European Union Network for the Implementation and Enforcement of Environmental Law

Financial Provision

Protecting the Environment and the Public Purse

Date of report: 6th September 2016

Report number: 2016/20

Introduction to IMPEL

The European Union Network for the Implementation and Enforcement of Environmental Law (IMPEL) is an international non-profit association of the environmental authorities of the EU Member States, acceding and candidate countries of the European Union and EEA countries. The association is registered in Belgium and its legal seat is in Brussels, Belgium.

IMPEL was set up in 1992 as an informal Network of European regulators and authorities concerned with the implementation and enforcement of environmental law. The Network's objective is to create the necessary impetus in the European Community to make progress on ensuring a more effective application of environmental legislation. The core of the IMPEL activities concerns awareness raising, capacity building and exchange of information and experiences on implementation, enforcement and international enforcement collaboration as well as promoting and supporting the practicability and enforceability of European environmental legislation.

During the previous years, IMPEL has developed into a considerable, widely known organisation, being mentioned in a number of EU legislative and policy documents, e.g. the 7th Environment Action Programme and the Recommendation on Minimum Criteria for Environmental Inspections.

The expertise and experience of the participants within IMPEL make the network uniquely qualified to work on both technical and regulatory aspects of EU environmental legislation.

Information on the IMPEL Network is also available through its website at: www.impel.eu

Title of the report:	Number report:
Financial Provision – Protecting the Environment and the Public Purse	2016/20
Project Manager/Authors: Colin Mackie, Valerie Fogleman, Kim Bradley, Stephen McCarthy, Phil Crowcroft, Max Folkett, Paul Corrigan, Chris Dailly	**Report adopted at IMPEL General Assembly Meeting**: Date and location
	Total number of pages: 90 Report: 61 Annexes: 29

Executive Summary

At a meeting of the Network of heads of European Environment Protection Agencies (EPA Network) in Oslo in 2014, it was recognised that the cost of dealing with environmental liabilities arising from industrial operations too often fell to the public purse as a result of the failure of financial provisions. A project was set up to look at the extent of this problem across Europe, and identify what forms of financial provision are most likely to deliver secure and sufficient cover which is available to the regulator when needed. This report presents the results of the first year of the project, and provides recommendations for the second year of the work.

The project aims are defined as the generation of a better understanding of the availability and suitability of financial tools. This should result in improved protection of the environment and the public purse, whilst ensuring compliance with the Polluter Pays Principle, and encouraging operator investment in pollution prevention.

The work comprises three main components:

- A questionnaire-based survey, which generated 150 responses;
- A workshop of technical experts in the field, which was attended by about 40 delegates; and
- Follow-up interviews and interaction with a range of specialists with knowledge of the subject.

A core drafting team has been formed which includes experienced practitioners and academics covering the relevant law, insurance and technical fields, as well as practicing regulators. In addition to deriving valuable information from the results of the survey and workshop, the team have drafted sections of the report based on their own experience on what forms of financial provision exist, and how effective they are in different circumstances, including their application to foreseen and unforeseen liabilities. Further sections of the report cover approaches to financial provision across Europe, including countries where it is mandatory, and situations where it has been both effective and ineffective.

The findings of the report are set out and summarise the outcome of the evidence gathering, including a detailed review against the criteria of good provision needing to be "secure, sufficient and available". Case studies are provided where financial provision worked and which show that it is a potential protection against the problem of abandoned liabilities. There are also cases where financial provision failed to cover the costs of restoration or pollution remediation because it was not secure, sufficient or available when required showing the importance of adhering to these principles when implementing financial provision.

Preliminary conclusions are provided, addressing the scope of the problem, the acceptability and availability of suitable financial provision mechanisms, common approaches across Europe, and the role of regulators in ensuring financial provisions work in practice. Recommendations for a work programme for Year 2 of the project are set out. These include a further workshop with regulators from across Europe to share experience, and the development of practical guidance leading to the production of a decision making tool in support of good regulatory process in the field of financial provision.

TABLE OF CONTENTS

1. Introduction

1.1 The 'Problem'

Operators engaged in activities which could degrade or harm the environment have environmental obligations. These could include restoring the environment for example following the closure of a mine or landfill (a foreseen obligation) or cleaning up the environment following a pollution incident (an unforeseen obligation). If the operator cannot bear the costs of these environmental obligations due to its insolvency or lack of available funds, then not only will the burden pass to society but there is a corresponding risk to the environment. This is the 'problem' with which this report is concerned.

One means of increasing the likelihood that private funds will be available and therefore safeguarding the environment is to ensure that the operator makes appropriate 'financial provision' for its environmental liabilities. The operator provides and maintains evidence that adequate financial resources will be available to meet the costs of restoration or clean-up. To fulfil its role, financial provision must be:

- **secure** in the event of the operator's insolvency
- **sufficient** to cover all of the operator's environmental liabilities, and
- **available** when required

If these conditions are not satisfied, then the financial provision may fail. This may result in lengthy legal proceedings and, ultimately, a detrimental effect upon both the environment and the public purse.

1.2 Guiding Principles of EU Environmental Law and Policy

EU environmental law and policy is based on the precautionary principle and on the principles that:

- preventive action should be taken,
- environmental damage should as a priority be rectified at source; and
- the polluter should pay.

The polluter-pays principle and the prevention principle lie at the heart of the subject matter of this report. The polluter-pays principle governs an operator's liability for the costs of preventive and remedial works arising from both known, foreseen environmental liabilities (e.g. restoration following closure) and unknown, unforeseen environmental liabilities (e.g. clean-up following a pollution incident). It possesses important economic dimensions, in terms of seeking to avoid distortions in trade and ensuring that an operator's environmental costs are included in its costs of production (i.e. that its environmental costs are internalised).

The prevention principle demands that operators attempt to ensure that a pollution incident does not occur by taking appropriate pollution prevention and control measures. Obligations under a permit, a licence or other authorisation to restore the environment following the termination of an activity or the closure of a facility may be considered to be preventive action for the purposes of this principle. For instance, a failure to restore a mine fully after closure could result in the contamination of groundwater and surface water. Preventive action could also include, for example, investment in pollution prevention technology or delivery of appropriate employee training in emergency oil spill response. Where prevention fails and a pollution incident happens, the polluter-pays principle requires that the person who caused the damage pays for remediation.

The polluter-pays principle may also stimulate prevention, emphasising that these two principles are interrelated. The threat of financial liability being imposed should motivate operators to increase the level of care when undertaking an activity and to implement pollution prevention measures to avoid causing environmental damage in the first place.

Financial provision that is secure, sufficient and available when required could contribute to the effective implementation of both the polluter-pays and prevention principles. It can facilitate required restoration works, enabling action to be taken to avoid or remediate environmental damage and minimising the need for recourse to the public purse. Certain financial provision measures may motivate operators to reduce the probability that their activities will cause an environmental accident. This may be the case where the cost of the financial provision is influenced by the level of risk associated with the activity.

1.3 Background

The problem described above has been recognised by the Network of heads of European Environment Protection Agencies (EPA Network). The EPA Network held a workshop in Oslo in February 2014 and presented the outcome to the EPA Network plenary in Vienna in April 2014. The Vienna plenary agreed that the EPA Network (via its Better Regulation Interest Group (BRIG)) and the European Union Network for the Implementation and Enforcement of Environmental Law (IMPEL) should seek to promote the development of pan-European guidance on the practicalities of providing financial security. The BRIG/IMPEL group met in October 2014 and agreed on the need to understand who is facing the issue and try to identify a solution to share around the networks. An application was subsequently made to IMPEL to support a project "Financial Provision – what works when?" The application received approval from IMPEL for delivery during 2016. This document reports on that project under the revised title "Financial Provision – Protecting the Environment and the Public Purse".

2 Project Approach

2.1 Project Aim

The Terms of Reference for the project are provided in Annex I. The long-term aim of the project is to produce a tool to assist in making decisions about financial provision. This will support informed decisions across the EU in relation to financial provision for both foreseen (e.g. closure and restoration) and unforeseen liabilities/responsibilities (environmental incidents).

Regulators and operators will have a better understanding of the availability and suitability of financial tools resulting in improved:

- Protection of the environment;
- Protection of the public purse;
- Implementation of the polluter pays principle; and
- Investment in pollution prevention.

2.2 Project Scope

The scope of the project considers financial provisions for both foreseen and unforeseen liabilities. Its primary focus is European experience within the most relevant existing legal frameworks. The project aimed to harness information from as broad a base as possible. The scope excludes abandoned historic land contamination but does include retrofitting to existing activities.

The project will be delivered over more than one year.

2.3 Project Objectives

The objectives for Year 1 of the project were to:

- To gather information on what has/hasn't worked;
- To produce a summary report of findings;
- To include preliminary conclusions; and
- To prepare for Year 2 of the project.

The objectives for Year 2 of the project are to:

- Gather further information and ground truth existing information on what has/hasn't worked and on what financial provision tools are available
- Produce a decision making tool to assist regulators and others making decisions about financial provision for foreseen and unforeseen liabilities.

2.4 Project Methodology

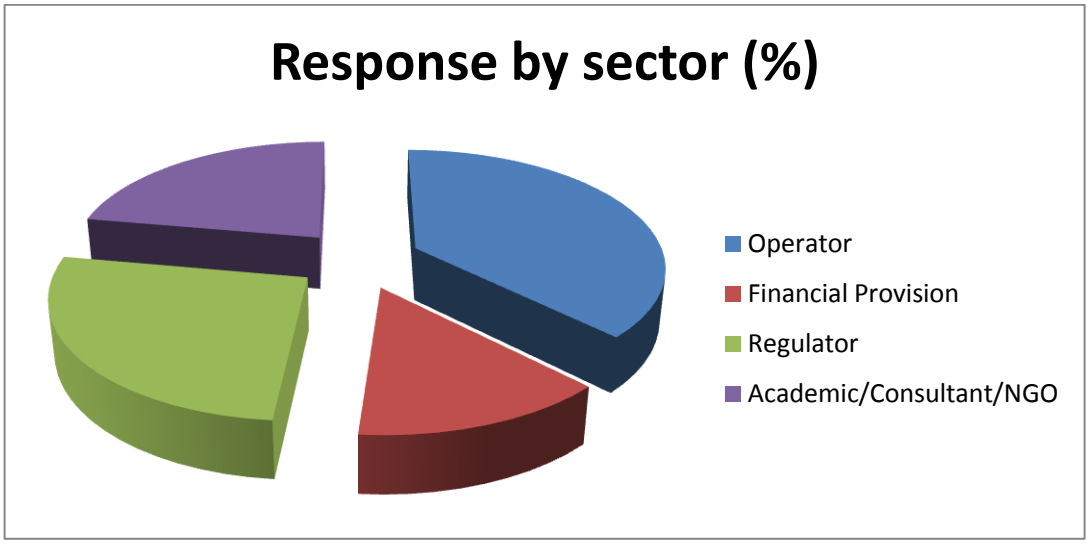
The project was designed and executed by a project team comprised mainly of representatives from IMPEL's member organisations. The project team also benefited greatly from the participation of the Director of a global environmental consultancy, a lecturer in law specialising in financial provision and a Consultant in a law firm who is also a Professor of Environmental Law and Insurance Law. The project was therefore able to extend its knowledge base beyond that of environmental regulators. The project further benefited from the contribution of a representative of DG Environment.

The approach to delivering the project aim, within its scope, had 3 main components:

1. A questionnaire based survey on the availability and testing of a range of financial provisions across a range of regimes.
2. A workshop comprising technical experts from European EPAs, industry and financial provision providers.
3. Follow up interviews with questionnaire respondents and project team contacts whose experience was of particular relevance to the project.

2.4.1 Questionnaire

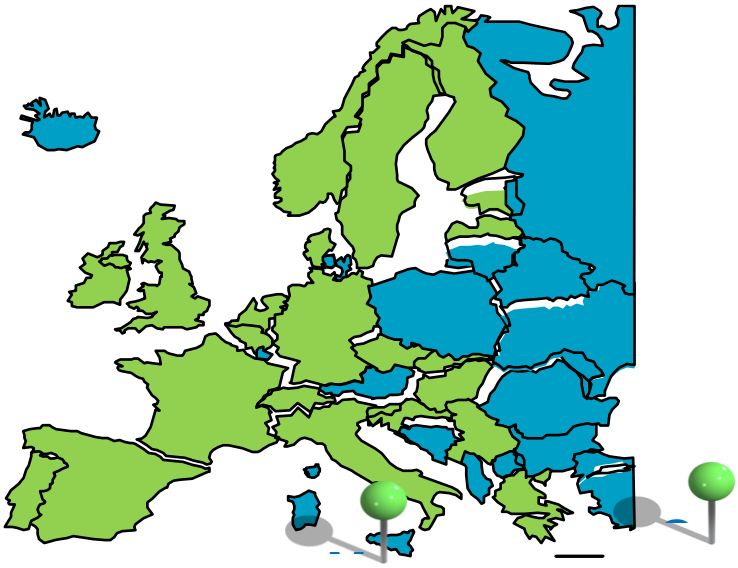
The questionnaire was available from April to June 2016. The questionnaire is provided at Annex II. The questionnaire was targeted at four different groups with an interest in financial provision: financial provision providers, regulators, operators and other interested parties such as academics, consultants and NGOs (see Figure below). This gives a broader perspective to the project.



The questionnaire asked two types of questions:

1. Mandatory tick box questions to gather information on which activities require financial provision and which financial provisions are available and have been tested.
2. Optional questions to gather more in-depth information on for example, problems, solutions, case studies and guidance.

The questionnaire received around 150 responses fairly evenly distributed across the four different interest groups. Substantive responses (covering both 1) and 2) above) were received from around 80 respondents. The results of the questionnaire are summarised in section 5.1. The countries which responded to the questionnaire are illustrated in the Figure below (courtesy of presentation magazine.com).



2.4.1.1 Limitations of the Questionnaire

The main limitations of the outputs of the questionnaire are as follows:

- Substantive responses were not received from all European countries
- Factually incorrect responses
- Limited information on foreseen liabilities from financial provision providers

The project team have acknowledged and sought to address these limitations in the analysis of the responses and in the approach to the workshop and follow-up interviews.

2.4.2 Workshop

The workshop was held on 24th May 2016 at the Environmental Liability Directive Conference in Brussels. It was attended by approximately 30-40 participants representing a range of sectors. The objective of the workshop was to add value to the project by drawing out pan-European information, experience and case studies on the problem of businesses being unable to meet their environmental liabilities.

Participants were provided with a workshop briefing note (Annex III) which provided some conclusions from an analysis of the interim results of the questionnaire. Participants were asked to consider the following questions.

1. Which financial provision mechanisms do you consider to be **legally secure** and why?
2. What is best practice in **calculating the amount** of financial provision for potential accidents/incidents and how can this be disseminated effectively**?**
3. How can the conditions for **supply and demand** of financial provision be improved?
4. What do you consider to be the best way of making financial provision for **large numbers of relatively low risk activities** e.g. funds, levies, pooled arrangements?

The findings of the workshop are summarised section 5.2 of this report.

2.4.3 Follow Up Interviews

Follow up interviews were conducted with survey respondents and other contacts provided by the project team members. The interviews were undertaken by the project team in July and August 2016.

The purpose of the interviews was three-fold:

1. to gain a more detailed understanding of financial provision requirements, mechanisms, availability and success;
2. to gather detailed experience of cases in which financial provisions had been tested; and
3. to identify the key factors in ensuring that financial provisions are secure, sufficient and available when required.

3 Types of Financial Provision

There are two main types of environmental liabilities and responsibilities. These are:

- unforeseen or unknown liabilities (for example, liability for incidents that may cause environmental damage); and
- foreseen or known liabilities (for example landfill or mine closure and restoration costs).

Significant differences exist between the two types.

The potential for incurring environmental liability as the result of an accident or incident is a risk that may never occur. Further, although the nature of the polluting activity and the environment in which it takes place is known, the costs that may arise from it are difficult to predict with certainty. Legislative provisions that require financial provision for incidents may specify the minimum amount of financial security which must be provided by the operator.

Payment of the cost of closure and aftercare for a landfill site, or reclamation of a mine is a responsibility that is required by legislation or a licence. This responsibility differs from liability for the costs of responding to a pollution incident in that the costs are an integral part of carrying out licensed operations. The costs may be calculated and revised throughout the operational phase with a degree of accuracy as the closure and aftercare requirements are relatively predictable.

The following are the main types of financial provision instruments accepted by regulators and used by operators for environmental liabilities and responsibilities. Regulators may accept other types subject to scrutiny and consideration. The terms used in the project to define the financial provision instruments are also summarised in the Glossary.

3.1 Insurance

An insurance policy is a contract between an insurer and an insured (policyholder). The insurer agrees to pay the amount of indemnity specified in the policy to the insured on the occurrence of an event specified in the policy. When an insurance policy is required as financial provision, the regulator typically requires it to be underwritten by an approved insurer authorised to operate in the jurisdiction of the insured risk. The regulator may require the policy to include specific terms and conditions such as the absence of a deductible and restrictions on cancellation including prior notification of the regulator, etc.

Insurance is often used to provide cover for the costs of claims for bodily injury or property damage or the remediation of a pollution incident or other unforeseen environmental damage. It may also be used to cover the risk of costs exceeding the foreseen costs of closure or reclamation. It is not, however, used to cover the foreseen costs; insurance covers fortuities not certainties.

It is important to be aware that different insurance products are available. Traditional General Third Party Liability (GTPL) policies typically provide no, or limited, cover for environmental liabilities, beyond cover for bodily injuries from sudden an accidental pollution, unless specifically endorsed to do so. There are other more bespoke policies, such as Environmental Impairment Liability (EIL), which do. This project is primarily concerned with this type.

The main providers of insurance for environmental liabilities are commercial insurers, with some risks being covered by captives. Commercial insurers are independent third parties that provide cover, for a premium, to businesses that satisfy their underwriting criteria. Captives tend to be affiliated with a business and provide cover only to that business and its affiliates. Commercial insurers may transfer part of the risk to reinsurers; a captive may carry all the risk itself or transfer part of it to reinsurers.

3.2 Bonds

A 'bond' is a guarantee provided by a financial institution to pay if an operator defaults on its obligations. This includes performance bonds, payment bonds, and letters of credit. Bank guarantees and surety bonds possesses similar characteristics to these. Bonds may be issued in perpetuity or for a fixed period of time, with the latter requiring renewal. Bonds tend to be used by operators that are subject to financial provision requirements for foreseen costs such as closure or reclamation costs. Their use for costs resulting from a pollution incident is less common. All the bonds described below are indemnity agreements, that is, they transfer the risk of incurring costs to a third party up to the limit specified in the bond.

3.2.1 Performance Bond

A performance bond is issued by a bank or other financial institution, or a bonding company (called a surety). The bank or surety agrees to pay the regulator up to the amount of the bond if the operator defaults on its obligations under environmental law or its environmental permit, as specified in the bond. Bonds are issued by a surety by charging a premium for them; bonds issued by a bank reduce the amount an operator may borrow.

3.2.2 Payment Bond

Under a payment bond, the bank or surety agrees to pay monies demanded by the regulator up to the amount of the bond instead of paying the costs incurred by the regulator in carrying out measures that the operator failed to carry out.

3.2.3 Letter of Credit

A letter of credit is an agreement by an approved financial institution (generally located in the jurisdiction of the risk), to pay the amount specified in the agreement to a regulator on demand. If the regulator draws down on a letter of credit, it must use the monies for the purposes specified in the agreement. The institution will notify the operator of any draw down, following which the operator must reimburse the institution immediately. The institution requires the operator to provide collateral (such as cash, securities, bonds or other monetary instruments) in the amount of the letter of credit and also charges the operator for providing it. Regulators generally require letters of credit to be irrevocable.

3.3 Self-provision

'Self-provision' is financial provision by the operator itself. This includes 'provisioning in accounts' and 'self-insurance'. It is, in essence, a promise by an operator to cover their environmental liabilities when required. It does not require an operator to set aside money.

Generally, self-provision is based on the operator's demonstration of sufficient financial strength. The criteria considered typically include:

- a minimum rating for the operator's shares by a specified ratings agency,
- a minimum level of tangible net worth or net working capital,
- the location of a substantial portion of the operator's assets in the jurisdiction of the regulator,
- minimum level for the ratio of the operator's current assets to its current liabilities or the ratio of its net income to liabilities; and
- a minimum ratio of tangible net worth to the estimated costs of complying with the required works.

The operator must generally update the above information on an annual or other regular basis. This should not be confused with a requirement for an operator to provide evidence that it has the requisite financial strength to carry out obligations specified in an environmental or other permit; this is a separate requirement.

Self-provision may be used both for unforeseen liabilities and foreseen costs. It's use is generally limited to lower risks and large companies that have the financial strength to satisfy the requirements.

3.4 Parent Company Guarantee

A parent company guarantee is a legally-binding agreement by the operator's parent company (or another affiliate) to satisfy the operator's obligations under environmental law or an environmental permit if the operator fails to do so. Acceptance of a parent company guarantee by a regulator is typically based on the same criteria as self-provision plus, generally, evidence of ownership of a specified level of the operator's shares. As with self-provision, the information must generally be updated regularly. Also as with self-provision, a parent company guarantee does not require the corporation to set aside funds.

3.5 Secured Fund

A secured fund is money deposited by an operator with a third party (e.g. in a bank account) and legally secured so that it can only be used for the intended purposes. Examples include 'escrow accounts' and 'trust funds'. A trust fund is a particular type of secured fund established by an operator and managed by a trustee for the benefit of specified beneficiaries, generally including the regulator. The operator deposits money or other assets into the trust; the trustee then administers those assets and pays them out subject to the terms and conditions of the trust deed. A variant of the secured fund is a cash deposit with the regulator.

Secured funds can be structured to allow operators to withdraw funds on completion of works with the regulator's approval and/or to allow the regulator to withdraw funds in the event of the operator defaulting on their obligations.

Secured funds tend to be used for foreseen responsibilities and not for costs arising from a pollution incident.

3.6 Mutual or Pool

A mutual fund or pool is a group financial provision arrangement that an operator can join and pay into and which will pay if the operator defaults on its obligations. Legislation sometimes allows a group of operators to satisfy financial provision requirements by membership in an approved mutual (sometimes called a pool). Acceptance into the mutual requires each member to provide evidence of a specified amount of financial provision, or to pay a specified amount into the mutual each year. Members must agree to pay up to a specified (or unspecified) amount if another member of the mutual fails to do so. If the amount of such payment exceeds the monies held by the mutual, an additional drawing is made on its members.

3.7 Charge on asset

A charge on asset is a mortgage/charge over a specific asset in favour of a regulator which can be triggered if an operator defaults on its obligations. It is commonly taken over premises.

4 Approaches to Financial Provision

This chapter describes EU legislative requirements, requirements in the non-EU national laws of Member States, and new approaches in Australia, Canada and the United States. In recent years, there has been an increase in the number of legislative requirements for financial provisions for environmental responsibilities. More jurisdictions are requiring financial provision for more types of operations. The types of mechanisms acceptable to regulators have become more restrictive and are being refined to ensure that they are secure and available when required.

4.1 EU Legislative Requirements

Four EU Directives and one Regulation contain financial provision requirements for environmental liabilities and responsibilities. They are as follows:

- the Landfill Directive requires financial provision for the closure and aftercare of landfills;
- the Basic Safety Standards (BSS) Directive (which will supersede the HASS Directive) requires financial provision for the safe management of disused radioactive sources and the management, control and disposal of orphan radioactive sources;
- the Mining Waste Directive requires financial provision for operating a facility for the accumulation or deposit of extractive waste including aftercare and rehabilitation of land affected by the waste;
- the Shipment of Waste Regulation requires financial provision for the costs of transport, temporary storage, and the recovery or disposal of waste shipments if the shipment, recovery or disposal cannot be completed as intended or is illegal; and
- the Geological Storage of Carbon Dioxide Directive requires financial provision for operating storage facilities for carbon dioxide including their closure and aftercare.

In addition, the Commission Recommendation on high-volume hydraulic fracturing (HVHF) (Recommendation) recommends financial provision for operations involving HVHF.

The Landfill, BSS and Geological Storage Directives do not specify the type of financial provision that is required. Instead, they contain the term ‘financial security or any other equivalent’. The Waste Shipments Regulation somewhat similarly refers to ‘a financial guarantee or equivalent insurance’; whilst the Recommendation refers to ‘a financial guarantee or equivalent’. The Mining Waste Directive is more explicit and refers to ‘a financial guarantee (e.g. in the form of a financial deposit, including industry-sponsored mutual guarantee funds) or equivalent’ albeit that such a descriptive is not prescriptive.

The European Commission has issued guidance on financial provision mechanisms for the Geological Storage Directive. It describes two options for Member States neither of which is prescriptive. The first option is to list types of mechanisms; the second option is to list the necessary characteristics of an acceptable mechanism such as its certainty, amount, liquidity, flexibility and duration. In respect of the first option, the guidance refers to mechanisms used by regulators in existing legislation such as the Landfill and Mining Waste Directives, the Waste Shipments Regulation, legislation concerning the decommissioning of offshore structures, liability under the Environmental Liability Directive (ELD) and other national programmes. Acceptable types of mechanisms mentioned include trust funds, surety bonds, bank guarantees, insurance, and deposits. The European Commission also commissioned a report on financial guarantees (and inspections) for Mining Waste Facilities.

Member States thus have wide discretion in determining the type of financial provision mechanism acceptable to satisfy EU legislative financial provision requirements. Individual Member States tend to set out a variety of acceptable mechanisms, a 'mop up' category for any other mechanism deemed acceptable to the regulator, and sometimes specifying unacceptable mechanisms.

4.2 Domestic Requirements

Domestic provisions in Member States generally fall into three categories; requirements under international or regional conventions, those under the ELD, and other domestic requirements.

4.2.1 International Conventions

The key international conventions with mandatory financial provision requirements are the 1992 Civil Liability Convention for marine oil spills[1] and the Paris[2] and Vienna Conventions for damage from nuclear installations.[3] The conventions, which have not been ratified by all Member States and which therefore do not apply to all of them, have a tiered system of financial provision.

[1] Convention on Civil Liability for Oil Pollution Damage 1992.

[2] Convention on Third Party Liability in the Field of Nuclear Energy 1960, as amended.

[3] Vienna Convention on Civil Liability for Nuclear Damage 1963, as amended.

The 1992 Civil Liability Convention requires the owner of a ship carrying over 2,000 tons of bulk oil 'to maintain insurance or other financial security, such as the guarantee of a bank or a certificate delivered by an international compensation fund' up to a specified amount for compensation for claims for bodily injury, property damage and remedial costs from oil pollution. If this tier is exhausted, the fund established under the 1992 Fund Convention applies up to a further specified amount.[4] If this amount is still inadequate, the fund established under the Supplementary Fund Protocol applies up to a further specified amount. The total amount available is 750 million Special Drawing Rights (SDR; approximately EUR 930,983,000). Insurance available to ship owners is generally obtained from mutual insurance associations called Protection and Indemnity Clubs (P&I Clubs).

The IOPC Fund

The IOPC Fund reports that it currently has over 100 participating countries and that it has dealt with over 140 cases since it was set up in 1971.

The maximum amounts payable by the ship owner/insurer and the fund are set out in international treaties and implemented into national law. For the fund to pay out there must be a quantifiable economic loss, for example: costs for re-instatement of the environment, cost of clean-up operations, economic losses by fisherman.

The funds are financed by a levy on participating countries receiving more than 150,000 tonnes of crude or heavy fuel oil in ports, or terminal installations after carriage by sea. The levy is proportionate to the amount of oil received.

The Paris Convention requires the operator of a nuclear installation 'to have and maintain insurance or other financial security' up to a specified amount for claims for compensation for bodily injury and property damage from nuclear matter. If this amount is inadequate, public funds in the State in which the nuclear installation is located pay up to a larger specified amount. If this amount is still inadequate and the State is a party to the Convention Supplementary to the Paris Convention (Brussels Supplementary Convention), other parties to it contribute up to a further specified amount.

The Vienna Convention requires the operator of a nuclear installation 'to maintain insurance or other financial security covering his liability for nuclear damage [compensation for bodily injury and property damage] in such amount, of such type and in such terms as the Installation State shall specify' up to a specified amount. If this amount is inadequate, public funds from the State in which the nuclear installation is located pay provided they are available. Unlike the Paris Convention, there is no maximum limit of financial provision.

[4] Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage 1992, art 4. Monies for the 1992 Fund are from a levy on companies that annually receive over 150,000 tons of 'contributing oil'. Ibid, art 10.

The Paris and Vienna Conventions are linked by a Joint Protocol. The limits of both been increased by the Convention on Supplementary Compensation for Nuclear Damage to SDR 300 million (approximately EUR 372,393,000). Protocols to the Paris and Vienna Conventions following the Chernobyl disaster of 1986 include environmental damage as well as bodily injury and property damage and an increase in the limits of compensation to EUR 700 million. Insurance available to operators for nuclear risks is offered by specialised Nuclear Insurance Pools.

4.2.2 Environmental Liability Directive

Eight Member States (Bulgaria, the Czech Republic, Greece, Hungary, Portugal, Slovakia, Romania and Spain) have introduced, or are considering introducing, mandatory financial provisions for the cost of preventing or remediating an imminent threat of, or actual, environmental damage (that is, damage to land, water and species and natural habitats protected under the Birds or Habitats Directives) under the ELD. Financial provision requirements in these Member States apply only to operators of activities under legislation listed in Annex III of the ELD or, in some Member States, also to persons closely related to them.

The Spanish requirements are discussed below followed by an overview of requirements in other Member States. That is because the Spanish approach is the most developed, with other Member States that have introduced, or are introducing, mandatory financial provision tending to follow key aspects of it. As discussed below, the Spanish approach has a strong preventive aspect by providing an exemption for certain companies that are certified by ISO 14001:1996 or the EU Eco-management and audit system (EMAS; Regulation (EC) No 1221/2009). All the legislation described below provides a penalty for the failure to comply with relevant requirements.

4.2.2.1 Spain

Spain's financial provision requirements for existing Annex III activities were to be phased in over a period of 8 years on a priority basis, according to their risk (high, medium and low), their accident rate and prior obligations of risk assessment, in three groups of activities.

Priority group 1 includes:

- Seveso Directive (2003/105/EC) facilities;
- facilities that produce electricity by combustion with total rated thermal input over 50 megawatts; and
- facilities for the disposal or recovery, other than landfilling, of hazardous waste with capacity exceeding 10 tonnes per day.

Priority group 2 includes activities such as facilities that produce electricity by combustion with total rated thermal input lower than 50 megawatts, or certain facilities for the manufacturing or processing of metals, with a high production rate. Priority 3 includes activities such as mining, or waste management facilities with a low treatment rate.

The provisions do not apply to the cost of all remedial actions under the ELD; they apply only to the cost of preventive actions, emergency remedial actions, and primary remedial measures for environmental damage caused by pollution. The costs of complementary and compensatory remediation measures are not calculated in the risk assessment process to determine the required level of mandatory financial provision.

Activities meeting the following criteria are exempt from the financial provision requirement:

- estimated primary remediation costs less than EUR 300,000;
- estimated primary remediation costs between EUR 300,000 and EUR 2 million provided that the operator's activities are certified by ISO 14001:1996 or EMAS);
- the use of plant protection products and biocides for agricultural and forestry purposes specified by Spanish legislation as per paragraphs 8.c) and 8.d) of Annex III of the ELD;
- public entities; and
- some low risk activities.

Operators who are exempt are encouraged to carry out voluntary risk assessments.

In order to determine whether financial provision is required, an operator must carry out an environmental risk assessment, and notifies it to the competent authority, which may revise it. Detailed risk assessment tools have been developed to assist operators in complying with this requirement. These include individual and sectorial risk assessment instruments and a tool for the calculation of recovery costs associated to the identified risk scenarios, for primary, complementary and compensatory recovery costs. The maximum amount of mandatory financial provision is EUR 20 million.

Legislation specifies three types of financial provision which can be combined or used separately. They are:

1. insurance with a company authorised to operate in Spain;
2. a guarantee by a financial institution authorised to operate in Spain; and
3. an *ad hoc* technical reserve fund in the form of financial investments backed by the public sector.

Insurance policies may be obtained from commercial insurers or the *Pool Español de Riesgos Medioambientales,* the Spanish environmental insurance pool. Operators subject to the requirements must notify the competent authority of the nature of the financial provision mechanism adopted by them and justify its limits. In addition to a fine, the failure to comply with financial provision requirements is subject to revocation of the Annex III permit or its suspension for one to two years.

Legislation also established an Environmental Damage Compensation Fund administered by the Insurance Clearing Consortium and funded by contributions from a surcharge on premiums for insurance policies used to provide evidence of financial provision. The Fund is to be used to cover the following:

- environmental damage from authorised activities during the period of the insurance policy but which did not materialise, or for which a claim was not brought, during the policy period; and

- liability of insured operators whose insurers have been declared bankrupt or insolvent or have been dissolved, subject to an audited settlement procedure or with the claim handled by the Insurance Clearing Consortium.

The deadline for the fund to pay compensation for a claim is a period equal to the number of years during which an insurance policy was in force, beginning at its expiration date, with a long-stop deadline of 30 years.

Legislation also created a State fund to pay the costs of preventing and remediating environmental damage of resources competency of the Central Government, in those exceptional cases foreseen in law 26/2007, in which the operator does not have the obligation to bear the costs.

4.2.2.2 Bulgaria

Mandatory financial provision for ELD liability for Annex III operators has been required in Bulgaria since 1 January 2011. The applicable mechanism is an insurance policy in favour of the Ministry of Environment and Water, with the potential for other financial provision mechanisms acceptable to the regulator. The minimum amount of financial provision is Bulgarian Lev 50,000 (EUR 25,025).

4.2.2.3 Czech Republic

Mandatory financial provision, including insurance, has been required for operators of Annex III activities in the Czech Republic since 1 January 2013. The amount of financial provision is based on the estimated cost of remediating environmental damage under the ELD.

The operator must carry out a basic risk assessment focused on an the sensitivity of the environment in which the activity takes place. If the total number of points exceeds a set amount (50), the operator must carry out a detailed risk assessment focused on environmental damage scenarios and their consequences. The costs of preventive and remedial measures are then calculated based on the detailed risk assessment. If the potential costs exceed CZK 20 million (EUR 739,569), the operator must comply with financial provision requirements. Exemptions apply if the operator has, or has commenced, EMAS registration, or has, or has begun, a certified environmental management system under ISO 14000.

4.2.2.4 Greece

Greece originally intended to phase in mandatory financial provisions for ELD liability between 1 May 2010 and December 2012 but this has been postponed. The Greek Government has been preparing a Draft Joint Ministerial Decision which, when finalised, will be phased in during a transition period. The amount of financial provision will be based on the extent, type and size of damage that can be caused by an operator's activities. The method for calculating the amount will be based on 'technical criteria capable of ensuring a homogenous assessment of risk scenarios and of the corresponding remediation costs'. Financial provision mechanisms include insurance policies and other forms of financial guarantees.

4.2.2.5 Hungary

The legislation transposing the ELD into Hungarian law provides for mandatory financial provision, including insurance, for operators ('users of the environment') for known as well as unforeseen damage from their activities. Further, article 101(5) of Act LIII of 1995 on the general rules of environmental protection has a requirement for specified activities for 'an environmental protection insurance contract' and the establishment of 'a special environmental protection reserve for any environmental protection liabilities that could or will arise'. Hungary has not, as yet, issued the Decree to specify the form and extent of the financial provision, conditions for it, related record-keeping or other procedures under the ELD.

4.2.2.6 Portugal

Portugal adopted mandatory financial provisions under Law Decree 147/2008 of 29 July with a deadline of 1 January 2010 for compliance. The requirements apply to operators of Annex III activities (called C2 operators).

Acceptable financial provision mechanisms include insurance, bank guarantees, participation in environmental funds, corporate financial guarantees, and the establishment of reserved capital funds. Bank guarantees must be irrevocable and unconditional, provided by an institution authorised by the Bank of Portugal, have the Portuguese Environment Agency (*Agência Portuguesa do Ambiente* ; APA) named as beneficiary and be subject to liquidation within 24 hours of demand.

The APA has published the Guide for Evaluating Environmental Damage and Imminent threats of Environmental Damage (*Guia para a Avaliação de Ameaça Iminente e Dano Ambiental*) to assist in the risk assessment process. The Guide provides details on determining the environmental condition of natural resources, quantifying potential damage to human health and the environment, and related procedures.

4.2.2.7 Romania

The legislation transposing the ELD into Romanian law provides for the adoption of financial provision requirements. The legislation states that, in developing the mechanisms, the Government should take the following factors into account:

- the basis of the danger posed by the proposed or actual activity;
- the potential environmental damage caused by the activity; and
- an assessment of the potential damage on the basis of a risk assessment of the activity's impact on the environment.

4.2.2.8 Slovakia

Mandatory financial provisions have been required for operators of Annex III activities in Slovakia since 1 July 2012. The amount of financial provision is based on a risk assessment of the estimated cost of remediating environmental damage. The operator must provide evidence of financial provision to the competent authority (*Obvodný úrad životného prostredia*) within 100 days of the issue of an environmental permit and must immediately notify the competent authority of any changes in estimated remedial costs. Financial provision mechanisms include insurance and bank guarantees.

4.2.3 Other Domestic requirements

Other examples Member State financial provision requirements include waste, environmental permitting and soil protection legislation, legislation providing for financial provision for claims for bodily injury and property damage, and offshore operations.

4.2.3.1 Waste Legislation

An increasing number of Member States, and jurisdictions within them, have introduced, or strengthened, financial provisions for waste operations as well as the type of financial provision mechanism acceptable to regulators. Such requirements have been introduced by Member States such as Hungary, the Netherlands, and the UK (Scotland and England).

Hungary requires financial provision for the closure and aftercare of waste treatment plants with the amount of the financial provision subject to revision on an annual basis depending on estimated future costs. In addition, article 71 of the Act of 2012 on Waste requires an operator to purchase an environmental insurance policy to cover unforeseen environmental damage.

In 2016, Scotland revised the types of financial provision mechanisms acceptable for new landfills and variations of landfill permits that increase financial liability. The types of mechanisms acceptable to the Scottish Environment Protection Agency include bank guarantees in the form of a performance bond, escrow account and a trust fund plus local authority deed agreements. Credit checks and parent company guarantees are no longer acceptable.

The Environment Agency in England accepts parent company guarantees only if the landfill is not commercial, the core business of the parent company is independent of the landfill/waste business and the parent has an investment grade rating. Further information on the approach to financial provision for landfills in England is provided in the case study below.

Financial provision for foreseen liabilities at landfill sites in England

All landfill sites in England must operate under an environment permit issued by the Environment Agency. Permits require landfill site operators to put in place financial security that is sufficient, secure and available to the operator to meet the obligations arising under the permit. The financial security must cover the costs of making the site safe on closure, foreseen liabilities in the landfill aftercare period such as monitoring and maintenance costs, plus provision for 'specified events' that may occur.

The Environment Agency has published Guidance on Financial Provision for Landfill.

Bonds, cash deposits and ESCROWs are the most common mechanisms used to provide the financial security, but trust based mechanisms, companywide umbrella agreements and parent company guarantees are also used. There are over 500 financial securities in place in England with a total value over £600 million. Bonds account for 67% of the agreements but 74% of the total value. Cash deposits on the other hand are used in 17% of cases but only account for 1% of the total value. Parent company guarantees are only accepted in limited circumstances, where the landfill is in-house, the core business of the parent company is independent of the landfill/waste business and the parent company has an investment grade credit rating.

Operators must maintain their financial security for the life of the permit. In most cases bonds are maintained as required and the bonded sum reduces through the aftercare period as liabilities reduce. Legal agreements require that bonds are renewed periodically and list certain conditions under which the Environment Agency can 'call-in' the bond. If the bond agreement is breached the Environment Agency issues a Certificate of Default (COD), requiring the bondsman to pay out the full sum. (17 COD were issued between 2009 and 2015.) Usually the issue of a COD results in the bond being renewed as required, but if not the Environment Agency can hold funds and use them if required, subject to the conditions of the legal agreement. For example, the operating company of a closed landfill went into administration. The bond for around £160,000 was called in and the regulator is holding the funds. The administrator is considering using funds to increase monitoring with a view to surrendering the permit and recovering any remaining financial security.

4.2.3.2 Environmental permitting legislation

Several Member States including Ireland and Poland have incorporated financial provision requirements into their environmental permitting legislation.

The Irish Environmental Protection Agency (EPA) requires a company that has an applicable environmental licence to have financial provision for unforeseen environmental damage as well as the costs of closure and restoration or aftercare. This includes licences under legislation transposing the Industrial Emissions Directive (2010/75/EU), the Waste Framework Directive (2008/98/EC), the Mining Waste Directive (2006/21/EC), and the Landfill Directive (1999/31/EC The EPA accepts secured funds, on demand performance bonds from a surety authorised to carry out business in Ireland, parent company guarantees, a first ranking charge on property, and insurance. These are subject to specific criteria specified in EPA guidance and templates which are publically available (see Glossary) to ensure the financial provision are secure, sufficient and available when required. Parent company guarantees are not acceptable for landfill and mine closure liabilities.

Polish law authorises a regulator to require an operator to obtain financial provision when it applies for an environmental permit to emit pollutants into the air or water, to generate waste, or to extract minerals, in particular, when the activities may result in "a major deterioration of the condition of the environment". Financial provision mechanisms include a bank guarantee, and insurance.

4.2.3.3 Soil protection legislation

Some Member States, including Belgium (the Flemish Region) and the Netherlands, require the purchaser of contaminated land to provide financial provision for the costs of its remediation if the contamination has not been remediated at the time of the sale.

4.2.3.4 Compensation for bodily injury and property damage

The Finnish Environmental Damage Insurance Act (81/1998) requires companies whose operations cause, or may cause environmental damage after 1 January 1999 to have environmental insurance. Failure to purchase the insurance is punishable by a fine, determined by the Environmental Insurance Centre, of up to 10 times the average premium for the period during which insurance was not taken out, with an appeal to the relevant Provincial Administrative Court. Insurers who offer the above policies are required to pay into an Environmental Insurance Pool administered by the Environmental Insurance Centre. The pool pays compensation if the liable operator is insolvent, uninsured or cannot be found. Further information on this scheme is provided in the case study below.

Guidance published by the Finnish Ministry of the Environment states, however, that "voluntary insurance purchased by companies and private individuals plays a more important role than statutory insurance".[5]

[5] Ministry of the Environment, Remediation of Significant Environmental Damage Manual on Procedures (2012), 15; available at http://ec.europa.eu/environment/legal/liability/pdf/eld_guidance/finland.pdf

An insurance-driven approach, Finland

The approach to achieving financial provision in Finland is centrally driven and comprises two main elements:

1. A mandatory requirement on certain operators to have their own Environmental Damage Insurance (where there is a mandatory environmental permit, there must be a mandated environmental damage insurance); and
2. Providers of Environmental Damage Insurance pay into a pool – the Environmental Insurance pool which is administrated by the Environmental Insurance Center (EIC), from which compensation is paid. By law, the EIC also handles compensation for injured parties where they cannot claim from the operator, e.g. operator is unknown, uninsured, insolvent.

Environmental permits are granted by a Regional Environment Centre under the Environmental Permit Procedures Act. Insurance is mandatory for permitted activities with the exception of the following activities:

1. storage or distribution of oil products or production of lubricants;
2. cleaning of a polluted area; or
3. utilisation of waste, unless the operations for some other reason require a permit as referred to in paragraph 1.

Claims handling is centralized in the EIC. By concentrating the claims handling and knowledge it is possible to maintain coherent and consistent policy in claims handling. Claims may be paid out for remedial and preventive actions and investigative works. The types of claims to be paid out and to whom are set out in Act on Compensation for Environmental Damage.

Public authorities can claim from the pool if they have to intervene to remediate damage where the operator is unknown, uninsured or insolvent but only if there is an immediate threat to private or public interest.

Insurance companies set the premiums for the insurances individually. The insurance companies pay into the EIC pool from which compensation claims are paid. In 2015 there were around 1,441 insurance policies in force with total premiums of EUR 2.1 million.

Whilst the pool has capacity of up to EUR 10 million (the maximum limit is EUR 6 million per one accident), claims paid out in 2015 amounted to approximately EUR 47,000.

4.2.3.5 Offshore facilities

Financial provision requirements also apply to offshore facilities for oil and gas exploration and production as well as other offshore facilities. For example, the UK Petroleum Act 1998 requires applicants for licences for exploration and appraisal wells on the UK continental shelf to provide evidence of financial provision for plugging and abandoning wells as well as harm to third parties caused by pollution. Acceptable mechanisms are 'reliance on credit/financial strength rating of the operator or co-venturer; insurance; parent company guarantee/affiliate undertaking; and any combination of the above'.[6]

Decommissioning obligations are also subject to financial provision requirements. For example, financial provision is required for decommissioning offshore wind and marine energy installations in the UK. The following mechanisms are considered acceptable to the regulator;

- cash,
- irrevocable letters of credit,
- bonds issued by a bank established in a member country of the OECD with a specified minimum rating by a recognised credit rating agency,
- a 'secure, segregated decommissioning fund', and
- a joint trust agreement.[7]

The assets forming the financial security must be ring-fenced to ensure they are available if the company becomes insolvent. Parent company guarantees and decommissioning funds that accrue in the late stages of an installation are not acceptable.

4.2.3.6 Withdrawal of financial provisions

Some Member States have withdrawn financial provision requirements. For example, the Dutch Financial Security Decree had previously authorised a regulator to require an operator of specified waste management facilities to have financial provision to ensure compliance with the terms and conditions of the relevant permits. The Government withdrew the Decree in 2010.

The Swedish Environmental Damage Insurance programme, which was introduced in 1986, was abolished in January 2010. The programme had provided compensation for environmental damage, bodily injury and property damage from pollution when the polluter could not be found, was insolvent, or was not liable due to the limitations period. Further information is provided in the case study below.

---

[6] Department of Energy and Climate Change, Guidance Note to UK Offshore Oil and Gas Operators on the Demonstration of Financial Responsibility before Consent may be Granted for Exploration & Appraisal Wells on the UKCS

[7] DECC, Decommissioning of offshore renewable energy installations under the Energy Act 2004; Guidance notes for industry (January 2011, revised), s 8, 29-32 (Guidance notes).

The development and use of forms of environmental insurance in Sweden, and the ultimate discontinuation of such insurance

The objective of the Swedish Environmental Damage Insurance programme was to provide funds for those who had been exposed to an environmental damage where compensation could not be obtained by the operator or firm responsible for the damage. The terms for the insurance were determined by the government and implemented in the Swedish environmental code.

All operators (with some exceptions) who needed permission from (about 6000) or notification to (about 17500 +) the regulators were liable and the fee was 10% of the fee that operators payed regulators for environmental inspections.

A further form of insurance - remediation insurance - was introduced in 1999 as a complement to the environmental damage insurance. The objective was to finance remediation when responsible operators lacked financial means to do so themselves. In order for the insurance to be valid the operator had to be insolvent and the assets of the estate not sufficient to pay for the remediation.

The difference between the environmental damage insurance and the remediation insurance was that the damage insurance was supposed to compensate for costs due to environmental damages specified in chapter 32 in the environmental code. That is

> "Compensation referred to in this chapter shall be payable for bodily injury, material damage and pecuniary loss caused by an activity pursued on a property."

The remediation insurance was an insurance just for remediation of land and water.

The insurances were procured every three years and the organization responsible for the procurement (an industrial collaboration) claimed that at times it was difficult to find interested insurance companies.

Operators paid defined contributions for a single insurance obtained by an industry representative body on a three year cycle.

The scheme was discontinued in 2010. A public investigation report in 2007 stated:

> Evaluation of the **environmental damage insurance** shows that its application has been very limited. The Inquiry has only been able to speculate on the reasons. So far in 2006, there have only been three cases of compensation paid, amounting to just over SEK 363,000. Over the first ten years, fees amounting to SEK 250 million were levied to fund the environmental damage insurance; in the same period, the insurance made one payment of SEK 6,025 in a claim involving a polluted well.
>
> This background of course begs the question of whether this insurance meets any actual need that must be met by public fees. It is, in any event, clear that this compensation system needs to be arranged in a more cost-effective form.
>
> The **clean-up insurance** has not had the broad application that seems to have been expected, either.

In the eight years it has existed, a total of just over SEK 6,109,000 has been paid out from the clean-up insurance. The fee-funded cost of this insurance and environmental damage insurance has in the same period amounted to almost SEK 120 million. The fact that compensation has not been paid from the insurance does not, however, seem to be due to any lack of clean-up cases; supervisory authorities have instead said that the narrow framing of some insurance terms and over-strict application of these terms has made it difficult to obtain funds from the insurance, and that this has sometimes led to supervisory authorities thinking that applying for compensation is not even worth the trouble. This criticism seems primarily to have applied to the insurance's limits on what are compensable clean-up measures.

4.3 Non-EU Approaches

Several countries that have adopted financial provisions in environmental legislation have recently refined their approaches. The following briefly describes a few such revisions in Australia, Canada and the USA.

4.3.1 Australia

On 22 April 2016, the Queensland Government introduced legislation to enable the Department of Environment and Heritage Protection to issue an order to clean up and restore the environment to persons related to the operator of a facility if the operator could not pay the costs of doing so. The new legislation was adopted following the placement into voluntary administration of the Yabulu Nickel Refinery, located by the Great Barrier Reef World Heritage Area, and the government's concern that taxpayers would be responsible for paying to clean it up.

The Environmental Protection (Chain of Responsibility) Amendment Act 2016 provides, among other things, that the Department may issue the order to a 'related person' of the operator of a facility. The term 'related person' includes a holding company, the owner of the land on which the company has carried out a relevant activity, an associated entity that owns such land, and a person with a 'relevant connection' to the company. The regulator may determine that a 'relevant connection' exists if it is satisfied that a person 'is capable of significantly benefiting financially, or has significantly benefited financially, from the carrying out of a relevant activity by the company', or at any time during the previous two years has been 'in a position to influence the company's conduct in relation to the way in which, or extent to which, the company complies with its obligations under [the] Act'.

In effect, this means that a director, holding company or an affiliate may be liable for remediating contamination caused by a company if the company has insufficient assets to do so or becomes insolvent. If the Department issues an order to another person, it can in specific circumstances require that person to have financial provision adequate to cover the costs of the clean up and restoration. The approach is novel; it goes beyond traditional financial provision legislation, and indeed traditional conceptions of corporate law, to extend liability for remediating environmental damage to a broader scope of persons.

4.3.2 Canada

In February 2016, the Canadian National Energy Board, the Canada-Newfoundland and Labrador Offshore Petroleum Board and the Canada-Nova Scotia Offshore Petroleum Board issued Guidelines Respecting Financial Requirements for offshore oil exploration and production. The Guidelines provide that an applicant for, and holder of, an authorisation to carry out offshore operations must have proof of 'financial resources' and 'financial responsibility'.

Proof of financial resources means proof that the applicant/operator is financially able to carry out its obligations under the authorisation. Mechanisms acceptable to the Boards for proof of financial resources include a statement of net assets or funding arrangements according to specified criteria, with updates required on a routine basis annually and if and when there is any material adverse change. This must be substantiated by the most recent audited financial statements and at least one of the following:

- a satisfactory credit rating from an internationally recognised credit rating agency,
- a promissory note,
- an insurance policy (or certificate of insurance),
- an escrow agreement,
- a letter of credit,
- a line of credit,
- a guarantee agreement,
- a security bond or pledge agreement,
- an indemnity bond, or
- a suretyship agreement.

Mechanisms for proof of financial responsibility, that is, proof that an operator can pay the costs of cleaning up oil spills and compensation claims from an oil spill, are much more limited. They are a letter of credit, a bank guarantee, an indemnity bond, proof of participation in a pooled fund for offshore drilling, development or production, and other mechanisms that are satisfactory to the Board. Appendices to the Guidelines set out templates for each mechanism.

A major difference between financial resources and financial responsibility is the ability for the requisite Board to convert a financial responsibility mechanism to cash immediately an oil spill occurs and the funds are needed. Thus, certain mechanisms that may cause delays such as insurance and certain bonds are not acceptable.

4.3.3 USA

Legislation requiring the operator of specified facilities such as waste treatment, storage and disposal activities and underground storage tanks to have financial provision has existed at the federal and state level in the USA for about 30 years. The legislation typically specifies mechanisms that are acceptable to regulators and includes templates or criteria to be satisfied for each mechanism.

In recent years, regulators have increasingly focused on their ability to access financial provision mechanisms when required. For example, the US Environmental Protection Agency notes the following for financial provision for the costs of measures to remediate contamination.[8]

Financial assurance mechanism	Ability to convert to cash
Trust funds, payment bonds and letters of credit	Readily convertible to cash
Performance bonds and insurance policies	Convertible to cash but may involve procedural delays
Financial tests and corporate guarantees	No financial provisions are set aside by the operator or guarantor

In addition, in 2015, the US Bureau of Ocean Energy Management specified the following limited mechanisms as acceptable financial provision for offshore oil and gas and sulphur operations:

- bonds issued by a surety certified by the US Department of the Treasury,
- US Treasury securities, or alternatives to US Treasury-certified bonds, and
- US Treasury securities, provided the interests of the U.S. Government are protected to the same extent as they would be under the above two financial provision mechanisms.

[8] Office of Site Remediation Enforcement, Office of Enforcement and Compliance Assurance, US Environmental Protection Agency, Guidance on Financial Assurance in Superfund Settlement Agreements and Unilateral Administrative Orders (6 April 2015)

5 FINDINGS

5.1 Questionnaire

Activities that require financial provision

Activities which were indicated to require financial provision for foreseen liabilities in one or more countries include: hazardous, non-hazardous and inert landfill, hazardous and non-hazardous waste management, Mining Waste Directive Category A facilities, other mines and quarries, IED facilities, WFD, TSW, SEVESO sites, high activity sealed radioactive sources, certain activities using dealing with substances classified under CLP, energy (renewable and non- renewable), some types of manufacturing, construction/development. In one country, the requirement for financial provision (e.g. for renewable energy) was at the discretion of the regulator.

Activities which were indicated to require financial provision for unforeseen liabilities in one or more countries include: hazardous, non-hazardous and inert landfill, hazardous and non- hazardous waste management, Mining Waste Directive Category A facilities, other mines and quarries, IED facilities, WFD, TSW, SEVESO sites, high activity sealed radioactive sources, certain activities using dealing with substances classified under CLP, energy (renewable and non- renewable) and ELD.

Availability and acceptability of financial provisions for environmental liabilities

Respondents indicated that the following tools are available: secured fund, mutual fund or pool (e.g. IOPC Fund), bond (e.g. bank guarantee), charge on assets, parent company guarantee, self-provision, environmental impairment liability insurance, general third party insurance, National Fund (e.g. Greek Green Fund).

In general terms, unforeseen liabilities tend to be provided for by general third party liability insurance, EIL insurance, self-provision, and on occasion by mutual funds/pools. It was observed that insurance is generally renewed annually but liabilities can arise decades after closure. The insurance model is also more complicated for large corporations which may be challenging to insure.

Foreseen liabilities are provided for by all the above means excluding insurance.

Regulators may only accept PCGs from very large businesses, of good financial standing (investment grade ratings), which are both not financially reliant on the subsidiary and their core business is unrelated to the activity that is the subject of the guarantee. Operators, however, are looking for more flexibility to use PCG and self-provision particularly for low risk activities due to cost and restrictions on cash-flow resulting from some financial provisions.

Trust based mechanisms that rely on the performance of an investment to provide financial provision may also be allowed in some circumstances. An initial investment is required, the value of which is chosen to ensure that sufficient funds are available at a given point in time to meet liabilities, assuming a projected performance of the investment. Periodic review is required.

It was suggested that most financial provisions have merit but only if checks are made that they are maintained. The legal document to which the financial provision is bound must also be secure.

Financial provisions that have been called on to pay for environmental liabilities

The following financial provisions have been reported to have been called upon to pay for environmental liabilities: secured fund, mutual fund or pool, charge on assets, parent company guarantee, bond (e.g. bank guarantee), self-provision, environmental impairment liability insurance, general third party insurance.

Funding of remediation and restoration

Remediation and restoration is reported to have been funded by the following means: State, EU funds, insurance, National Fund, third party, assets following liquidation, parent company, new-ownership agreements, bonds, escrows, cash deposits, operator levy (e.g. gate fees from landfill).

Various financial provisions have been tested. In some cases these have proven to be successful (i.e. secure, sufficient, and available when required) and in other cases not successful. Further information on selected cases is provided in Section 5.3 below.

Administration of Financial Provision

Operators expressed concerns about the amount of time it could take to get regulatory approval and about inconsistencies in approach. There was a call for better guidance for regulators and standardisation or pre-approval of financial provision packages and documents.

The process for putting in place, approving, maintaining and monitoring financial provisions needs to be transparent and consistent.

Supply and Demand

There were differing views on whether there was ample availability of the range of bank and insurance products. Various suggestions were made on how, if necessary, to improve the offer and uptake. These included:

- Greater market collaboration.
- Large multinationals committed to CSR setting the trend
- Brokers/financial advisors promoting financial provision to their clients
- Increased levels of regulatory enforcement
- Publicity campaigns to advertise the opportunities presented by financial provision
- Corporation tax deductions linked to taking up financial provision

Guidance on Financial Provision

The survey also found that there is guidance available on financial provision. Links to such guidance are provided in the bibliography.

5.2 Workshop

The key points in response to each of the workshop topics are provided below.

Which financial provision mechanisms do you consider to be legally secure and why?

It was recognised that most mechanisms may have a part to play.

There are concerns around the role of corporate law and insolvency law in hindering cost recovery by environmental regulators.

Insurance may be the most suitable tool for unforeseen events.

Self-insurance and Parent Company Guarantees (PCG's) may have a part to play but it was recognised that these had their vulnerabilities.

There was a caveat to the above in that suitability and availability depends on in-country legislation and the maturity of the insurance market.

What is best practice in calculating the amount of financial provision for potential accidents/incidents and how can this be disseminated effectively?

There was limited direct feedback on the question. There was a view that environmental losses are always underestimated.

Insurance providers advised that the calculation must be based on the potential loss scenarios. Environmental risk, risk assessment and risk management were considered to be the key tools. It was considered that the operator and the insurer and the regulator all had specific and specialised roles to play e.g. an operator will understand the likely loss scenarios for their business, the insurer will calculate the provision on that basis.

In large scale events it is unlikely that the amount of financial provision will cover the cost of remediation. This may be the case even where legal action is successful.

There was a concern that regulators may not necessarily have the expertise to calculate the amount of provision required.

The validity of benchmarking as a concept was discussed. That is, rather than individual calculations being undertaken at a site specific level, the liability associated with groups of activities may be determined.

How can the conditions for supply and demand of financial provision be improved?

There were conflicting views here.

Financial provision is perceived by some operators as being expensive. There is a perception that regulators only accepted limited types of financial provisions, e.g. bank bonds or cash account.

Some stated that because there is no demand for a financial provision tool (e.g. insurance) no product has been created (that is, insurers will not pay to develop a product for which there is no demand). However, the opposite view (that there is no demand because the product is not available) was also expressed. Some indicated that there are plenty of available insurance policies but uptake can be low in some countries, leading to some providers withdrawing policies.

Education was thought to be a significant factor. The awareness and benefits of securing suitable insurance to protect against environmental liabilities was emphasised, such as cover for third party claims and business interruption, which is offered in environmental insurance policies.

The potential for tax breaks for environmental management systems was also expressed.

In Germany, adding environmental liability cover to an existing business insurance policy (where that business is not high risk) may result in only a small, or in some cases, no addition to the premium. It was noted, however, that Germany has had a system of environmental insurance since the early 1990s.

There were conflicting views on the benefits of mandatory financial provision. Some expressed the view that making financial provision mandatory would stimulate demand and lower premiums. Others expressed the view that mandatory financial provision at a European level (particularly with respect to insurance) would result in significant adverse impact to the insurance market. Mandatory provision within a country was seen to be preferable to European level mandatory provision.

A further view was that firm enforcement would stimulate demand for financial provision.

What do you consider to be the best way of making financial provision for large numbers of relatively low risk activities e.g. funds, levies, pooled arrangements?

Pooled funds were discussed and there were various ideas put forward as to how these could work.

It was thought that for most SMEs, most of the tools available for securing ring-fenced funds would not be realistically achievable.

It was thought to be important to recognise the difference between accidents which would usually be covered by insurance, gradual pollution (which is generally covered only by environmental insurance policies or environmental endorsements to public liability policies) and closure (which is generally not insurable except for the risk that costs exceed anticipated closure costs).

A tiered approach was suggested which would involve financial provision (including but not limited to insurance) for lower level liabilities, with a second tier of an industry wide pool for larger liabilities and then a country (or EU) pool for high value liabilities.

5.3 Case Studies

This section describes a series of case studies and reports recommended to the project from which some valuable learning can be derived.

5.3.1 The Kolontár Red Sludge Disaster

On 4 October 2010, a dam wall on a waste storage reservoir at the MAL Ajkai Timföldgyár alumina plant near Kolontár, in western Hungary, collapsed, resulting in approximately one million cubic metres of toxic red sludge and highly alkaline water spilling from the reservoir. A wave of the sludge and water between one and two metres high flowed through a small narrow valley and entered the towns of Kolontár, Devecser, Somlovasarhely, Somlojeno, Tuskevar, Apacatorna and Kisberzseny, killing 10 people, injuring over 200 others, and destroying 358 homes. In addition, the sludge and water contaminated a thousand hectares of land, including 400 hectares of agricultural land, and polluted the Torna Creek and other local waterways, destroying all life in two of them. The sludge and water also harmed four Natura 2000 sitesas well as causing other environmental damage under the Environmental Liability Directive (2004/35/CE).

MAL, which had been established in 1995 after privatisation of the Hungarian aluminium industry, employed about 6,000 people in the Kolontár area, 1,100 of whom were employed at the alumina plant. The plant had operated since 1942 and had an Integrated Pollution Prevention and Control permit that had been issued in 2006 and was valid until 28 February 2011. MAL also had a damage prevention plan but because this had been designed for a much smaller-scale accident such as leakage or overflow of the reservoir, it was inadequate for the spill.

Although MAL had an insurance policy that provided cover for claims for traditional damage (that is, bodily injury and property damage), such cover was limited to certain types of damage as well as being massively insufficient for the scale of the incident. The limit of the insurance was reportedly HUF 10 million (EUR 40,000). The policy did not provide cover for the costs of remediating the environmental damage which would have cost approximately EUR 65 million.

The Hungarian Government brought MAL under state control and established a fund, called the Hungarian Compensation Fund, in order to help finance reconstruction of the destroyed villages and homes. An application by Hungary for funding from the EU Solidarity Fund related to the accident was rejected.

On 16 September 2011, MAL was fined 135 HUF (nearly EUR 420 million), the maximum allowable by law. The fine, which has been appealed by MAL, was four times the estimated EUR 115 million that had been spent by that time on clean-up costs, construction of new houses and related costs. Approximately EUR 128 million of the costs were paid by the Hungarian Government; the remainder from charitable donations. In addition, three man-made lakes and a memorial park were constructed at Devecser. In February 2015, the Hungarian Government established a compensation fund for victims.

5.3.2 Road accident resulting in spillage of kerosene in 2012, Scotland – cover by insurance

A road tanker overturned on a rural road, resulting in the loss of kerosene to the ground. A limited area of ground and groundwater was affected, and some impacted soil and groundwater was treated both on and by contractors appointed by the Insurers of the road tanker. The cost of the remedial works was approximately EUR 0.5 million. The financial provision via insurance worked well and was adequate to cover the cost of remediating the spill. Because the incident was sudden and accidental, it fitted well with the standard terms for public liability and environmental pollution cover.

5.3.3 Fire in chemical waste facility resulting in major loss of chemicals in 2010, in the Netherlands – failings of the amount and wording of insurance.

After a major fire in a facility containing chemicals awaiting disposal, the site and surrounding environment was contaminated by direct escape of the chemicals, and carried further by the water used to extinguish the fire. The pollution affected approximately 35,000 square metres of groundwater and 1,800 tons of soil. The site was destroyed and neighbouring properties suffered severe damage, along with a number of waterways and the adjoining river. Remediation comprised the closure and clean- up of polluted surface water bodies and contaminated sediments and treatment/disposal of toxic waste, thus limiting migration of groundwater pollution. Monitoring was undertaken over the succeeding period of time.

The work was undertaken by the regulatory authorities, as the complexity and extent of the works far exceeded the capability of the operator to progress. The works ultimately cost of the order of EUR 65 million. Whilst insurance was held in the form of general public liability and environmental impairment liability, including cover for environmental damage (ELD), the amount of cover was insufficient to cover the cost of remediation, and the public contributed substantially towards the overall cost. The operator was prosecuted under civil and criminal law. The courts found against the operator and others closely legally linked to the operator. The operator became bankrupt and some assets were recovered from the other companies involved. The public purse, insurers and the assets of the company were used to pay for the remediation works. The environmental damage insurance policy did not pay out. The financial provision was secure but not sufficient. It was limited by the wording of the policies and other provisions which were relevant to the specific environmental claims.

Site-specific insurance (or indeed site specific financial security generally) can only work to the extent of the detailed wording which makes up the policy. Limitations often include the total amount of cover, timing constraints, status of the insured and other factors. Very large scale events can overwhelm typical levels of financial provision amongst commercial operators, and the response from some parts of industry has been to set up pools which are available in the event of a major disaster befalling one of the pool members. Operator insolvency is often an outcome which can complicate gaining access to funds.

5.3.4 Mineral extraction site restoration, Scotland – calling in restoration bonds

The most common type of financial provision used to cover the restoration of large mineral sites is restoration bonds, available from independent financial institutions, although escrow funds have been used in some cases. In these cases the cost of restoring the sites, in the event of the bonds being called on was to be met by using the funds due under the terms of each bond. Public bodies have to follow a separate legal contractual process to call in the bonds and access the monies. This additional process was tested at the time this particular mineral industry ran into difficulties, largely because the financial institutions had never faced claims on such a scale before.

The bonds fell into 3 categories:

i. On demand bonds – pay out only requires the public body to serve notice that the sum is due.
ii. Bonds where the public body had to provide:-
    a. Notice of breach, and;
    b. Details and evidence of the costs of restoration.
    But did not have to provide evidence of intention to do the work
iii. Bonds where the public body had to provide:-
    a. Notice of breach,
    b. Details and evidence of the costs of restoration, and;
    c. evidence of intention to do the work

Some of the bonds were reducing restoration bonds where the value of the bond was adjusted through time to reflect the progressive restoration of the site.

Most bonds were in the range EUR 2.2M to EUR 5.2M, although bonds were higher (EUR 10M to EUR 20M) in some cases, for example where there were additional issues e.g. flooding, pollution. In some cases there were also maintenance bonds to cover a period of aftercare for around EUR 200K. Most of the bonds were called upon.

In many cases the public bodies called in the bond straight away after closure of an extraction site, and the providers entered into without prejudice negotiations and unconditional settlements were agreed. These cases did allow for relatively swift conclusions to be reached, allowing work to start on site on restoration; largely because of the reasonable, professional and joined-up approach adopted by the provider, public bodies and land owners. The public bodies now hold the bond monies and release payments to the contractor after each phase of the restoration has been satisfactorily delivered.

Regarding the adequacy of the bond funds, the sites have been or will be restored to a satisfactory and suitable condition with the sums either due under the terms of the bonds or the negotiated settlements. In a couple of cases restoration has been partly funded by ongoing mineral extraction and landowners contributing works in kind towards the restoration programme.

In other cases the bond holders maintained that no sums were due and the authorities have pursued court action to secure the funds. For example in one case the provider asserted that the bond was not a performance guarantee bond and in another case the provider challenged whether the authority had followed the necessary process required to call in the bond.

In all of the examples considered, the Scottish Courts, to date, have found for the public body and against the provider. These financial provisions were tested in court and found, thus far, to be secure, however the delay resulting from the legal challenge meant that these were not available when required and due to the delay, in some cases, the provision was insufficient. For example in one case, the delay led to further environmental deterioration resulting in additional restoration costs along with a period of care and maintenance for the public body. Furthermore, the bond values did not take into account the costs associated with the legal challenge.

The extent to which the bond value has been adequate has also depended on the quality of the financial and production data used to assess the bond value, the reliability of production and cost assumptions and the reliability of plans (e.g. excavation profiles). For example a reduction in the market supply of restoration operators can result in increased restoration costs. The importance of monitoring has also been demonstrated, where operators have deviated from the mine plans with consequent increases in the restoration liability. Lessons which can be learnt from this experience are summarised below.

1. A prompt, professional without prejudice joined up approach between financial provision providers and public bodies produced good results in terms of achieving the common goal of a prompt effective and efficient long term solution to the restoration and management of the sites.
2. Careful construction of the terms of the bond can minimise the opportunity for challenging the terms under which the sums will be paid out, in particular the definition of the events which will trigger the need for the bonds to pay out. A bond template may be useful.
3. Recourse to the courts results in the provision not being available when required, delayed restoration and additional costs to the environment and the regulator. It compromises the ability of the bond to deliver on its purpose.
4. Public bodies need to secure appropriate legal assistance to confirm that relevant legal agreements are sufficiently robust to be relied upon to make the bond contract reliable and to ensure that the terms of the restoration bond harmonise with the regulations before the regulator accepts delivery of the bond.
5. Bond value needs to be based on good quality data, and take into account potential for fluctuation in operational costs and aftercare and maintenance costs.
6. Financial provisions which can be immediately called upon should be considered in addition to bonds.
7. It is important to secure independent advice on the adequacy of the sums set out in the bond to ensure that the sums covered rise and fall in line with the outstanding restoration works required throughout the life of the site; and that progress is monitored to ensure that it is line with the bond obligations.
8. Consideration should be given to other measures, such as limiting the phases of operation, so that the liability at any one time is reduced.

5.3.5 Activation of a bank guarantee for a site, Norway

This case was one of the first two cases in Norway where financial provision was activated by the regulator. The company was a treatment facility for hazardous waste from petroleum operations. Due to a serious violation of the permit, the Agency temporarily shut the facility down in October 2013. An initial assessment showed that a great deal of investment would be required for the facility to comply with the permit and the company went bankrupt in December 2013. The liquidator immediately disowned the hazardous waste remaining on the site. Soon after the bankruptcy, the risk of contamination from the storage increased due to lack of site management.

The company had an on demand bank guarantee in the amount of 8.25 million Norwegian kroner. The regulator presented a demand under the Guarantee for the full Guaranteed Amount and immediately signed a contract with another treatment facility to remove the waste that caused immediate danger of contamination. They then conducted a public procurement procedure for dealing with the remaining waste. Today the site has been completely cleared and all the hazardous waste has been treated.

The regulator was successful in securing the money from the bank. When they presented a demand under the guarantee, it became clear that an international petroleum company had placed a cash deposit on the same amount as security for the bank. The bank was able to release the value of the guarantee, and a private company linked to the original operator forfeited the cash deposit.

5.3.6 Experience of use of Escrows, Parent Company Guarantees and administration of financial provision, England

With effect from 30 October 2015 the Environmental Permitting (England and Wales) Regulations 2010 were amended to give the English Environment Agency the power to do works to remove a risk of serious pollution (prevent) or to remedy the effects of pollution (after the event) that results from the operation of a regulated facility, for example a landfill, and to recover the costs from the operator. Where financial provision is in place, the Environment Agency may be able to rely on the terms of the legal agreement to access the money to recover the costs of works. In England, bonds are most commonly used to provide financial provision (for landfill sites), but situations in which escrows and parent company guarantees were called upon are described below. Before 30 October 2015, this power (and predecessor powers) to carry out works only applied where an environmental permit or waste management licence was in force.

These case studies are based on legislation that existed before October 2015.

Manywells landfill - the waste management licence for Manywells landfill included financial provisions of £375,000 in an escrow account, and a similar sum in the form of a parent company guarantee. In December 2001 Hillridge Ltd, the operator of the landfill site, went into liquidation along with its parent company, Wastepoint.

None of the site had been capped or restored. It had been estimated that this work would cost in excess of £500,000. The liquidator disclaimed the site licence but did not seek to recover the funds held in the escrow account. However, the High Court ruled (in 2003) that, because the English Environment Agency's powers to incur expenses, at that time, were linked to the (then) waste management licence , the Environment Agency no longer had an interest in the fund. The funds in the escrow therefore became bona vacantia and were given over to the Crown. The Crown passed these funds to the City of Bradford Metropolitan District Council. National grant funds were also made available to Bradford MDC who used these and internal resources to carry out extensive remediation and now manage the site. The costs of over £5,000,000 have greatly exceeded the amount of financial provision that was in place.

In another non-landfill case, Premiere Environmental Ltd, operators of a chemical treatment plant, agreed, with the regulator, a financial provision of £90,000. This was required when they applied to vary one of their licences and was to cover part of their operation. The financial provision was to be placed in an escrow account and was intended to build up over time. After the company became insolvent, the Environment Agency had to carry out emergency works to deal with contaminated rainwater. The landowner also funded site security and the removal of numerous drums of hazardous chemicals. Total costs of dealing with the wider site were estimated at £2.4 million. Only £60,000 had been paid into the Escrow account at the time of the insolvency, but this was available to the Environment Agency and the landowner.

The process of agreeing, reviewing and maintaining financial provision can be challenging, as illustrated by the case below.

An administrative oversight resulted in a parent company guarantee (PCG) for a landfill site not being renewed. A new guarantee was negotiated, but the operating company folded before the renewed guarantee was signed by the parent company.

From the experience above we can learn that financial provisions may not be adequate or enforceable in the event of insolvency, though the recent change in the law should help in the case of insolvency in England and Wales.

The precise wording of legal agreements and the law can affect whether financial provision is available when required.

Renewal dates and information on company status must be monitored careful, or else there is a risk that bonds are allowed to lapse and will not be available if required. It is costly to establish and maintain financial provision, so thought needs to be given to how this is resourced, for example through charges levied on applicants for and holders of permits. As bonds are expensive to maintain there is increasing demand for novel and complex mechanisms. These require specialist expertise that may not be available to regulators, presenting unique challenges.

5.3.7 Three calls on the public purse, Finland

In the five years prior to 2015 there were three cases in which the operator went bankrupt and the state, in the absence of the responsible party, had to bear the financial responsibility for the protection of the environment. State responsibility for the total sum of these cases has so far has been approximately €7M.

In the first case the operator became bankrupt and the state had to deal with an explosive sulfur coal inventory and other non-hazardous assets (€4.6M)

In the second, a Chemical waste processing company was storing 1600 tonnes of hazardous waste in a manner contrary to its environmental permit. There were risks of pollution from chemical spills, of a major accident and a threat to the public sewage network. In 2013, the company went into liquidation and the assets transferred to the owner of the real estate which also went into liquidation. The state funded (€2M) the temporary maintenance of the site and the disposal of high risk waste.

Some environmental damage insurance monies were later paid out for "compensation related regulatory costs" under The Act on Compensation of Environmental Damage[9].

In the final case, the state had to bear the financial responsibility for the environment (a Class 1 aquifer) and the safeguarding of hazardous chemicals when a coating plant went into liquidation and the owner of the real estate was not able to deal with the matter.

In practice, as cases above have shown, there is a need to start the preventive measures early. The Scope of the Environmental Damage Insurance Act is very limited and not all necessary measures are covered by it. For example the financial provisions do not cover illegal activities or damage arising from breach of the permit.

It is concluded that the existing secondary environmental liability regimes and guarantees do not cover all the relevant circumstances, and do not work in the best possible way.

5.4 Reports

5.4.1 Financial Solutions for Contaminated Soils, Swedish EPA, January 2016

The report presents the findings of a Commission to investigate and propose new ways of financing remediation of contaminated sites where the polluter can be identified, but they lack the financial means required to conduct remediation. There have been many examples where operators have been unable to absorb these costs.

The report presents two proposals to improve the availability of funds for remediation of contaminated sites, as follows:

1. All operators that are subject to Regulation (1998:901) on operator self-monitoring, must establish a remediation plan that includes a timetable for remediating previously identified contamination and an estimation of costs. The proposal requires that operator environmental liabilities and the costs of these are identified at an early stage and made more visible in operators' accounts. This is anticipated to improve pollution prevention and reduce the frequency of default as operators are forced to account for the remediation costs in their capital structure.

[9] In Finland obligatory environmental insurance covers environmental damage, prevention of such damage and restoring the environment when the liable party has not been able to pay.

2. All operators that are obliged to obtain relevant permits and report contamination must pay a fee to a publically administered fund that provides financial support in cases where the *responsible operator lacks the ability to pay. There is an exemption for operators affiliated to other voluntary schemes such as SPIMFAB[10]. Payments to the fund would receive tax breaks.

5.4.2 Mining waste – financial risks for the State, Swedish National Audit Office, December 2015

The audit report highlighted problems both in determining and monitoring financial guarantees. Some of the key issues reported are:

- The costs of post closure treatment are not considered in the initial assessment of the viability of a proposed mine.
- Approval of financial guarantee takes place after permitting so there may be no guarantee in place for first few months of operation.
- Mining companies' proposals for financial guarantees are often based on covering post-treatment and follow-up inspections and maintenance for 30 years after mining activities have been discontinued but it is difficult to achieve *walk-away solutions*. This means that the need for inspections and measures post closure may remain for all time.
- Bank guarantees account for just over 90 per cent of the total guarantee amount. These require a high level of regulatory monitoring activity and are resource intensive. Guarantees have lapsed without the regulator being aware.
- There is no full cost coverage for the regulatory environmental supervision of mining activities.
- There is no funding at all for supervision of mining waste disposal sites that have no operators.
- Guarantees have been insufficient to cover the cost of inspection, maintenance and post treatment measures for the entire period of remaining environmental consequences.
- Varying terms and conditions concerning when the bank's obligation to pay comes into force may affect the ability of the Government to exercise the guarantee to pay for necessary post-treatment measures.

Recommendations to address these issues include:

- Long-term industry financing (e.g a fund) of post-treatment, inspection and supervision of closed-down mines when pledged financial guarantees are not sufficient for such measures.
- A long term strategy for managing mine waste informed by a survey of the costs of such management.
- Legislation to ensure that the costs of waste treatment and post closure treatment are reviewed at the time of application.
- Guidelines on terms and conditions of financial guarantees.

[10] SPIMFAB is an organisation that cleans up contaminated former petrol stations and is fully funded by the fuel industry.

6 Financial Provision: strengths, weaknesses and mitigations

6.1 Introduction

This chapter will consider the key strengths and weaknesses exhibited by some of the most common financial provisions, specifically

- Insurance
- bond (including letters of credit, bank guarantees and surety bonds)
- self-provision
- parent company guarantee
- secured fund (including trust funds and escrow accounts)
- mutual/pool, and
- charge on asset

It will focus on details of specific issues which may result in an operator failing to bear some or, indeed, all of its environmental liabilities. Action which regulators could take to eliminate, or at the very least minimise, the impact of weaknesses associated with particular instruments will then be considered.

It is essential to stress from the outset that domestic law (e.g. insolvency law, real estate law and corporate law) may have implications for whether a given means of evidencing financial provision can ensure that sufficient private funds will be available when required. Put another way, the national law of a given Member State may heighten or resolve the particular risks covered in this chapter. For instance, the question as to whether a charge taken by the regulator over the operator's premises in respect of unknown, unforeseen environmental liabilities will have priority over an earlier charge taken by a commercial lender may be dictated by domestic law. The law of England and Wales appears to confer priority to the regulator's charge over an earlier one taken by the lender (see *Westminster City Council v Haymarket Publishing Ltd* [1981] 1 WLR 677 (CA)). The position may, however, vary in another Member State. Thus, when 'risk assessing' a given means of evidencing financial provision, the implications and impact of relevant domestic law must be understood and considered carefully.

6.2 Strengths and weaknesses of common means of evidencing financial provision and associated mitigation measures

Insurance		
Strengths	**Weaknesses**	**Mitigation**
• Within the confines of the policy's terms there is a source of private funds to clean-up the environment. • Protects operators from the financial consequences of environmental liabilities arising. • Where insurers possess superior knowledge about risk reduction they can draw upon this expertise when: (1) setting policy conditions, and (2) providing advice to the operator on effective risk management techniques. • Where premiums can be adjusted to accurately reflect changes in the risks associated with engaging in an activity, this can provide market-based incentives for operators to improve their safety levels.	• There may be some quite significant exclusions in the coverage provided under the policy. • Some insurers may refuse to cover certain activities (e.g. 'Annex III' activities, as defined by the ELD as genetically modified organisms (GMOs) and waste management). • Limits and sub-limits to indemnity, deductibles, conditions, exclusions, specific policy periods and triggers mean that not all of an insured's environmental liabilities will be covered. • Intentionally caused harms, criminal activity and intentional violations of statutes or regulations are often excluded from liability insurance policies. This means that financial provision may not be in place for costs associated with these actions. • Insurers will wish to ensure that they can exercise a degree of control over any claim, including the level of cooperation by the insured. This may make discharging the burden of proof more difficult, thus hindering the prospect of an insured operator being held liable for the full amount of the environmental costs which its activities have caused.	• Scrutinise the terms of the policy to ensure that it provides coverage for the activity or activities which the regulator intends it to cover. • Scrutinise the limits and sub-limits to indemnity under the policy to ensure that it provides the requisite level of coverage. • The regulator could pre-approve a specimen policy which could then be offered to potential insureds. This would ensure, amongst other things, that the policy covered the requisite activities, to the requisite level. • Legislation could specify the criteria that the policy must satisfy before it can be accepted by the regulator. • Where deductibles are large, consider requiring the insured to evidence (additional) financial provision for these sums, perhaps in the form of funds or assets deposited in a trust fund or escrow account. Alternatively, require that the insured pass certain financial tests (i.e. self-insure) to demonstrate their capacity to meet these sums. • Where intentionally caused harms, criminal activity and intentional violations of statutes or regulations are excluded from the policy, consider seeking additional financial provision for such events. Again, trust funds or escrow accounts or self-insurance could be utilised.

Bonds (including Letters of Credit, Bank Guarantees and Surety Bonds)

Strengths	Weaknesses	Mitigation
• The provider is, typically, subject to direct liability under the instrument and is required to meet its contractual obligations even if the operator becomes insolvent. • The requisite level of funds (i.e. coverage) will be available from the outset, meaning that the dangers of waiting for funds to accumulate are avoided. • The guarantee is provided by an independent financial institution, as opposed to an entity related to, or associated with, the operator. There is, thus, no connection between the financial health of the operator and that of the provider.	• The period in which the guarantee is valid will, typically, be short, perhaps even for as little as for one year but with the prospect of renewal. So, these measures may not offer evidence of financial provision for liabilities arising in the mid- to long-term. • Where the guarantee is not renewed, the financial provision may 'fall away' necessitating that the operator find an alternative means of evidencing its capacity to bear its environmental liabilities. Some guarantees may, however, become payable if not renewed. • Providers of letters of credit and bank guarantees are likely to require collateral, such as shares, cash or real estate, as security before providing the product. The level of collateral is likely to be dependent upon the purchaser's financial risk. In the case of a letter of credit, for example, collateral of 100% of the value of the product may be demanded. This means that some operators may not actually be able or, indeed, willing to utilise these particular means of evidencing financial provision. • As the operator's environmental risk is not directly taken into account by the provider in either the fee charged for the product or the requisite collateral requirement, the operator may be discouraged from implementing environmental risk-reducing measures where they are accorded no monetary reward by the provider for doing so.	• Limit use of these measures to coverage of risks arising in the short-term, i.e. particular risks associated with a pollution incident. • The provider can be required under contract to 'pay out' where the guarantee is not renewed. • To avoid the risk of the provider disputing their liability to 'pay out' under the guarantee, regulators should ensure that they are aware of the conditions which are to be satisfied before the provider is required to pay and adhere to these faithfully. • Ensure that the 'triggers' for payment under the guarantee align with the expectations of the regulator. One way of ensuring that this is the case is to use standard worded clauses within guarantees. • Ensure that these instruments are irrevocable to prevent the operator from terminating them without the regulator's consent or knowledge. • A 'joined-up' professional approach between providers and regulators can improve the prospects of funds under the guarantee being available when required. It could also reduce the necessity for any dispute to proceed through the courts, thus avoiding the associated costs. • Financial provisions which can be called upon immediately (e.g. cash within an escrow account) should be considered in addition to guarantees. This will ensure, for instance, that there is a ready source of funds to undertake necessary emergency works. • Regulators should secure independent advice on the adequacy of the sums set out in the guarantee

		to ensure that the sums covered rise and fall in line with outstanding restoration works required throughout the life of the site; and that progress is monitored to ensure that it is line with the bond obligations. • In the case of known, foreseen liabilities, consideration should be given to other measures, such as limiting the phases of operation, so that the liability at any one time is reduced.

Self-provision		
Strengths	**Weaknesses**	**Mitigation**
• Where a surplus exists between the funds available to an operator and the environmental liabilities to which it is exposed, self-insurance enables the operator to meet its environmental liabilities in full. • Where the operator's assets are sufficient to cover expected liabilities, there will be a strong economic incentive for it to develop practices and procedures with the aim of reducing the probability that its activities may cause a pollution incident. • Operators (and potentially its parent) are required to demonstrate a degree of financial strength both prior to, and during, the period in which it undertakes the industrial activity. • Eliminating the need to purchase third-party products.	• Self-insurance does not, generally, require specific assets or funds to be available to the regulator. It is, in essence, a promise by an operator to cover their environmental liabilities when required. It does not require an operator to set aside money. • Satisfaction of the financial test at one point in time does not mean that it can/will be satisfied in the future. There may be an unexpected decline in the operator's financial strength. • If an operator becomes financially distressed and cannot pass the financial tests, it may not be able to afford to substitute self-insurance with third-party financial security, such as insurance or a bond. • Auditing the financial data provided by the operator to satisfy the financial test is time consuming and expensive. • The interpretation, verification, and monitoring of the financial test requires the relevant regulator to possess sufficient financial expertise. • If the regulator becomes aware of the deteriorating financial strength of the operator and requires it to deposit funds or assets to provide security for environmental liabilities, then this may be challenged under domestic insolvency law.	• Regulators should consider carefully the risk of accepting self-insurance, on its own, as a means of evidencing financial provision or whether its use needs to be restricted or permitted only alongside a supplementary financial provision. • Regular monitoring, and close oversight, of the operator's financial position and its capacity to continue satisfying the financial test will improve the ability of the regulator to respond quickly to negative changes in the operator's financial outlook. • Self-insuring operators should be required to notify the regulator immediately if they no longer satisfy the financial test or they believe that there is a reasonable prospect that they will no longer be able to. • Use third-party financial experts (e.g. accountants or auditors) to verify the data put forward by the operator, the cost of which should be borne by the operator. • To ensure that the financial data provided is accurate ensure that the assessment is based on audited accounts prepared according to international accounting standards. This would increase transparency and ensure all applicants were treated equally and fairly.

Parent company guarantee		
Strengths	**Weaknesses**	**Mitigation**
• The parent company would, depending upon the construction of the terms of the relevant guarantee, be required under contract to meet a specified level of the operator's environmental liabilities. • Contractually overrides the parent company's de facto immunity from environmental liabilities arising from its subsidiary's activities. • The parent company, by agreeing to bear some of the risk, is incentivised to reduce the prospect of its subsidiary incurring a large financial liability.	• The parent company may have suffered financially as a result of its subsidiary's financial decline/insolvency and this could affect its ability to meet its obligations under the guarantee. There is also the risk that the parent company may be wound-up before the guarantee can be called upon. • The parent company's liability will be limited to a predetermined sum, meaning that it may not be contractually obliged to bear its subsidiaries environmental liabilities in full. • There may be difficulties associated with pursuing a parent company registered outside the EU for liabilities covered under the guarantee.	• Many of the mitigation measures detailed above in respect of self-insurance will apply equally in the context of parent company guarantees. • To avoid problems associated with enforcing the guarantee against companies registered outside the EU, consider limiting parent company guarantees to parent companies registered in EU. • Ensure that the 'triggers' for payment under the guarantee align with the expectations of the regulator. • Insolvency of the subsidiary should be included as a 'trigger' for payment under the parent company guarantee. • Attention must be paid to expiry dates for parent company guarantees. Ensure that there is sufficient time to renew if required.

Secured Fund (including Trust Funds and Escrow Accounts)		
Strengths	**Weaknesses**	**Mitigation**
• As funds are segregated (i.e. 'ring fenced') from the general body of the operator's assets, they are likely to be beyond the reach of its creditors should it subsequently enter into insolvency. • Where financed in full at the outset (i.e. as a lump sum), these measures permit ready access to the requisite level of private funds. • Offer a means of making financial provision in the long-term as they eliminate issues raised, for example, when third-party products are not renewed by the provider.	• Where the balance does not accrue fully until the final payment has been made, the value of the fund may be insufficient where it is required earlier than planned (i.e. as a result of the operator's insolvency or inability to continue trading). • Depositing assets/funds imposes indirect costs on operators, such as a high degree of liquidity constraint (i.e. an inability to borrow against them), which may restrict the availability of working capital. • The regulator may be unaware that the operator has failed to make regular payments into a fund if the bank does not report this.	• Take measures to make sure the fund is secure in the event of insolvency, e.g. by placing a charge on it in favour of the regulator. • Where the balance does not accrue fully until the final payment has been made, consider requesting alternative financial provision until accumulation is complete or near complete. Where feasible, request that the entirety of the requisite provision is made from the outset. • Monitor utilisation of the measures to ensure that the operator continues to fulfil its financial provision requirements, e.g. that payments are being made into the fund. • Ensure funds are irrevocable to prevent the operator terminating them without the regulator's consent or knowledge.

Mutuals / Pools		
Strengths	**Weaknesses**	**Mitigation**
• As mutuals and pools are financed through the contributions of a group of operators, they offer potential to provide a source of funds above those of an individual operator. For instance, following a large-scale pollution incident, it may not be possible to recover all of the costs from a single operator, even where they have financial provision in place. Mutuals and pools may provide a solution in such circumstances but their capacity to do so will depend upon their claim-sharing rules. • Potential to provide a source of funds where a member has been rendered insolvent. • Contributions to mutuals and pools are segregated from the operator's assets and so 'ring-fenced' in the event of its insolvency. This means that they are likely to be beyond the reach of its creditors should it enter into insolvency. • Protects operators themselves from the financial consequences of environmental liabilities arising by spreading costs amongst members. • Capacity to ensure that funds will be available to cover liabilities arising in the mid- to long-term. • Where the amount that a member is required to contribute to the mutual or pool is determined by its individual risk profile (i.e. contributions are differentiated), this provides an incentive for it to reduce the risk which it exhibits by improving its safety levels (e.g.	• May be perceived as failing adequately to implement the 'polluter-pays' principle. Strictly, the actual 'polluter' (i.e. the operator whose activities caused the environmental damage or pollution) does not pay, or more accurately, does not pay in full, given that the cost is shared by the polluter and the other members of the mutual or pool. However, a member of a group that has an avoidable accident may no longer be able to be a member of the mutual or pool. • Companies agree to pay for the environmental liabilities of other companies, perhaps even their competitors. • Funds may be expended on the administration of the mutual or pool, funds which could have been dedicated to coverage of environmental liabilities. • Where the terms and conditions for payment under the mutual or pool are construed overly-strictly it may make it difficult to draw upon when necessary. • If contributions to mutuals or pools are determined by a flat rate (e.g. according to permit type) or by volume of product produced (e.g. pence per barrel), then safe operators are penalised as potentially less safe operators will not contribute in proportion to their potential liabilities. This failure to differentiate ignores safety precautions taken by individual operators and may encourage some members to 'free-ride' i.e. as they	• The 'polluter-pays' principle could, in fact, be furthered in circumstances where administrators of the mutual or pool can seek reimbursement from the member responsible for the environmental liabilities. This would also create incentives for members to prevent, for instance, a pollution incident arising in the first place. The possibility of seeking reimbursement will, of course, not be possible where the member has been rendered insolvent. • Larger contributions from members could be sought in the early years, thus, increasing the prospect of the mutual or pool being in a position to 'pay out' if and when required. • Poorly performing, high-risk members are expelled.

through investment in appropriate pollution prevention and control measures). • Opportunities for improved levels of safety. As environmental liabilities incurred by one member are, in effect, shared by all of the members, it is in the interest of the group to minimise the risk of such liabilities arising in the first place. They may do so by imposing conditions upon membership being granted. An operator may not be selected to be a member of the mutual/pool unless it met the requisite standard for inclusion. Members can even pool their expertise and disseminate best practice amongst the group.	know that the mutual or pool will pay for their environmental liabilities if and when required, there is no incentive to invest in safety. • Where contributions are not differentiated, members may not be as motivated to improve their safety levels. • The administrative costs associated with tailor-made contributions may be high and, thus, prohibitive.	

Charge on Asset		
Strengths	**Weaknesses**	**Mitigation**
• Protects the regulator in the event of the operator's entry into insolvency proceedings to the extent that it would be a secured creditor in respect of the premises, giving it priority over the operator's unsecured creditors. • In the case of known, foreseen liabilities, the charge has the capacity to 'unlock' capital from an illiquid asset (i.e. real estate) to use as evidence of financial provision whilst enabling the operator to continue using the premises. • In the case of unknown, unforeseen liabilities, the charge provides a 'fall back' option where no, or insufficient, financial provision has been demanded by the regulator. • Ensures that the operator cannot benefit financially from any increase in the value of the premises owing to the remediation or clean-up. • The mere threat of such a charge being taken may spur the operator into action, rendering it an important negotiation tool.	• Where the regulator demands that premises must be unencumbered before they can be utilised as financial provision for known, foreseen liabilities, it is likely that few premises will actually be free of a prior ranking mortgage or charge (whether fixed or floating), meaning that the vast majority of commercial premises, particularly high value city centre office premises, will not be suitable for such a charge. • With regards charges taken in respect of unknown, unforeseen environmental liabilities, there is the question as to the priority of a charge taken by the regulator. There may be pre-existing charge holders, such as a bank with a mortgage over the same premises; the higher the priority, the greater the likelihood that cost recovery will be fruitful and vice versa. • Given the likely specialist nature of many premises conducting activities with the potential to harm the environment, the actual market for these types of premises may be small meaning that it may take some time for the property to sell, delaying the time in which value may be realised from the asset. • With regards use of the charge to recoup costs associated with unknown, unforeseen liabilities, it will offer no remedy where the operator is part of a corporate group that has structured its affairs to ensure that valuable assets are removed from group companies engaged in activities with the	• Target real estate with commercial appeal; the greater the appeal, the greater the chances of finding a buyer. If unsure as to commercial appeal, seek specialist advice, e.g. a chartered surveyor. • Consider requiring that a moderate level of cash-based financial provision be made in order to deal with necessary emergency measures, e.g. spill containment following a pollution incident. This counteracts somewhat the risk that the premises subject to the charge may take some time to sell. • Mandate that the operator maintain appropriate insurance in respect of the property subject to the charge. This may include, for example, environmental liability insurance. • Where the charge is used in respect of unknown, unforeseen environmental liabilities and there is a pre-existing charge over the premises, ensure that there is sufficient value in the property to accommodate both charges comfortably. If not, select alternative premises upon which to take a charge. • The charge affords a useful complement to self-insurance, provided that acceptance of the latter requires a specified minimum value of real estate to be held in the relevant Member State.

	potential to cause environmental damage/pollution. • Where an operator whose premises are subject to a charge enters into insolvency proceedings with a view to being 'rescued' (e.g. administration) then there may be a moratorium (i.e. the freezing of enforcement procedures against the company) on security being enforced. This will delay the regulator's capacity to realise their security.	

7 Conclusions

The aim of Year 1 of the project was to gather evidence on the implementation of financial provision and report the findings including preliminary conclusions. It is proposed to build on this through further investigation in year two culminating in a tool that will assist regulators and others in making decisions about financial provision. The evidence was principally gathered using a questionnaire, a workshop and follow-up interviews and was supplemented with information available to the project team from their experience in the area of financial provision.

The evidence gathered includes detailed information on:

- types of financial provisions available and accepted
- legislative approaches across the EU and internationally across a range of sectors
- the strengths and weaknesses of various types of financial provision, and potential measures that are important to consider to mitigate against the potential weakness if implementing financial provision
- cases studies where financial provision have been tested and examples of financial provision schemes and standards in various jurisdictions

The detailed findings are presented in the report, with the following being a summary of the preliminary conclusions:

The Scope of the Problem

The basic problem is that companies have environmental liabilities and do not always have the financial means to meet them in full, with consequent risk to the environment and taxpayer. It is evident from the project that these situations are not unique to any one country or industry.

The risk from insolvency proceedings is a particular problem. The interaction between the relevant domestic company/insolvency law and financial provision for environmental liabilities is critical. It is essential to understand the relevant risks here.

Financial provision is a potential solution to the problem of abandoned liabilities. Different financial provisions exist and been used and are effective across a range of circumstances and geographies. Conversely, in some cases financial provision has failed to deliver.

Financial provision is a complex and multidisciplinary (legal, financial, technical) area. It should be recognised that successful implementation is demanding and will impose costs on regulators and operators.

This project has gathered and presents significant information on implementation of financial provision and contributes to the evidence base in the area. However, financial provision is a complex topic and still a relatively emerging area in environmental protection. Further work is needed to further develop the evidence base.

Acceptability and availability

A range of financial provision options are available, typically: various types of secured funds in which monies are put aside to pay for liabilities if they arise; guarantees by financial institutions (banks or insurers) such as bonds and letters of credit; insurances; company guarantees, charges on assets and mutual/pools.

It was found that parent company guarantees are not as widely accepted as other financial provisions, particularly for landfills and mines. They are perceived as presenting a higher risk than other forms of financial provision.

Different products will be appropriate for different types of liabilities and sectors. For example, there are certain liabilities that are inevitable (e.g. landfill closure) while others are unpredictable. Also, some sectors may consist of a large number of activities with relatively small liabilities whereas as others may have a small number of facilities with very large liabilities. These scenarios will present different challenges and may need different solutions. In this respect, good market availability is key for financial provision to fulfil its role and be a potential solution.

Common language and principles

The project has found it useful to distinguish between foreseen and unforeseen liabilities as a framework for work in relation to financial provision. The project has also found that terminology is important given the complex and multidisciplinary nature of the work. We have developed a basic terminology (see glossary) which groups financial provisions according to their most defining characteristic (usually who the provider is) and seeks to consolidate the various terms used in EU law and Member States (e.g. consolidating 'financial provision', 'financial security', 'financial guarantee' into the single term: 'financial provision'). The further development of common language and understanding around financial provision terms would be useful.

The project has also confirmed and endorses at this stage that the following principles are a good overall framework against which to implement and test financial provision: SECURE, SUFFICIENT and AVAILABLE WHEN REQUIRED. These concepts could be further developed.

Practicalities

- There is variance in requirements for financial provision across the EU (and indeed internationally) both as to whether it is required and what mechanisms are used/available and acceptable. Notwithstanding this, there is some very good guidance available on financial provision both at EU and Member State level, including in some cases the detailed criteria that financial provision must meet and template documents. This guidance should be useful to regulators and operators and is listed in the Bibliography.
- In some areas (for example, landfill) and in some Member States there is good guidance available on how to determine sufficient financial provision (i.e. the cost of the liability). However, there is little guidance available for other industrial sectors and especially for determining the amount of cover required for unforeseen liabilities.

- The strict legal wording of the financial provision is fundamental to its success and particular attention must be paid to this.
- For financial provision to be successful (i.e. secure, sufficient and available when required), it is important to put in place regular monitoring, maintenance that will ensure financial provisions are kept at the correct amounts (e.g. payments into and out of funds), replaced or renewed when necessary (e.g. bonds and insurances). Enforcement action often needs to be taken to make a demand on the financial provision in the event of default by the operator.

The Role of Regulators

The implementation of financial provision by regulators must give consideration to the infrastructure and resourcing required. For example:

- Legal expertise
- Financial expertise
- Technical expertise
- Monitoring and enforcement

Clear systems and communications are very important given the multi-disciplinary nature of the work. Further guidance on this would be beneficial.

There is a difference across Member States in how financial provision is scrutinised by regulators both prior to commencement and during the operational phase, for example the approach to risk assessment to determine the amount of financial provision.

There was reported to be a high level of success in cases where there was strong collaboration between technical, legal and financial experts from regulators and financial provision providers.

Financial provision is a challenging area which different countries are addressing in different ways. This project has broadly investigated the problem with a range of stakeholders across a range of jurisdictions, industries and financial provision products. It has identified the issues in seeking to address the problem. As a result, there is now a deeper understanding of the practical challenges in implementing financial provision that is successful in being secure, sufficient and available when required. This work continues to promote the principles of:

- Protection of the environment
- Protection of the public purse
- Polluter pays; and
- Pollution prevention.

The findings of the report will be of benefit to the various stakeholders including regulators, operators and policy makers.

8 Recommendations

There is a need to continue to develop the knowledge base and gather empirical evidence in relation to financial provisions meeting environmental obligations. This should not necessarily be limited to the EU. A workshop drawing in regulators in Year 2 of this project would contribute to meeting this recommendation. There is a particular need for information regarding the on the ground effectiveness of financial provision measures and the practical challenges and resources required for implementation.

There are various initiatives that have been taken to dealing with financial provision in different ways many of which are at relatively early stages. This experience and the information arising from it and presented in this report will be useful to regulators and operators concerned with financial provision. There would be benefit to continuing to monitor the effectiveness of existing and innovative approaches to dealing with financial provision.

We recommend this report is made available to relevant contributors and stakeholders with the aim of inviting further contributions and informing decision-making.

IMPEL is recommended to develop a decision making tool which would bring together the information from Year 1 and the knowledge gained from the workshop referred to above. This report has identified various areas in which support is needed in implementing financial provision and which should be addressed by the tool, such as:

- Concepts and terminology
- Guidance on calculating the amount of financial provision
- Ensuring the financial provision is secure and available when required and that financial provision documents are legally robust
- Monitoring and enforcement.

Annexes

9 Annex I. Terms of Reference

TOR Reference No.:	Author(s): Kim Bradley and Chris Dailly
Version:	Date: 17th December 2015. Finalised 3rd March 2016
TERMS OF REFERENCE FOR WORK UNDER THE AUSPICES OF IMPEL	

1. Work type and title

1.1 Identify which Expert Team this needs to go to for initial consideration	
Industry	☐
Waste and TFS	☐
Water and land	☐
Nature protection	☐
Cross-cutting – tools and approaches -	X
1.2 Type of work you need funding for	
Exchange visits	☐
Peer reviews (e.g. IRI)	☐
Conference	☐
Development of tools/guidance	x
Comparison studies	x
Assessing legislation (checklist)	☐
Other (please describe):	☐
1.3 Full name of work (enough to fully describe what the work area is)	
Financial Provision: Protecting the Environment and the Public Purse	
1.4 Abbreviated name of work or project	
Financial Provision: Protecting the Environment and the Public Purse	

2. Outline business case (why this piece of work?)

2.1 Name the legislative driver(s) where they exist (name the Directive, Regulation, etc.)	
• This is a broad issue which cuts across many legislative drivers and sectors for example Environmental Liability Directive, Landfill Directive, Mining Waste Directive, Water Framework Directive, Industrial Emissions Directive, Seveso and relevant domestic legislation. It is relevant during the planning, operation and restoration stages of business.	
2.2 Link to IMPEL MASP priority work areas	
1. Assist members to implement new legislation	☐
2. Build capacity in member organisations through the IMPEL Review Initiatives	☐
3. Work on 'problem areas' of implementation identified by IMPEL and the European Commission	X

2.3 Why is this work needed? (background, motivations, aims,etc.)

The impact of direct environmental incidents as well as business insolvency resulting in risk to the environment must be protected against.

In cases where there is either an environmental incident which results in actual/potential harm to the environment or where a company becomes insolvent and can no longer meet its obligations, suitable financial provision can mitigate or prevent an impact on both the environment and/or the public purse.

Where appropriate, a financial provision mechanism should ensure that the provision is:

- Sufficient
- Secure
- Available when required

However, where no financial provision has been made there is a risk to both the environment and to the public purse. The interaction between company/insolvency law and environmental law is complex and will differ between countries. In addition, the mechanisms/ products available to secure financial provision between countries may vary. Further, the experience of EPA's and regulated sectors in applying financial provision mechanisms across members states is likely to be variable.

Ensuring suitable financial provision is most critical where environmental licencing has permitted degradation of the environment on the condition that the degradation will be mitigated at the end of the life of the activity (for example, in landfill restoration) and this is applied successfully in many member states.

However, in the case of insolvency, even where financial provision is made, this may not be available to be called upon when required. Ultimately, lengthy legal battles may still result in the tax payer covering the expense, contrary to the polluter pays principle.

Background

Initiated by the CEOs of Scotland and Ireland EPAs, this issue was raised by the Network of heads of European Environment Protection Agencies (EPA Network). The EPA Network held a workshop in Oslo in February 2014 organised by the Norwegian EA, SEPA and the Irish EPA with the respective CEOs leading the discussion. The outcome of this workshop was presented to the EPA Network at its plenary in Vienna in April 2014 where it was agreed that the Network (via its Better Regulation Interest Group (BRIG)) and IMPEL seek to promote the development of pan-European guidance on the practicalities of providing financial security; both for accidents and for bankruptcies). The BRIG/IMPEL group met in October 2014 where it was agreed to continue this work within a sub-group to try and identify a solution to share around the networks and understand who is facing this issue.

Funding for this project had now been approved for delivery during 2016.

2.4 Desired outcome of the work (what do you want to achieve? What will be better / done differently as a result of this project?)
Regulators and operators will have a better understanding of the availability and suitability of financial tools resulting in improved: • Protection of the environment • Protection of the public purse • Implementation of polluter pays principle • Investment in pollution prevention
2.5 Does this project link to any previous or current IMPEL projects? (state which projects and how they are related)
Lessons learnt from accidents. Firstly, even in well regulated industries, **operational accidents** can occur and responsible businesses may still face very substantial financial demands to address environmental damage caused by such accidents. National EPAs may expect and require, under certain regulatory regimes, that financial provision may be made to cover such instances. There may also be synergies with existing IMPEL work on soil protection.

3. Structure of the proposed activity

3.1 Describe the activities of the proposal (what are you going to do and how?)
1. Project Team meeting 1 – scope project, programme work, allocate tasks 2. Collect evidence – project team case studies and questionnaire 3. Project team meeting 2 (phone) – Confirm approach to collation and identify any additional evidence needs. 4. Post workshop interviews, if required 5. Collation of case studies 6. Project Team meeting 3 (phone) – draw out findings and conclusions 7. Draft report 8. Produce final report on the findings making recommendations, if appropriate for the preparation and shape of guidance/tool 9. The following action would take place in Year 2. 10. Produce tool based on the year 1 outputs that analyses the different financial provision options and explains what works in different legal frameworks and different scenarios (e.g. pre, during, post development) and different sectors e.g. mining, landfill, major incidents. (The report may also consider whether there is a role for a pan-European financial instrument to be created that would offer financial security ,flexibly across all countries.
3.2 Describe the products of the proposal (what are you going to produce in terms of output / outcome?)
The long game is to produce a tool to assist in making decisions about " financial security", supported by case studies to share good practice and innovative approaches. To support informed decisions across the EU in relation to financial provision for both foreseen (landfill closure and restoration) and unforeseen liabilities/responsibilities (environmental incidents)

3.3 Describe the milestones of this proposal (how will you know if you are on track to complete the work on time?)
Issue Questionnaire Collate responses Follow up interviews Draft Report Publication of final report Workshops will also be used to collect evidence and raise awareness
3.4 Risks (what are the potential risks for this project and what actions will be put in place to mitigate these?)
This is a low risk project. The main risks are associated with delivery within the timescale. This will be managed by structuring the project with in-project milestones and timescales. These will be agreed at the first meeting of the project team. There will a risk associated with subsequent delivery of a financial provision tool (scheduled for Year 2) in that EPA's and others may make financial decisions based on the information provided. The advice given and the context in which it is presented will be carefully considered at that time.

4. Organisation of the work

4.1 Lead (who will lead the work: name, organisation and country) – this must be confirmed prior to submission of the TOR to the General Assembly)
Scotland and Ireland to lead. Chris Dailly and Kim Bradley (SEPA) Patrick Geoghegan and Stephen McCarthy (Irish EPA)
4.2 Project team (who will take part: name, organisation and country)
Chris Dailly (SEPA) Kim Bradley (SEPA) Patrick Geoghegan and Stephen McCarthy (Irish EPA) Darren Cordina. Malta (mepa) . Dušan Pichler, (Ministry for Environment and Spatial Planning, Slovenia) Hans Lopatta (European Commission, DG Environment) Valerie Fogleman (University of Cardiff, Stevens and Bolton LLP) Colin Mackie (University of Aberdeen) Phil Crowcroft (ERM, NICOLE) Clotilde Silva (Ministry for Environment, Spatial Planning and Energy and Agriculture and the Sea, Portugal) Rodrigo Ferreira (Ministry for Environment, Spatial Planning and Energy and Agriculture and the Sea, Portugal)
4.3 Other IMPEL participants (name, organisation and country)
Isaac Sanchez (Ministry of Agriculture, Food and Environment, Spain) Camilla Lindholm (EPA, Sweden) Ana Carrola (Portuguese Environment Agency, Portugal) Regina Vilao (Portuguese Environment Agency, Portugal) Mao Ek (EPA, Sweden)
4.4. Other non-IMPEL participants (name, organisation and country)

5. High level budget projection of the proposal. In case this is a multi-year project, identify future requirements as much as possible

	Year 1 (exact)	Year 2	Year 3	Year 4
How much money do you require from IMPEL?	19950			
How much money is to be co-financed	Agency support not specified			
Total budget	19950			

6. Detailed event costs of the work for year 1

	Travel € (max €360 per return journey)	Hotel € (max €90 per night)	Catering € (max €25 per day)	Total costs €
Event 1	2160	540	150	2850
Project Team 1				
<Data of event>				
<Location>				
6				
1				
Event 2	10,800	2700	750	14250
Workshop				
<Data of event>				
<Location>				
30				
1				
Event 3	2160	540	150	2850
Project Team 2				
<Data of event>				
<Location>				
6				
1				
Event 4				
<Type of event>				
<Data of event>				
<Location>				
<No. of participants>				
<No. of days/nights>				
Total costs for all events				

7. Detailed other costs of the work for year 1

7.1 Are you using a consultant?	☐ No
7.2 What are the total costs for the consultant?	
7.3 Who is paying for the consultant?	
7.4. What will the consultant do?	
7.5 Are there any additional costs?	☐ Yes ☐ No Namely:
7.6 What are the additional costs for?	Administration, reporting etc
7.7 Who is paying for the additional costs?	Project Lead organisations
7.8. Are you seeking other funding sources?	☐ Yes ☐ No Namely:
7.9 Do you need budget for communications around the project? If so, describe what type of activities and the related costs	☐ Yes ☐ No Namely: Tbc

8. Communication and follow-up (checklist)

	What		By when
8.1 Indicate which communication materials will be developed throughout the project and when ***(all to be sent to the communications officer at the IMPEL secretariat)***	TOR˅* Interim (Draft) report˅* Project report˅* Progress report(s)˅ Press releases News items for the website˅* News items for the e-newsletter Project abstract˅* IMPEL at a Glance ˅ Other, (give details):	☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐	As set out by IMPEL requirements shown in project plan and basecamp milestones
8.2 Milestones / Scheduled meetings (for the website diary)	See Basecamp		
8.3 Images for the IMPEL image bank	☐ Yes ☐ No		
8.4 Indicate which materials will be translated and into which languages	All materials will be in English		
8.5 Indicate if web-based tools will be developed and if hosting by IMPEL is required	Not for Year 1 project		
8.6 Identify which groups/institutions will be targeted and how	Regulators, European Commission, Financial provision sector through IMPEL member contacts, NGO's and industry		
8.7 Identify parallel developments / events by other organisations, where the project can be promoted	REFIT of Environmental Liability Directive, Scottish guidance on financial provision for the waste management sector, Environmental Claims Conference 2016. Nicole Workshop (June 2016), ELD Stakeholder Worksho (May/June 2016)		

*˅) Templates are available and should be used. *) Obligatory*

9. Remarks

Is there anything else you would like to add to the Terms of Reference that has not been covered above?

10 Annex II. Questionnaire

ound

have funded a project aimed at providing regulators and operators with a better tanding of the availability and suitability of financial tools for environmental liabilities. Your utions through this questionnaire will be key to ensuring that we are able to determine es that have been, or will be, effective in ensuring that funds are secure, sufficient and le when required and that the environment and the public purse are protected.

estionnaire contains around 10 questions.

nd to draw on the information provided to produce a report. It is not our intention to individual responses

Terminology - You may wish to print this page for reference

The survey uses the following terms as defined below.

'Financial provision' is the establishment of a secure source of funding for responsibilities or liabilities under environmental law or an environmental permit, licence or other authorisation. The terms 'financial security' and 'financial guarantee' are also used.

'Foreseen liabilities' are liabilities that are likely to arise. They include development closure, restoration, remediation, decommissioning and aftercare of installations, activities or sites, or the costs of repatriation.

'Unforeseen liabilities' are potential environmental liabilities arising from incidents/accidents.

'Secured fund' is money deposited by an operator with a third party (e.g. in a bank account) and legally secured so that it can only be used for the intended purposes. This includes 'escrow accounts' and 'trust funds'.

'Mutual fund or pool' is a group financial provision arrangement that an operator can join and pay into and which will pay if the operator defaults on its obligations.

'Bond' is a guarantee provided by a financial institution to pay if an operator defaults on its obligations. This includes 'bank guarantees', 'letters of credit', 'surety bonds' and 'performance bonds'.

'Charge on asset' is mortgage/charge over a specific asset in favour of a regulator which can be triggered if an operator defaults on its obligations.

'Parent company guarantee' is a guarantee by the parent of the operator to pay or fulfil the operator's obligations if the operator defaults.

'Self-provision' is financial provision by the operator itself. This includes 'provisioning in accounts' and 'self-insurance'.

'Environmental impairment liability insurance' is insurance specially tailored to environmental liabilities including liabilities under the Environmental Liability Directive.

Financial Provision: Protecting the Environment and the Public Purse

Government or Regulator

* 6.

What activities require financial provision in your country?

	Foreseen (closure etc)	Unforseen (incidents/accidents)	Don't Know
Landfill (hazardous and non hazardous)	☐	☐	☐
Landfill (inert)	☐	☐	☐
Other waste management (hazardous)	☐	☐	☐
Other waste Management (non hazardous)	☐	☐	☐
Mining Waste Directive (Category A facilities)	☐	☐	☐
Other mines and quarries	☐	☐	☐
Industry (Industrial Emmissions Directive (IED) facilities)	☐	☐	☐
Industry (non IED facilities) (e.g. dry cleaners, off shore oil and gas operations, renewables, unconventional gas, etc)	☐	☐	☐
Discharges to/abstractions from the water environment (WFD)	☐	☐	☐
Transfrontier shipments of waste	☐	☐	☐
Environmental Liability Directive	☐	☐	☐
Other	☐	☐	☐

If Other please provide details here

5

* 7. Which financial provisions are available in your country for environmental liabilities?

	Foreseen liabilities (closure etc)	Unforseen liabilities (incidents/accidents)	Don't Know
Secured Fund (e.g. cash deposit)	◯	◯	◯
Mutual fund or pool	◯	◯	◯
Bond (e.g. bank guarantee)	◯	◯	◯
Charge on Assets	◯	◯	◯
Parent company guarantee	◯	◯	◯
Self-provision	◯	◯	◯
Environmental impairment liability insurance	◯	◯	◯
General third party liability	◯	◯	◯
Other	◯	◯	◯

If other please specify here

6

14.
Please cite cases where financial provision worked particularly well/badly. Which financial provisions have proven secure, sufficient and available when required?

15.
Would you be happy for us to contact you for further information on the above cases?

- ◯ Yes
- ◯ No

16.
Please provide any suggestions on how financial provision can be improved

17. Any other comments

18. Please indicate here if you consider any of the above information to be commercially confidental

- ◯ Yes
- ◯ No

9

Financial Provision: Protecting the Environment and the Public Purse

Operator or Trade Association

* 19. Please specify your type of operation (tick all that apply)

- ◯ Landfill (hazardous)
- ◯ Landfill (non hazardous)
- ◯ Landfill (inert)
- ◯ Other waste management (hazardous)
- ◯ Other waste Management (non hazardous)
- ◯ Mining Waste Directive (Category A facilities)
- ◯ Mining Waste Directive (other facilities)
- ◯ Transfrontier shipments of waste
- ◯ Fuel/chemical distribution
- ◯ Energy - non renewable
- ◯ Energy - renewable
- ◯ Energy - nuclear
- ◯ Metal Production or Processing
- ◯ Mineral Industry
- ◯ Chemical Industry
- ◯ Manufacturing
- ◯ Timber Treatment
- ◯ Coating, printing, textiles
- ◯ Treatment of animal/vegetable matter
- ◯ Food and drink
- ◯ Intensive agriculture
- ◯ Other agriculture and forestry
- ◯ Carbon capture and storage
- ◯ Other solvent activity
- ◯ Construction/development
- ◯ Other

10

Financial Provision: Protecting the Environment and the Public Purse

Regulation

23. Who determines the amount (€, £, $ etc.) of financial provision?

- ◯ Operator
- ◯ Consultant
- ◯ Legislation/Convention
- ◯ Regulator
- ◯ Financial provision provider
- ◯ Other
- ◯ Other (please specify)

24. Does the government/regulator verify

	Yes	No
the amount of financial provision?	◯	◯
that financial provision is in place?	◯	◯
that financial provision is legally secure?	◯	◯

25.
Please provide references, if any, to authoritative guidance on financial provision for environmental liabilities including methods for determining the amount.

26.
Please provide any suggestions on how financial provision can be improved

27.
Please cite useful cases where financial provision worked particularly well/badly. Which financial provisions have proven secure, sufficient and available when required?

28.
Would you be happy for us to contact you for further information on the above cases?

- ◯ Yes
- ◯ No

29. Any other comments

30. Please indicate here if you consider any of the above information to be commercially confidental

- ◯ Yes
- ◯ No

* 33. Which types of financial provision do you provide

	Foreseen liabilities (closure etc)	Unforseen liabilities (incidents/accidents)	Don't know
Secured Fund	○	○	○
Mutual fund or pool	○	○	○
Bond	○	○	○
Charge on Assets	○	○	○
Parent company guarantee	○	○	○
Self-provision	○	○	○
Environmental impairment liability insurance	○	○	○
Other insurance	○	○	○
Other	○	○	○

If other please provide details here

17

Financial Provision: Protecting the Environment and the Public Purse

Regulation

34. Who determines the amount (€, £, $ etc.) of financial provision?

- ○ Operator
- ○ Consultant
- ○ Legislation/Convention
- ○ Regulator
- ○ Financial provision provider
- ○ Other
- ○ Other (please specify)

35. Does the government/regulator verify

	Yes	No
the amount of financial provision?	○	○
financial provision is in place?	○	○
financial provision is legally secure?	○	○

36.
Please provide references, if any, to authoritive guidance on financial provision for environmental liabilities including methods for determining the amount

37.
Please describe any recent trends in the supply and demand for different financial provisions. What factors are driving these trends?

18

49. Would you be happy for us to contact you for further information on the above cases?

- Yes
- No

50. Any other comments?

51. Please indicate here if you consider any of the above information to be commercially confidental

- Yes
- No

21

11 Annex III. Workshop Briefing Note

4th ELD STAKEHOLDER CONFERENCE, 24th MAY 2016

Workshop on Financial Security

Hosted by the IMPEL Project:

Financial Provision – Protecting the Environment and the Public Purse

Background to the IMPEL Project

The IMPEL Project on Financial Provision is led by the Scottish and Irish Environmental Protection Agencies. It is currently planned for one year (2016). Its purpose is to provide regulators and operators with a better understanding of the availability and suitability of financial tools for environmental liabilities. This workshop will supplement information gathered through an EU-wide questionnaire on financial provision which was issued in April 2016. More information on the project and contact details are available at:

http://www.impel.eu/projects/financial-provision-what-works-when/

Some themes emerging from the questionnaire

State pays following site abandonment

Concerns around company law, liquidation, bankruptcy

There are enough options but people don't see the need

Financial provision is expensive and may only cover limited liabilities

Regulators only accept limited types of financial provisions, e.g. bank bonds or cash account

Need for level playing field - consistency in law, regulatory requirements, guidelines

Background to the workshop

Businesses unable to meet their environmental liabilities, whether through insolvency, insufficient levels of funding or financial provision, pose a risk to the environment and the public purse against which the public needs protection. The objective of this workshop is to add value to the IMPEL project on Financial Provision by drawing out pan-European information, experience and case studies on these increasingly common problems.

Groups will be asked to address the following questions:

1. Which financial provision mechanisms do you consider to be **legally secure** and why?
2. What is best practice in **calculating the amount** of financial provision for potential accidents/incidents and how can this be disseminated effectively**?**
3. How can the conditions for **supply and demand** of financial provision be improved?
4. What do you consider to be the best way of making financial provision for **large numbers of relatively low risk activities** e.g. funds, levies, pooled arrangements?

In the discussions, please say if you would answer differently for foreseen (e.g. landfill closure) and unforeseen (arising from accidents/incidents) liabilities.

END.

Bibliography

12 BIBLIOGRAPHY

International Conventions and Protocols

Protocol of 2003 to the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, 1992

Convention of 12 September 1997 on Supplementary Compensation for Nuclear Damage

Protocol of 2003 to the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, 1992

Convention on Civil Liability for Oil Pollution Damage, 1992

Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage, 1992

Joint Protocol relating to the Application of the Vienna Convention and Paris Convention, 1988

Vienna Convention on Civil Liability for Nuclear Damage 1963, as amended

Convention of 31st January 1963 Supplementary to the Paris Convention of 29 July 1960

Convention on Third Party Liability in the Field of Nuclear Energy 1960, as amended

EU Legislation and Other Documentation

Commission Recommendation on minimum principles for the exploration and production of hydrocarbons (such as shale gas) using high-volume hydraulic fracturing (2014) OJ L39/72 Directive 2013/59/Euratom (2014) OJ L13/1

European Commission, Implementation of Directive 2009/31/EC on the geological storage of carbon dioxide, Guidance Document 4, Article 19 Financial Security and Article 20 Financial Mechanism (2011)

European Commission MonTec Report on Guidelines on Financial Guarantees and Inspections for Mining Waste Facilities (2008)

Directive 2010/75/EU on industrial emissions (integrated pollution prevention and control) (Recast) (2010) L334/17

Directive 2009/31/EC on the geological storage of carbon dioxide (2009) OJ L140/114

Directive 2008/98/EC on waste (2008) OJ L312/3

Regulation (EC) No 1013/2006 on shipments of waste (2006) OJ L190/1, art 6(1) (see consolidated version; 2006R1013 — EN — 01.01.2016 — 011.001 — 1)

Directive 2006/21/EC on the management of waste from extractive industries (2006) OJ L102/15

Commission Decision on technical guidelines for the establishment of the financial guarantee in accordance with Directive 2006/21/EC concerning the management of waste from extractive industries (2009) OJ L101/25

Directive 2004/35/CE on environmental liability with regard to the prevention and remedying of environmental damage, as amended (2004) OJ L143/56

Directive 2003/105/EC amending Council Directive 96/82/EC on the control of major-accident hazards involving dangerous substances (2003) OJ L345/97

Council Directive 2003/122/Euratom on the control of high-activity sealed radioactive sources and orphan sources (2002) OJ L346/57

Council Directive 1999/31/EC on the landfill of waste (1999) OJ L182/1

State Legislation and Guidance

Australia

- Environmental Protection (Chain of Responsibility) Amendment Act 2016 (Queensland)

Finland

- Environmental Damage Insurance Act (81/1998). http://www.finlex.fi/fi/laki/kaannokset/1998/en19980081.pdf
- Environmental Permit Procedures Act. https://www.avi.fi/en/web/avi-en/#.V3zEPv5f1aQ

Hungary

- Act LIII of 1995 on the general rules of environmental protection
- Act of 2012 on Waste

Portugal

- Law Decree 147/2008 of 29 July

Spain

- Environmental Liability Act, Law 26/2007 of 23 October, as amended

Sweden

- Act on Compensation for Environmental Damage. http://www.finlex.fi/fi/laki/kaannokset/1994/en19940737.pdf
- Environment Code. http://www.regeringen.se/contentassets/ecc43e5964704389a67658b96fd0ecea/gmo-skador-i-naturen-och-miljobalkens-forsakringar-sou-200721 (in Swedish)

United Kingdom

- DECC, Decommissioning of offshore renewable energy installations under the Energy Act 2004; Guidance notes for industry (January 2011, revised)
- Environmental Permitting Regulations 2010, as amended
- Energy Act 2004
- Petroleum Act 1998, as amended

State Guidance on Financial Provision

Canada

- National Energy Board, Guidelines Respecting Financial Requirements (February 2016). https://www.neb-one.gc.ca/bts/ctrg/gnthr/cndlgsprtnct/2016fnnclrqrmntgd/index-eng.html

Finland

- Valvontaohje (Guide for supervising, only in Finnish). http://www.ym.fi/fi-fi/ymparisto/lainsaadanto_ja_ohjeet/ymparistonsuojelun_valmisteilla_oleva_lainsaadanto/Ymparistonsuojelulain_uudistaminen/Ymparistonsuojelulain_uudistuksen_toimeenpano
- Ministry of the Environment, Remediation of Significant Environmental Damage Manual on Procedures (2012), 15. http://ec.europa.eu/environment/legal/liability/pdf/eld_guidance/finland.pdf
- Ministry of the Environment, Department of Natural Environment (August 2012) Author(s) Title of publication Jätevakuusopas − Opas jätehuollon toimijoilta vaadittavista vakuuksista (Guide on a Financial Guarantee in Waste Management − Guidance for waste management operators on the required financial guarantee) . http://hdl.handle.net/10138/41529
- Environmental Protection Act (527/2014). http://www.finlex.fi/fi/laki/smur/2014/20140527
- Act on Processing safety of the Dangerous Chemicals and Explosives (390/2005). http://www.finlex.fi/fi/laki/smur/2005/20050390
- The waste Act 646/2011 http://finlex.fi/fi/laki/kaannokset/2011/en20110646
- Environmental Damage Insurance Act (81/1998). http://finlex.fi/fi/laki/kaannokset/1998/en19980081
- Act on compensation for Environmental Damage (737/1994). http://finlex.fi/fi/laki/kaannokset/1994/en19940737

Ireland

- Transfrontier Shipment of Waste guidelines. http://www.dublincity.ie/sites/default/files/content//WaterWasteEnvironment/Waste/National_TFS_Office/Documents/TFSGuideforExportingImportingWaste.pdf
- Guidance and templates. http://www.epa.ie/enforcement/financialprovisionforenvironmentalliabilities/

Norway

Not currently available on the web.

Portugal

- Portuguese Environment Agency (*Agência Portuguesa do Ambiente*), Guide for Evaluating Environmental Damage and Imminent threats of Environmental Damage (*Guia para a Avaliação de Ameaça Iminente e Dano Ambiental*)

Slovakia

- Risk Assessment System for Evaluation of the Environmental Damage - guideline for operators and state administration bodies

Spain

- Published by the Spanish Ministrý of Environment: Spanish MORA http://eportal.magrama.gob.es/mora/login.action
- The UNE-EN 150008 standard for environmental risk assessment, AENOR. http://www.aenor.es/aenor/normas/normas/fichanorma.asp?tipo=N&codigo=N0040747
- Detailed Guidance on Calculation of the amount of Financial Provision – REAL DECRETO 2090 /2008, de 22 de diciembre (amended by Real Decreto 183/2015, de 13 de marzo
- Ley 26/2007, de 23 de octubre de responsabilidad medioambiental. http://www.magrama.gob.es/es/calidad-y-evaluacion-ambiental/temas/responsabilidad-mediambiental/base-legal/

Sweden

- http://www.government.se/legal-documents/2000/08/ds-200061/
- Technical guidelines 2009/335/EC Guidance on the permitting of mining activities (under revision) p. 46-47. Swedish Geological Survey 2013 (Swedish, under revision) http://resource.sgu.se/produkter/regeringsrapporter/vagledning-for-provning-av-gruvverksamhet-2013.pdf
- Guidance on quarries permits, Swedish EPA . http://www.naturvardsverket.se/Stod-i-miljoarbetet/Vagledningar/Takter/Takttillstand
- Guidance on deconstruction of wind turbines and closure of sites, Swedish EPA. http://www.naturvardsverket.se/Stod-i-miljoarbetet/Vagledningar/Vindkraft/Nedmontering-av-vindkraftverk-och-ansvar-for-aterstallande
- Guidance on financial security for transfrontier shipments of waste, Swedish EPA. http://www.naturvardsverket.se/Stod-i-miljoarbetet/Vagledningar/Avfall/Gransoverskridande-avfallstransporter/En-ekonomisk-sakerhet-ska-garantera-att-avfallet-omhandertas-korrekt
- https://www.naturvardsverket.se/upload/miljoarbete-i-samhallet/miljoarbete-i-sverige/regeringsuppdrag/2016/finansieringsformer-efterbehandling/ru-finansieringsformer-efterbehandling-fororenad-mark-20160128.pdf (in Swedish)

United Kingdom

- Environment Agency, Guidance on Financial Provision for Landfill (EPR 5.02.2, Doc No 22_06) (England). https://www.gov.uk/government/publications/financial-provision-for-landfill
- Guidance on financial provision for Radioactive Substances Regulation (England). https://www.gov.uk/government/publications/radioactive-substance-regulations-rsr-guidance
- Department of Energy and Climate Change, Guidance Note to UK Offshore Oil and Gas Operators on the Demonstration of Financial Responsibility before Consent may be Granted for Exploration & Appraisal Wells on the UKCS. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/68885/7265--financial-responsibility-guidelines.doc
- Scottish Environment Protection Agency, Technical Guidance Note, Estimate of Amount of Financial Provision for Landfill Sites s Guidance. http://www.sepa.org.uk/media/28996/technical-guidance-note-estimate-of-amount-of-financial-provision-for-landfill.pdf (Scotland)
- http://www.sepa.org.uk/regulations/waste/landfill/ (Scotland)

United States of America

- US Department of the Interior, Bureau of Ocean Energy Management, Notice to lessees and operators of federal oil and gas, and sulphur leases, holders of pipeline rights-of-way and right-of-use and easement grants, and geological and geophysical test well permits in the outer continental shelf, General financial assurance (NTL No. 2015-N04) (effective date 17 August 2015). http://www.boem.gov/NTL-No-2015-N04/
- Office of Site Remediation Enforcement, Office of Enforcement and Compliance Assurance, US Environmental Protection Agency, Guidance on Financial Assurance in Superfund Settlement Agreements and Unilateral Administrative Orders (6 April 2015). https://www.epa.gov/sites/production/files/2015-04/documents/fa-guide-2015.pdf

Cases

United Kingdom

- *Environment Agency v Hillridge Limited* [2004] Env LR 32 [2004] JPL 1258
- *Westminster City Council v Haymarket Publishing Ltd* [1981] 1 WLR 677 (CA)

Books, Articles and Studies

Daniele Bassi, Daniele, "Red Legacy", TOL Education (2016). http://toleducation.org/achievements/red-legacy/

Bergkamp, Lucas, Liability and Environment: Private and Public Law Aspects of Civil Liability for Environmental Harm in an International Context (Kluwer Law International 2001)

Bio Intelligence Service, Stevens & Bolton LLP, Naider and TME, Study to explore the feasibility of creating a fund to cover environmental liability and losses occurring from industrial accidents (17 April 2013). http://ec.europa.eu/environment/archives/liability/eld/eldfund/pdf/Final%20report%20ELD%20Fund%20BIO%20for%20web2.pdf

Csurgó, Ottó (2011) "Red sludge exposure – insurance and tort law consequences of the ecological catastrophe in Hungary" in Insurance and Reinsurance Law: Present Questions & Future Challenges, p. 41, III AIDA Europe Conference, Amsterdam (26/27 May 2011). www.aida.org.uk/pdf/Delegate%20Pack%20-%20Amsterdam.pdf

EP Delegation Visits Red-Sludge Disaster Site in W Hungary, Daily News Hungary (2 October 2015). http://dailynewshungary.com/ep-delegation-visits-red-sludge-disaster-site-in-w-hungary/

Insurance Europe, Briefing Note, Survey of environmental liability insurance developments. http://www.insuranceeurope.eu/sites/default/files/attachments/Survey%20of%20environmental%20liability%20insurance%20developments.pdf

Justice and Environment (2011) The "Kolontár Red Mud Case": Environmental Liability, 2011 Case Study. http://www.justiceandenvironment.org/_files/file/2011%20ELD%20Kolontar.pdf

"Lessons learnt from accidents", Conference in Aix en Provence 2011. http://orszagoszoldhatosag.gov.hu/wp-content/uploads/2015/05/IMPEL_GA_2011.05.23-25..pdf

Mackie, Colin, 'The Regulatory Potential of Financial Security to Reduce Environmental Risk' (2014) 26 JEL 2 189

Massive alumina red sludge release after the failure of a containment dam, 4 October 2010, Kolontar, Hungary. http://www.aria.developpement-durable.gouv.fr/accident/39047_en/?lang=en

Ország-Land, Thomas, The Red Danube: Hungary Counts the Costs of an Ecological Disaster, New English Review (February 2011). http://www.newenglishreview.org/custpage.cfm/frm/80902/sec_id/80902

Stafford, Ned, One year on from Hungary's red mud disaster (5 October 2011). http://www.rsc.org/chemistryworld/News/2011/October/05101102.asp

van Praagh, M. & K.M. Persson, National Translation of the EU Landfill Directives – Will landfills Become Sustainable?, International Journal for Sustainable Development and Planning vol 1(1) (2006) 46

Other Documents

Parliamentary questions, Joint answer given by Mr Potočnik on behalf of the Commission (14 December 2010). http://www.europarl.europa.eu/sides/getAllAnswers.do?reference=E-2010-9063&language=SL

Toissijaisten ympäristövastuujärjestelmien kehittäminen –report" (2014) (in Finnish only). https://helda.helsinki.fi/bitstream/handle/10138/136120/YMra_23_2014.pdf?sequence=1

International Oil Pollution Compensation Funds Brochure 2012

Report from Hungary to the European Commission under the ELD. http://ec.europa.eu/environment/legal/liability/

http://www.naturvardsverket.se/Om-Naturvardsverket/Publikationer/ISBN/6700/978-91-620-6704-5/ (Sweden)

Swedish Environmental Protection Agency, Commission on Financial Solutions for Contaminated Soils (January 2016)

Summary: Mining waste – financial risks for the State, Swedish National Audit Office (December 2015)

Glossary

13 GLOSSARY OF TERMS

The IMPEL project uses the following terms as defined:

'Financial provision' is the establishment of a secure source of funding for responsibilities or liabilities under environmental law or an environmental permit, licence or other authorisation. The terms **'financial security'** and **'financial guarantee'** are also used.

'Foreseen liabilities' are liabilities that are likely to arise. They include development closure, restoration, remediation, decommissioning and aftercare of installations, activities or sites, or the costs of repatriation.

'Unforeseen liabilities' are potential environmental liabilities arising from incidents/accidents.

'Secured fund' is money deposited by an operator with a third party (e.g. in a bank account) and legally secured so that it can only be used for the intended purposes. This includes 'escrow accounts' and 'trust funds'.

'Mutual fund or pool' is a group financial provision arrangement that an operator can join and pay into and which will pay if the operator defaults on its obligations.

'Bond' is a guarantee provided by a financial institution to pay if an operator defaults on its obligations. This includes 'bank guarantees', 'letters of credit', 'surety bonds' and 'performance bonds'.

'Charge on asset' is mortgage/charge over a specific asset in favour of a regulator which can be triggered if an operator defaults on its obligations.

'Parent company guarantee' is a guarantee by the parent of the operator to pay or fulfil the operator's obligations if the operator defaults.

'Self-provision' is financial provision by the operator itself. This includes 'provisioning in accounts' and 'self-insurance'.

'Environmental impairment liability insurance' is insurance specially tailored to environmental liabilities including liabilities under the Environmental Liability Directive.

Acronyms

14 ACRONYMS

BRIG	Better Regulation Interest Group
BSS Directive	Basic Safety Standards Directive
CLP	Classification, Labelling and Packaging Regulation
COD	Certificate of Default
CSR	Corporate Social Responsibility
EIC	Environmental Insurance Centre (Finland)
EIL	Environmental Impairment Liability insurance
ELD	Environmental Liability Directive
EMAS	EU Eco-management and audit system Regulation (EC) No 1221/2009
EPA	Environment Protection Agency
EPA Network	European Environment Protection Agencies Network
EU	European Union
FP	Financial Provision
GMO	Genetically Modified Organism
HASS	High Activity Sealed Radioactive Sources Directive
IED	Industrial Emissions Directive
IMPEL	European Union Network for the Implementation and Enforcement of Environmental Law
IOPC	International Oil Pollution compensation Fund
MS	Member State
NAO	National Audit Office
NGO	Non-Government Organisation
NICOLE	Network for Contaminated Land in Europe
OECD	Organisation for Economic Co-operation and Development
PCG	Parent Company Guarantee

SDR	Special Drawing Rights
SEPA	Scottish Environment Protection Agency
SMEs	Small and Medium sized Enterprises
TFEU	Treaty on the Functioning of the European Union
TFS	Transfrontier Shipment of Waste
USA	United States of America
WFD	Water Framework Directive