulations.

As implementation of proper risk management policies and programs also depend on a solid financial basis, the financial strength of the company has to be checked with care, as it is likely that a financially stretched company may cut expenses or fail to invest in latest technology and safety equipment.

The top down approach gives the insurer an overview of risk strategy and provides an insight into the state of preventive measures and any room for improvement. This approach complies with the motto that a chain is only as strong as its weakest link. Furthermore the management can allocate resources to sites where the biggest impact can be achieved.

Other Risk Areas

There are four major risk areas which are not directly linked to industrial premises. These are:

- Risks connected to product liability.
- Liability for work carried out by own employees on property belonging to third parties.
- Motor vehicle third-party liability.
- Professional indemnity.

Product liability risks are assessed by checking the quality of product safety and the quality of the management processes of the company. The whole product life cycle from production to disposal has to be reviewed.

Assessments of services on properties belonging to third parties involve assessment of the qualification of the staff, as well as the safety and project management expertise of the operator relative to the planned activities.

The most critical area relates to motor vehicle third-party liability as a traffic accident can cause severe environmental damage. Transportation of hazardous substances generally has to comply with local hazardous material regulations. Underwriters will also assess the quality of transport containers, the safety equipment of transport vehicles and the quality of driver's training.

Risk Prevention

An increased level of prevention and precaution is expected to result from new duties established by the EC ELD. If operators' activities pose an imminent threat of "environmental damage", they have an obligation to take action to prevent pollution.

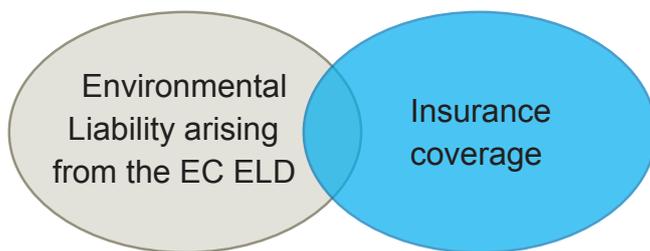
Prevention should be based on sound processes to govern business activities and manage environmental exposure. Such processes could include, but should not be limited to:

- Establishing and maintaining environmental policy objectives for the operation, including a description of the responsibilities of top management.

⁷EMS refers to the management of an organisation's environmental programs in a comprehensive, planned and documented manner.

- Establishing work procedures and practices in line with the environmental policy objectives, including awareness training in environmental protection for employees.
- Developing an emergency plan, defining actions and responsibilities in the event of an incident.
- Identifying risk scenarios that could cause “environmental damage”.
- Modeling preventive or remedial action plans.
- Developing risk mitigation strategies.

Risk Transfer: Products and Solutions



The insurance sector plays an important role regarding the transfer of environmental liability risks by offering various, specific insurance products. The major areas of liability affecting the insurance industry can be identified as follows:

- Bodily injury, property damage and financial loss to third parties resulting from pollution or other environmental impacts.
- Costs of mitigation and restoration measures, including cleanup of the insured’s contaminated land.
- Costs of prevention and restoration of “environmental damage” i.e. damage to property not belonging to individuals such as damage to natural resources, protected species and habitats, biodiversity.

Based on underwriting considerations, insurers make the following distinctions:

- Third-party claims for compensation under civil liability law versus first party claims by the insured.
- Third-party claims for compensation of damages for bodily injury/property damage under civil liability law versus costs for prevention and remediation of “environmental damage” under administrative liability.
- Unintended, sudden and identifiable environmental impairment (due to failures) versus gradual contamination (environmental impairments due to the normal, undisrupted operation of a facility).
- Contamination that is known at the time the

cover is agreed (known historical pollution) versus unknown historical pollution and future pollution.

- Contamination at the insured site versus contamination elsewhere.

The insurance products and solutions developed in respect of these criteria can be categorised as follows:

General Third Party Liability (GTPL) Insurance

The subject of GTPL insurance is the insured’s civil liability to compensate third parties for injury or damage to property suffered by them, and in some cases for financial losses incurred by them, arising from the business activity or property ownership of the insured party. The coverage is basically focusing on events causing pollution which are unintended, sudden and identifiable in time like explosion, fire, collapse and directly leading to environmental impacts. GTPL insurance is the most important line of business covering the compensation of bodily injuries and property damages following an environmental impairment.

Product Liability Insurance either as part of a GTPL policy or as a stand-alone insurance contract may also provide coverage for the compensation of third party damages arising out of environmental impacts caused by defective products manufactured, imported or sold by an insured.

Environmental (Impairment) Liability (EIL) Insurance is a comprehensive risk transfer solution and summarizes various specific insurance products offered by a small number of specialised insurance companies or offered by environmental pools in countries such as France, Spain and Italy.

- **Pollution Legal Liability.** This product covers traditional claims: third-party liability for bodily injury, property damage and the resulting financial loss as well as – in some cases – named pure financial losses. Such policies may insure events due to sudden failure and/or gradual events, according to their individual wording. Separate cover for EIL is usually necessary because the GTPL covers for businesses often exclude claims for gradual environmental impairment.
- **First-party cleanup cost insurance (unknown historical pollution conditions or future pollution).** This policy covers the insurer’s costs for the restoration of contaminated land belonging to him either as the result of the discovery of unknown historical pollution or due

to future pollution events. This type of insurance requires a comprehensive risk assessment taking into account historical, current and future activities of the insureds.

- **Cleanup cost cap insurance (known pollution conditions).** This insures additional costs arising due to unexpected or undiscovered contamination, a poorly performed cleanup or changes in regulations – as well as natural events – that lead to the cleanup budget being exceeded. Prerequisite for this cover is an approved cleanup plan with a verified cleanup budget.
- **Contractors pollution legal liability insurance.** This product covers the legal liability exposure of contractor and other specialist companies involved in performing cleanup work.

Professional Indemnity Policies, which cover claims for negligence against professionals, might be affected by the environmental liability. The services rendered can be distinguished between low exposed pollution activities like the work of lawyers, accountants and those which pose a higher environmental liability risk like architects, engineers or environmental consultants. Errors in planning, design or supervision as well as in consultancy might lead to environmental impacts which could result in liability claims against the professionals.

Motor Insurance, Marine Insurance may cover liability for “environmental damage” associated with the operation of vehicles and the transport of (hazardous) goods. Motor third party liability insurance (MTPL) policies usually cover only compensation for damages caused to a third party on a civil liability basis.

Property Insurance provides coverage for the insured’s costs for the restoration of contaminated land belonging to him. It is usually offered as a floater on a fire insurance policy, e.g. to cover decontamination costs as the result of a fire or other sudden, accidental event.

Liability Insurance – Preventing Gaps and Overlaps

Legal changes - for example set forward by the EC ELD - may impact the liability of operators and consequently may require specific insurance solutions. The considerations highlighted below are mainly derived from the EC ELD requirements. However, when developing insurance solutions for other markets these considerations remain valid. The liabilities introduced by the EC ELD may be covered within the scope of existing insurance products, or be dealt with by new specific insurance products developed by the insurance industry. It is the insured, in dialogue with their chosen insurance carrier, who should determine what cover best suits their environmental exposures and responds to their needs.

Some areas worth considering, when buying or developing insurance products covering liabilities arising from the EC ELD are sets out below. It should be remembered however, that there is still a high degree of uncertainty regarding the impact of the EC ELD on insureds and the insurers, in terms of how scope and degree of cover will be assessed and taken in account in Court rulings or other legal proceedings.

If multiple insurance products are part of the insurance solution, (e.g. a GTPL policy and an EIL policy), terms and conditions must be assessed in order to detect gaps and overlaps. In order to cover the liabilities set out by the EC ELD the cover must trigger on the basis of administrative law.

Insured Events

The commonly used insurance terminology “sudden and accidental” – which is not a legal term – should be properly defined in the policy in order to increase transparency and avoid any misunderstanding with regard to the scope of cover. For instance, time-based or named perils clauses could be added in order to clarify the scope of “sudden and accidental”. The term “sudden and accidental” should refer to the moment the actual damage occurs.

Covered Costs

The policy should state which prevention and remediation costs are covered and which are not. The EC ELD refers to preventive, primary, complementary and compensatory remediation measures. The policy should clearly define how these measures are covered. In addition, the policy should state what investigation and defence costs are valid.

Temporal Scope of Cover

The coverage trigger should be structured so that a particular loss can always be clearly attributed to a specific point in time and insurance period. The coverage trigger needs to correspond to the criteria of the EC ELD. Insurance underwriters may wish to consider whether “claims made”, “manifestation/discovery” or an “occurrence” trigger is appropriately reflecting the exposure in question, also considering the precise definition of either trigger.

The EC ELD is not retrospective and only applies to events occurred after 30th April 2007. If retroactive coverage is requested underwriters may wish to consider fixing a retroactive date taking into account the inception date of transposition law, in order to avoid covering events that happened before 30th April 2007.

Geographical Scope

Cross territory damage or cross border damage either between EU Member States or between Member States and non EU countries need to be considered when choosing, or developing, insurance cover. The location(s) and activities of the insured define the geographical cover. When considering the geographical scope of the insurance policy, not only main production facilities but non site specific installations as well as transportation activities need to be considered. An extended geographical scope may expose the insured to a variety of different legal system, an exposure which the insurance solution may provide appropriate cover for.

Claims Handling

The challenge for the insurance industry is to cope with a new claims management environment for the prevention and remediation of “environmental damage”. An efficient claims’ analysis will take into account the specific nature of the environmental claim, the assessment of the “environmental damage”, and the remediation/monitoring process. Cooperation between stakeholders is an essential part of this process.

Environmental claims under the EC ELD framework involve several elements that are new to insurers. One is that claims are brought by the competent authority on behalf of the environment. In addition, parties that become aware of environmental damage may request action by the competent authority but cannot claim directly. Instructions regarding preventive and remedial measures can be given to potentially liable parties by the competent authority. Finally, the competent authority will decide on the final implementation of preventive and/or remedial actions. Therefore, insurers will wish to be involved in the claims handling / decision making process between the operator and the competent authority. Insurers can support both in their discharge of their responsibilities.

Therefore an effective collaboration between stakeholders is needed to:

- Develop preventive measures.
- Assess environmental damage.
- Identify occupational activities that have caused environmental damage.
- Determine an effective remediation (incl. compensatory remediation).

The following table⁸ highlights some of the key points in the claims handling process:

⁸ Based on CEA publication, April 2009

| | |
|---|---|
| Claims handling elements | Measures which involved stakeholders should consider |
| Assess coverage and first contact | <p>Review the scope and limits of the insurance policy vs. the insureds' liability (e.g. which types of remedial measures are covered?).</p> <p>Insured has to provide information to the competent authority and to take preventive and remediation measures. Insurers have to be involved in this process to be able to control the claim.</p> <p>Identify the applicable laws and the competent authority.</p> |
| Carry out assessment of an environmental damage | <p>Detailed assessment of an environmental damage include:</p> <ul style="list-style-type: none"> • identification of the origin of damage including identifying the polluting agent, the operator and any third party involvement • identification of affected resources and "natural services" • quantification of damage <p>Collect the underwriting assessment information and loss information.</p> |
| Set up a remediation plan and monitoring | <p>Identify remedial options/measures (i.e. primary, complementary and compensatory remediation).</p> <p>Follow-up the remediation measures decided by the competent authority.</p> <p>Ensure the efficiency and effectiveness of the remedial measures.</p> <p>Ensure a monitoring of remedial actions prior to, during and following the implementation of remedial measures.</p> |
| Build up knowledge and expertise through a loss data collection | Set up a loss data base to the benefit of all stakeholders. |

Case Study n°1

Doñana case in Spain (1998): Europe's biggest ecological disaster in a natural park

The Aznacollar disaster illustrates the inherent risks of mining and the threats posed to the environment through a lack of control.

A dam containing stagnant, toxic waste water from the Aznacollar Mine burst on the 25 April 1998. Six billion litres of waste water containing heavy-metals & toxic liquid flowed into the Guadiamar River, directly polluting more than 4600 hectares of land and wiping out almost all life in the river.

The waste entered ecologically sensitive areas of the park including breeding areas for internationally endangered bird species. The accident caused considerable fish and invertebrate kills and has severe consequences for the protected bird species dependent on the impacted habitats and adjacent areas.

The high cost (hundreds of millions €) of the disaster's mitigation have been almost entirely covered by public institutions.

Who would have been held responsible with respect to the EC ELD framework for the environmental damage and for covering the restoration costs?



See appendix 4_Source n° 14

Fig 3.1 & 3.2
See appendix 4_Source n°4)

Case Study n°2

On March, 16th 2008 an accidental bunker spill into the Loire River during tanker loading at the Donges refinery

lead to an escape of 400-500 tons of heating oil, the contamination of 90km of river, embankments, sand banks and 200ha of farmland. Water sport activities, fishing and trade of fish were banned. The number of dead birds has been estimated at 200. 750 people and 320.000 additional working hours have been necessary to clean up soil contaminated by 5.226 tons of waste.

Who would have been held responsible with respect to the EC ELD framework for the environmental damage and for covering the restoration costs?



See appendix 4_Source n°7)

Fig 3.3
See appendix 4_Source n°6)

Case Study n°3

Recent ecological disaster for French nature reserves at Coussouls de Crau

Coussouls de Crau, situated on the edge of the Camargue national park, is an important refuge for rare birds of Europe and northern Africa and a Natura 2000 site.

On the 07th August 2009 the rupture of an oil pipe resulted in some 3000 cubic metres of oil being spilled over two hectares.

An emergency plan was put into action. Cleanup operations have been underway.

Groundwater and species are one of the key environmental resources protected under the EC ELD. Coussouls de Crau will constitute a case study regarding the EC ELD application.

See appendix 4_Source n°8)



Fig 3.4
See appendix 4_Source n°9)

Conclusion

Many challenges have been posed to the various stakeholders impacted by changing liability regimes for environmental liability and biodiversity loss - from operators, to public authorities and risk carriers (insurers) including:

- The new liabilities (prevention and remediation) that are falling on operators under the polluter-pays principle, for which there is a general lack of awareness.
- The new role of public authorities that have both a new enforcement role and the responsibility of protecting natural resources.
- The new role of the insurer who will apply his expertise and experience to new concepts of “environmental damage”.

Insurance performs a unique role in society and encourages risk reduction behaviour which is emphasised by the position paper. The insurance industry has a long lasting and influential position in developing and implementing risk transfer approaches. Insurers are promoting a cooperative effort in advancing, among other things, the following risk measures that will help all parties to explore solutions through risk dialogue, management (including prevention) and transfer solutions when appropriate.

Risk Dialogue

To tackle the challenges described in this publication a concerted effort is needed from operators, risk carriers and public authorities. The risk dialogue among these stakeholders has to be intensified with the goal of increasing effectiveness in respect of preventing damage to the environment and restoring habitats where damage has occurred.

Risk Management

Increased attention should be given to risk management and claims handling including risk prevention measures. In Europe there is an opportunity to adapt some current claims protocols utilized in the United States where comparable regimes have been in place for several decades. In addition, identification of risk exposures through geocoding helps in the assessment of these new risks.

The insurance industry can contribute to risk management and the development of loss scenarios. The authors have addressed possible approaches to environmental liability in this paper. The shift in focus from historical concepts of contamination and related property damage and bodily injury to new concepts of damage to habitat is significant. The emphasis on risk prevention and remediation measures is particularly noticeable within the EC ELD framework of the European Union.

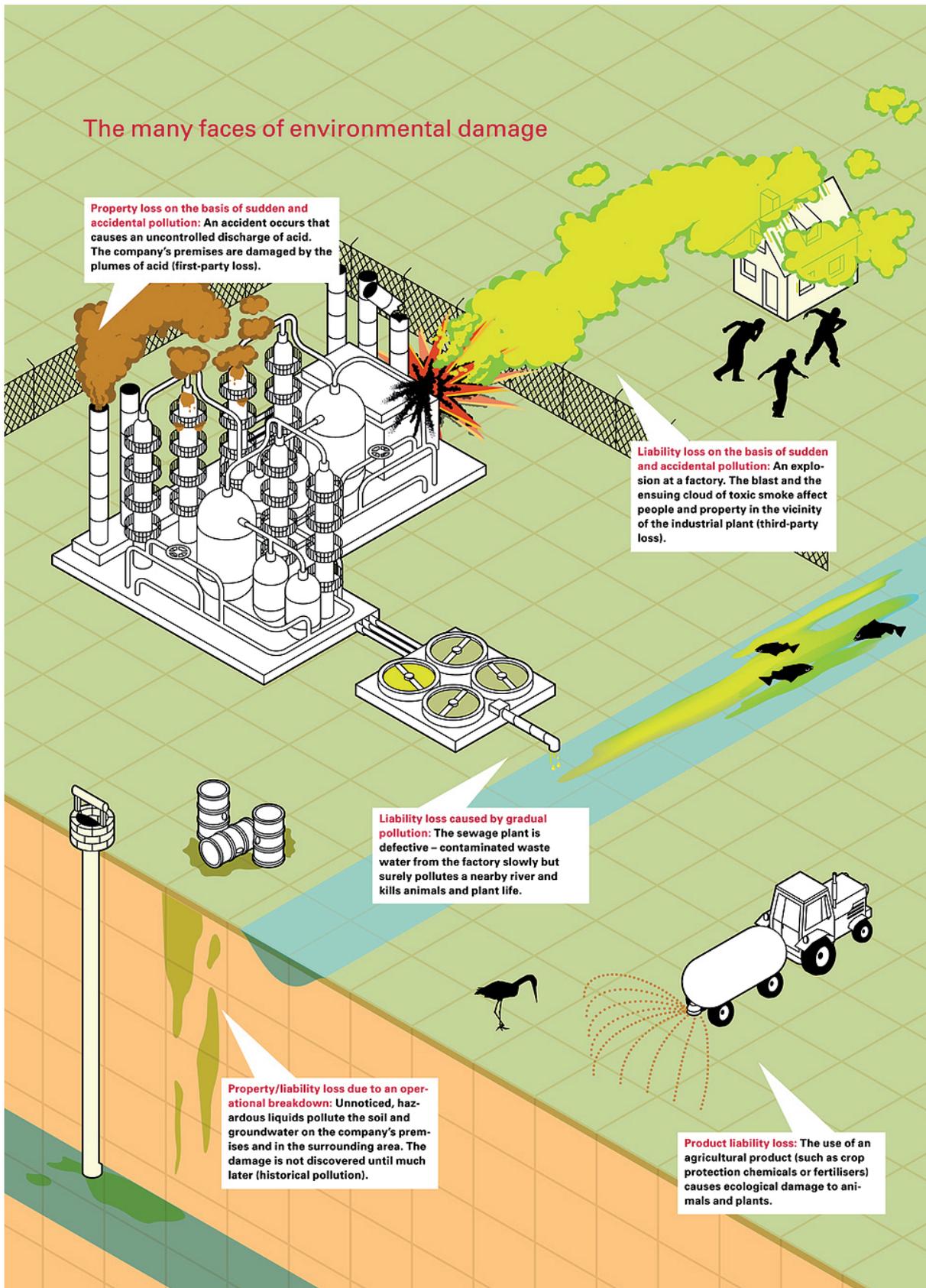
Risk Transfer

New concepts of environmental liabilities pose challenges to the principles of insurability. Clearly defined criteria which allow the underwriting risk to be quantified reliably are an indispensable prerequisite for insuring environmental liability. This applies particularly to the severity of the damage, its type (bodily injury, property or environmental damage) and the cause (traditional insurance covers only accidental events, historically there has been no or only limited cover for gradual events). In many cases, insurance cover across jurisdictions may not be congruent with the legal liability, but minimizing the gap should be a fundamental objective.

As outlined in this publication, the insurance industry can play an important role regarding the transfer of environmental liability risks by providing risk assessment methodologies, exposure mapping services and new tailor-made insurance products.

Switching from an untested landscape in respect of the underlying EC ELD framework to an improved application will enforce the development of sustainable insurance solutions. Having significant experience of risk transfer, the insurance industry should actively participate in this process through an active dialogue with all stakeholders.

Appendix 1: The Many Faces of Environmental Damages



See appendix 4_ Source n°5)

Appendix 2: US/EU Legislation

| US Legislation | | | | EU Legislation | | | |
|---|------------|---|--|--|------------|---|--|
| Act | Enacted in | Specificities | | Act | Enacted in | Specificities | |
| Clean Air Act CAA | 1955 | protects human health and improves overall air quality | | Council Directive 79/409/EEC | 1979 | enhances the wild birds conservation protects the habitats of listed species | |
| National Environmental Policy Act NEPA | 1970 | generates consistency across the various government branches as relates to the environment and to ensure that all government projects consider potential environmental impacts. | | Council Directive 80/68/EEC | 1979 | protection of the groundwater from hazardous substances | |
| Clean Water Act CWA | 1972 | restores and maintains the quality of the US waters and control discharge of pollutants into water | | Council Directive 91/689/EEC | 1991 | enhances the management of hazardous waste. | |
| Coastal zone management act | 1972 | encourages states to protect and preserve valuable coastal resources | | Council Directive 91/676/EEC | 1991 | protection of waters pollution from agriculture sources as nitrates | |
| Marine Protection, research and Sanctuaries Act | 1972 | prohibits the dumping of industrial waste, sewage waste into the territorial waters of the United States | | Council Directive 92/43/EEC | 1992 | enhances the conservation of natural habitats and wild fauna and flora | |
| Ocean Dumping Act | 1972 | regulates all discharges into ocean/territorial seas and authorize related research | | Directive 96/82/EC Seveso II | 1996 | control of major-accident hazards involving dangerous substances | |
| Endangered Species Act | 1973 | protects endangered species from extinction by adequate concern and conservation | | Council Directive 2000/60/EC | 2000 | <ul style="list-style-type: none"> establishes a framework for Community action in the file of water Policy increase water protection for lakes, rivers and groundwater by preventing pollution | |
| Resource Conservation and Recovery Act RCRA | 1976 | manages the generation/storage/transport/treatment and disposal of solid and hazardous waste | | Directive 2003/105/EC (extended from Directive 96/82/EC) Seveso II | 2003 | extends the scope of the previous directive (storage and processing activities in mining, activities dealing with explosive substances, and storage of ammonium nitrate and ammonium nitrate based fertilizers | |
| Toxic substance control Act TSCA | 1976 | gives the EPA the ability to track industrial chemicals produced or imported into the United States and evaluates their potential risk to human health and the environment. | | Regulation (EC) No 1907/2006 | 2006 | REACH (Registration, Evaluation and Authorization of Chemicals) protects the environment regarding the production and the use of chemicals substances | |
| Federal Insecticide, Fungicide and Rodenticide Act FIRA | 1996 | provides federal control of pesticide production, distribution, sale, and use in the US | | Council Directive 2008/1/EC | 2008 | permits to minimize pollution from various industrial sources throughout the EU. | |

Appendix 3: Natura 2000 Sites in the European Union



Appendix 4: Links & Recommended Literature

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- 2) CEA “The Environmental Liability Directive Enhancing Sustainable Insurance Solutions”, February 2008.
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<http://enviro2b.dotblog.fr/environnement-actualite-developpement-durable/16048/article.html>
- 4) Miradadelince word press, 25th April 2009.
<http://miradadelince.wordpress.com/2009/04/25/donanamemorias-de-un-desastre/>
- 5) Munich Re Group publication_ “Topics Growth market: Health New environmental liability. The risk of mega-events” 2006.
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<http://www.lefigaro.fr/flash-actu/2008/07/08/01011-20080708FILWWW00312-la-depollution-de-la-loire-terminee-total.php>
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- 14) Time Europe “The Wonders of Europe”, July 2005.
<http://www.time.com/time/europe/wonder/donana.html>

The CRO Forum's Emerging Risks Initiative

The Emerging Risks Initiative (ERI) was launched in 2005 to raise awareness of major emerging risks relevant to society and the (re)insurance industry. The initiative is currently chaired by AXA and consists of eight members representing Allianz, Hannover Re, Munich Re, RSA, Swiss Re, Zurich Financial Services as well as AIG and AXA.

Emerging risks are by far the biggest challenge for the insurance industry. Emerging risks are risks which may develop or which already exist that are difficult to quantify and may have a large loss potential. Further, emerging risks are marked by a high degree of uncertainty; even basic information, which would help adequately assess the frequency and severity of a given risk, is often lacking. Examples of such risks include climate change, asbestos liabilities, genetic engineering, nanotechnology and terrorism. Insurers have extensive experience in assessing risks but the ever-faster changing risk landscape and its increasingly complex and interconnected risks are making new demands on stakeholders – be they legislators, regulatory authorities, the scientific community, the private sector or civil society – to assume their respective responsibilities in the risk management process.

Governments bear key responsibilities for risk mitigation in society. Jointly with the regulatory authorities, they play a vital role in ensuring the viability of private insurance by creating appropriate legislative and regulatory frameworks. Yet, a systematic approach to risk management has, to date, often been lacking at governmental level, affecting a nation's ability to identify, assess and manage global risks. Professional and systematic risk management would enable governments to prioritise risk mitigation and response measures more adequately. Individual or corporate insured's need to participate in sharing the risk of financial losses. A significant retention of potential loss is a powerful incentive to prevent or mitigate losses and reduces administrative costs by absorbing small, high frequency losses. The insurance industry can create incentives for these mitigation measures by raising awareness of the cost of having undiversified peak exposures. The insurance industry can further add value by contributing risk analysis and management expertise to help insure that entities and regulatory authorities handle their risks optimally.

By absorbing financial and insurance risk, the insurance industry plays an indispensable role in today's economic system. If this is to continue in the future, the industry must minimise surprises. It is therefore crucial to identify and communicate emerging risks to a broader community, thereby fostering a stakeholder dialogue with representatives of a community bound by a shared risk.

This position paper is supported by the CRO forum, which comprises the Chief Risk Officers of the major European and US insurance companies and financial conglomerates. The CRO forum is a professional risk management group focused on developing and promoting industry best practices in risk management. It seeks to present large company views, with three core aims:

- Alignment of regulatory requirements with sophisticated / best practice risk management.
- Acknowledgement of group synergies, especially diversification benefits.
- Simplification of regulatory interaction.

The CRO Forum's views are communicated through its publications and made available to wider audiences, for example, through the CRO Forum web page at www.croforum.org. The CRO Forum supports the activities of the Emerging Risk Initiative. This Initiative pursues the following goals:

- Raising awareness and promoting stakeholder dialogue.
- Developing best practice solutions.
- Standardising disclosure and sharing knowledge of key emerging risks.

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