Task 2: Exploring Liability and the Polluter Pays Principle
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Executive Summary

This report comprises the output of Task 2 Exploring Liability and the Polluter Pays Principle of Project ME 1104: Research and Support for Developing a UK Strategy for Managing Contaminated Sediments.

Section 2 of the report provides a contextual analysis of the issues surrounding liability for CMS. This includes a brief discussion of the meaning and relevance of the Polluter Pays Principle; consideration of sources of contamination; and general principles relevant to establishing liability. An important conceptual distinction is drawn in this section whereby liabilities relating to historically Contaminated Marine Sediments (‘CMS’) can be grouped within two categories:

- “Operational Management” liability (reflecting the increased costs of managing, moving and disposing of CMS); and

- “Contingent Liabilities” (arising from such operational management).

This distinction forms the basis for much of the analysis in the remainder of the Report.

Section 3 presents an outline of a number of Case Studies, provided by Project members and stakeholders, which provide the factual contexts within which to discuss the application of liability for CMS.

Section 4 provides an outline of the most relevant liability systems for allocating and apportioning costs and liabilities associated with the management and disposal of historic CMS. This includes particular consideration of the applicability of the Environmental Liability Directive (‘ELD’). The main finding is that in the context of historically Contaminated Marine Sediment, the liability regimes generally may be relevant to the Contingent Liabilities which arise in relation to the undertaking of Operational Management activities, but are of limited use in relation to recovering the costs of those Operational Management activities. The potential application of the ELD is almost wholly restricted to Contingent Liabilities.

Section 5 presents an outline of a number of hypothetical scenarios involving novel CMS management methods and application of liability principles to these.
Section 6 considers briefly some ownership issues relating to liability for CMS.

Section 7 discusses the issues surrounding the management of liabilities from CMS. This includes methods of structuring liabilities and other options for legal risk management.

Section 8 draws out the Key Findings from the Task/Report. The application of liability regimes, and the different variables, to particular fact patterns found in the CMS Case Studies suggests that there are no general answers to questions relating to the recovery and transfer of costs and liabilities incurred as a result of operational dredging activities to those who were responsible for historic contamination. Each set of facts will give rise to different considerations. It is possible, however, to identify some general points raised by the application of the polluter pays principle (‘PPP’) in the context of liability for the management, movement and disposal of historic CMS:

A Costs and liabilities cannot be transferred or recovered unless there is some specific legal mechanism which allows them to be transferred or recovered.

B The application of liability regimes and principles to CMS Case Studies suggests that liability on the part of ‘historic polluters’ will not be imposed in most cases of ‘Operational Management’ liabilities

C Whilst liability for remedial works required to address CMS in situ might be more readily established, such cases are generally outside the scope of the project

D Even where the requirements for establishing liability in law can be met, there may be significant legal and practical obstacles to actually securing money or actions from other parties

E The application of the Environmental Liability Directive (‘ELD’) is limited to Contingent Liabilities
F  Consideration of the ‘Hypotheticals’ relating to novel operational management techniques suggests that the nature of Contingent Liabilities which might arise can be complex

G  Ownership of CMS sites, and disposal sites, is important as it can result in liability, but will not usually do so where remedial works are not required

H  The identity of the ‘polluter’ can be considered from different perspectives, including that of the person creating environmental risks, so that there are justifications for applying the PPP to those undertaking CMS Operational Management activities

I  A range of structures and techniques for the management of Contingent Liabilities can be employed in order to allocate and address legal risks
1. Introduction

1.1 Introduction to the Project

1.1.1 Contaminated Sediment and Dredge Material

It is Government policy to promote the use of the sea for the transport of goods around the UK and also to encourage a modal shift from road to water\(^1\). As the global and UK economy continue to grow there is an increasing demand for port capacity and the UK’s success in the global market place depends, in part, upon the ability of ports to adapt and operate efficiently as gateways to international trade\(^2\). There is, therefore, a fundamental need to ensure ports continue to operate and their activities are sustainable and not detrimental to the environment.

Whilst the majority of sediments in many inshore areas around the UK coast are relatively clean or only mildly contaminated, due to dominantly historic pollution within the industrialised estuaries of the UK, the seabed sediments in many of these areas are contaminated with a variety of chemical species. These include heavy metals, organo-metal complexes (e.g. TBT), and various organic congeners e.g. PCBs. The contaminants in sediment are often persistent (i.e. they do not readily break down) and this creates a significant sediment quality issue, where there are potential risks to both aquatic life and to human health. Significant issues arise when - for largely economic reasons - these sediments need to be dredged. The disturbance to the contamination which arises during dredging, and during subsequent management of the dredged material, may result in unacceptable contaminant loss, dispersal and pollution within the biosphere. The key issue is to develop a management approach to dredging and disposal of contaminated seabed sediments in port regions in which the economic objectives are achieved but in which there is minimal risk to the environment.

There is currently little in the way of a management framework for dredged marine sediment in the UK, and contaminated dredged material is usually either

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\(^1\) The Department for Transport has estimated that about 95% of goods either consumed or produced in the UK are either imported or exported by sea (http://www.dft.gov.uk/pgr/shippingports/).

http://www.dft.gov.uk/pgr/shippingports/ports/portspolicyreview/portspolicyreviewinterimreport
disposed of at sea (in open sea disposal sites subject to chemical and biological screening criteria) or when contaminant levels are too high transported and dumped in a land fill. To date, there has been limited investigation into the treatment, disposal or beneficial use of contaminated dredged sediment in the UK, and other than the OSPAR and London Protocol Guidelines there is no formal sediment management framework that details the procedures for the treatment, disposal or beneficial use of contaminated marine sediment.

1.1.2 Background to Project

In 2006, Defra’s Marine Consents and Environment Branch (MCEB) completed an internal review of the current situation regarding contaminated marine sediments. It identified that there is a lack of information on the extent of contaminated marine sediments in UK waters, and clarity was required regarding the current industry options for dredging and disposal and associated factors such as liability and legislation. Currently there is no consistent guidance in place to help industry address the issue and furthermore, the information known is largely unavailable through a common portal.

In May 2006, as part of a Defra initiative, a Contaminated Marine Sediment Steering Group was set up, comprising representatives from CEFAS, Natural England, the Welsh assembly, the Scottish Executive, The Crown Estate, representatives from industry including port authorities (ABP, BPA, PoLA), conservation agencies and green NGO’s (e.g. CCW, JNCC, MCS). The aim of this group was to discuss and formulate a programme of research work to underpin provide a comprehensive guidance document (‘strategy’) for managing contaminated marine sediments in the UK. The specific Terms of Reference (TOR) for this group was;

‘to assist and facilitate the development of the UK strategy for handling and managing contaminated material to be dredged from UK marine waters, and to support and advise on the practical implementation of the strategy’.

Extensive consideration of the principal issues gave rise to a research framework comprising 6 work packages (Tasks) that commenced on 1st April, 2007. Whilst it was initially decided to address all seabed areas which were known to be
contaminated, the Steering Group subsequently focussed the research on contaminated areas where dredging was likely to occur or be necessary in the future.

1.1.3 Scope of Project

This project was conceived within several highly specific terms-of-reference. These are:

- that the sediment is contaminated (although the severity of contamination is not known); and
- that a decision to dredge has already been made;
- that minor revisions to existing legislative statues can be entertained;
- that all UK waters and thus potentially out to 200 miles (and inland as far as tidal limits) are considered.

These terms are important because they dictate at what point within a decision hierarchy the results of this research will be invoked. For example, this project is not intended to underpin or provide a framework for evaluating, permitting and controlling the dredging of CDMS.

1.1.4 Project Objectives

The aims of the project were set out under ‘Background and Overview’ in the original project specification, and these are as follows:

The research will underpin development of a UK strategy for managing contaminated marine sediments that need to be dredged which will:

- Aid in the transparent and objective assessment of all dredged material disposal options through the Best Practicable Environmental Option (BPEO) assessment process, taking into consideration the principles of sustainable development (including the polluter pays principle and the precautionary principle) on a case by case basis.
• Take into account the scale, extent, implications and impacts of DCMS on the marine environment.

• Act as a focus for existing work, draw together best practice and ensure work is not duplicated elsewhere e.g. The London and Oslo Paris (OSPAR) Conventions, Navigation Ports & Waterways (PIANC), Central Dredging Association (CEDA) etc.

• Produce a simultaneous and inclusive consultation process to replace the current methodology of approaching one regulator at a time in order to make disposal solution decisions.

• Identify where regulations are preventing the BPEO from being used and reflect the associated risks to the marine environment these represent. Examples where flexibility in regulations allows the common sense approach to prevail will be highlighted.

• Define the nationwide scale of the problem and disposal solutions at sea as well as beneficial use, identify current sea disposal sites receiving contaminated, but acceptable, material and suggest guidance for their use, identify remedial measures for material deemed acceptable for sea disposal and establish guidelines for preventing further contamination.

1.1.5 Project Tasks

The research was delivered through a series of six commissioned work packages, or Tasks. These were let through a competitive tendering process. The project co-ordination was also let via the same process and was awarded to Partrac Ltd (Glasgow). Table 1 summarises the six tasks.

Table 1: Summary of the six commissioned work packages within the project

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<th>Title</th>
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<td>Characterising the Issue and Delivering a National Database of Contaminated Marine Sediments in UK Waters</td>
<td>ABPMer</td>
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<tr>
<td>Task 2</td>
<td>Exploring Liability and the Polluter Pays Principle</td>
<td>ABPMer/York Law School/IEEP</td>
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<tr>
<td>Task 3</td>
<td>Identifying Existing Relevant Legislative and Regulatory Barriers, and Guidelines and Protocols, with Respect to CDMS</td>
<td>ABPMer</td>
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<tr>
<td>Task 4</td>
<td>Establishing best practice for the prevention of pollution arising from CDMS</td>
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<tr>
<td>Task 5</td>
<td>Establishing Best Practice for Current Disposal and Treatment Options for CDMS</td>
<td>Entec</td>
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<tr>
<td>Task 6</td>
<td>Identify relevant marine sediment research and development relevant to the management of CDMS</td>
<td>National Oceanography Centre, Southampton</td>
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1.2  Introduction to Task 2 Report

1.2.1  Background

The legacy of historic pollution and contamination within and around ports and harbours around the UK presents significant challenges in terms of managing the environmental and social risks associated with contaminated marine sediments (CMS). These challenges are becoming ever more urgent as the amount of management, treatment and disposal of CMS is increasing to support the growth in maritime transport and other port-related developments. This growth, coupled with tighter regulatory requirements, means that the options for dealing with CMS are narrowing whilst costs continue to rise.

All historic contamination poses difficult problems of allocating and apportioning the costs of any work undertaken to minimise the risk of harm. In many cases the activities which produced contaminants ceased many years ago and the ‘original polluter’ may have ceased to ‘exist’ or may not be able to pay for the works. Land based contamination has complex regulatory systems to allocate and apportion the costs and liabilities associated with dealing with any work necessary to minimise the risk of harm. The marine environment is very different and presents unique problems which may not be addressed either directly or indirectly in the usual land-based statutory frameworks.

As the challenges and costs facing those dealing with CMS increase, so there is a greater focus on allocating and apportioning those costs to the people who have caused the conditions for the CMS to be created in the first place - in other words what might be termed ‘the original polluters’. The general approach that the ‘polluter should pay’ as enshrined in the polluter pays principle might seem to suggest that there are clear mechanisms for transferring such costs. Given the historic nature of much polluting activity, establishing such liability may often not be possible and so other means of funding those costs have to be identified.

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3 The Term ‘Contaminated Marine Sediments’ (or ‘CMS’) is used in this report to include both Contaminated Sediments in situ (which other reports may refer to as ‘CMS’) and dredged contaminated sediments (which other reports may refer to as ‘Contaminated Dredged Marine Sediments’ or ‘CDMS’). The nature of relevant liability regimes and the ways in which they operate have resulted in the conceptual distinction being made between ‘Operational’ and ‘Contingent’ liabilities, instead. It is hoped that the text of the report will make clear when consideration is of contaminated sediments in situ and when the potential liabilities of dredged material is under consideration.
Awareness of the costs of dealing with contaminated sediments and the liabilities which may accrue presents a need for guidance on managing such liabilities.

ABPmer in association with York Law School, University of York was commissioned by the Department for Environment Food and Rural Affairs to provide assistance with an examination of the allocation and apportionment of the costs of managing, treating and disposing of historic CMS via the application of the polluter pays principle.

This report has been compiled in consultation with, and the assistance of, various key stakeholders including the Marine and Fisheries Agency who have assisted with the identification and preparation of suitable Historic CMS Case Studies which provide a context for common areas of uncertainty in terms of liability for managing, treating and disposing of CMS.

1.2.2 Objectives and scope

This report comprises one element of the project Research and Support for Developing a UK Strategy for Managing Contaminated Sediments (ME 1104). The overall objective of the project was to develop a framework with guidelines for the management of contaminated marine sediments in UK waters.

This report sets out the findings of the work undertaken in relation to Task 2 of that project: Exploring Liability and the Polluter Pays Principle. It examines the issue of who pays for dealing with any legal liabilities arising from historic contamination where those liabilities are directly caused by the lawful management, treatment or disposal of CMS.

The purpose of this report is to explore the compatibility of historical legacy issues with the ‘polluter pays principle’. Three specific issues were identified in relation to this overall purpose:

- Use appropriate case studies to provide a paper identifying generic issues
- Establish the principle of ‘collective responsibility’ and set out principles for resolving liability/indemnity issues
- Assess the implications of the Environmental Liability Directive.

This report should be read in conjunction with the reports in relation to the other tasks on the project. In particular there are significant overlaps between the issues covered in this report and the report of Task 3 - *Identifying existing relevant legislative and regulatory barriers with respect to CMS*. That task has identified the existing relevant legislation both nationally and internationally that governs the management, movement and disposal of CMS. There are clear links between existing legislative regimes and the liabilities associated with historic contamination.

These overlaps between different tasks have also had an impact upon the scope of the issues considered within this report. Whilst there is a clear overlap between existing legislative and regulatory frameworks controlling the management, movement and disposal of CMS and costs and liabilities incurred as a result of doing so, the distinctive factors between Task 2 and 3 are the links between liabilities/costs and historic contamination and the transferability and recoverability of those costs/liabilities from those who were responsible for that contamination.

Thus the scope of this report was restricted to the extent to which any costs and liabilities associated with managing, moving and disposing of *historic CMS* can be passed on to the original parties responsible for the historic contamination. The quantum of any costs/liabilities, the range of available disposal options or any other constraint imposed by extant or incoming regulatory requirements is determined by the factors considered by Task 3. The difficulties in establishing liability on the part of ‘original polluters’ and broader interests of stakeholders have, however, resulted in a wider approach being taken, so that the report considers some general liability issues relevant to those managing CMS.

In this report we have taken *historic* contamination to mean those substances which are present in CMS as a result of activities on, or uses of, land and the marine environment which are no longer current. This can be contrasted with *extant* contamination which is the result of concurrent activities or uses.
Furthermore this report considers liability principles under existing legislation and does not consider or propose any legislative reforms. It attempts to identify the relevant issues which need to be explored when considering the nature of the recovery and/or transfer of any costs and/or liabilities associated with managing, moving or disposing of historic CMS. In this way the ‘polluter pays principle’ provides a backdrop for the transfer or recovery of possible costs/liabilities incurred by those undertaking operational activities to those who may be termed the ‘original polluters’.

Finally, in addition to focusing on historic contamination, this report only considers the liabilities arising as a result of managing, moving and disposing of CMS. Accordingly there is limited consideration of requirements for restorative or remedial operations arising from the presence of contaminants within CMS. In other words, there is an assumption that the existence of CMS in situ does not, unless otherwise indicated, give rise to any liabilities. It is the act of operational dredging and its consequences that is the main focus of the analysis here.

The geographical scope of this report is largely focused on English territorial waters out to the 12 nautical mile (nm) limit. Whilst there are general similarities in the liability regimes which apply to the management, movement and disposal of CMS in English, Welsh, Scottish and Northern Irish territorial waters, the legal systems are not uniform and a detailed consideration of the distinctive features in each jurisdiction lies outside the scope of the report. Some examples of these differences, which result in part from devolved legislative and administrative powers, are:

- Acts of Parliament common to more than one jurisdiction may have differences in the applicable provisions;
- In some areas, different legislative measures apply;

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4 There is an outline of the possible implications of the Marine Licensing system under the Marine Bill.
5 Of course, CMS may require remedial works as a result of harm caused whilst in situ, but this is beyond the scope of this Task/Report in general.
6 For example, the definition of ‘harm’ in Part 2A of the Environmental Protection Act 1990 differs between Scotland and England & Wales (see Section 4.6.3, below).
7 For example, only a limited number of sections of the Environmental Protection Act 1990 apply to Northern Ireland and the main legal provisions for the introduction of a contaminated land regime in Northern Ireland are in Part 3 of the Waste and Contaminated Land (Northern Ireland) Order 1997 (which is not yet in force, so that there is presently no equivalent to Part 2A).
Regulations transposing and implementing European Directives may differ in the various jurisdictions;\(^8\) and

Common law provisions, which include important private law liability regimes, sometimes differ across the jurisdictions.\(^9\)

In terms of scoping the content of this report, one of the main challenges was the identification of key definitions and concepts which define the parameters of the Task. Many of the significant terms have contested meanings. For example, the nature of ‘contamination’, ‘pollution’, the ‘original polluter’ and ‘responsibility’ all have a range of meanings both generally and specifically within the marine context.

Accordingly, the allocation and apportionment of legal liability for the management, movement and disposal of CMS involves a series of temporal, spatial and evidential questions in addition to establishing the applicable legal and regulatory frameworks.

In other words answering questions as to the appropriate legal obligations arising from managing, moving and disposing of CMS is dependent upon knowing (amongst other things):

- What activities were/are involved in causing the contamination
- The identity of parties who might be ‘responsible’ for the activities/events which caused the contamination
- When those activities/events occurred
- Whether those activities/events took place in compliance with or in breach of regulatory requirements
- Where those activities/events took place and the proximity to the place where the contamination can be found

\(^8\) For example, the regulations transposing the Environmental Liability Directive are different for England, Wales, Scotland and Northern Ireland (see Section 4.5, below).

\(^9\) For example, the common law torts of ‘Nuisance’ and ‘Negligence’ (see Sections 4.2.1 and 4.2.3, below) apply to England & Wales. In Scotland, common law Nuisance and Negligence are aspects of the law of ‘Delict’, and there are some differences in the substance of the law and the remedies available. Nuisance and Negligence also apply to Northern Ireland, though there are some differences from the position in England & Wales. Where there are differences between the operation of the common law (and equivalents) across the jurisdictions, these tend to be more restrictive than the position in England & Wales, so that establishing liability for historic contamination of sediments will generally be at least as difficult.
The extent to which these previous issues can be determined to any degree of certainty as required to establish legal liability

It is in the context of these very general and open-ended questions that the Historic CMS Case Studies acted as a clear point of definition which restricted the scope and nature of the investigation to those situations which gave answers to those questions, notwithstanding the fact that some of the answers lacked sufficient clarity to produce clear findings.

This last point reflects one of the more challenging aspects of setting the scope and meeting the objectives set in the report. The allocation and apportionment of costs and liability for historic contamination is entirely contingent on context. That context is often dependent upon scientific proof and other factors which are difficult to determine without significant (and costly) investigations. Thus the scope of the report is largely restricted by the extent to which that information was available.

1.2.3 Structure of Report

This Report has been divided into seven further sections as follows:

- Section 2 provides a contextual analysis of the issues surrounding liability for CMS. This includes a brief discussion of the meaning and relevance of the polluter pays principle; consideration of sources of contamination; and general principles relevant to establishing liability

- Section 3 presents an outline of a number of case studies which provide the factual contexts within which to discuss the application of liability for CMS

- Section 4 provides an outline of the most relevant liability systems for allocating and apportioning costs and liabilities associated with the management and disposal of historic CMS, including specific consideration of the applicability of the Environmental Liability Directive, and applies those regimes to the CMS Case Studies
• Section 5 presents an outline of a number of hypothetical scenarios involving novel CMS management methods and application of liability principles to these

• Section 6 considers briefly some ownership issues relating to liability for CMS

• Section 7 discusses the issues surrounding the management of liabilities from CMS. This includes methods of structuring liabilities and other options for legal risk management

• Section 8 draws out the Key Findings from the Task/Report.
2. The Background Context

2.1 The Polluter Pays Principle

International obligations require that polluters should, in principle, bear the costs of pollution. Accordingly, there is a desire to identify and examine legal regimes whereby ‘polluters’ may be made liable for the costs of managing, treating and disposing of CMS.

Identifying sources of pollution and the parties responsible for that pollution can be very complicated when the acts giving rise to the pollution are historic and disparate. Because of this complexity and the uncertainties inherent in all litigation, there is often a cost/benefit equation which means that unless the effects of the pollution are relatively severe and/or the consequent costs/liabilities high, the consequences of the pollution are entirely externalised because it is simply not cost effective to try to allocate and apportion those liabilities.

Liabilities relating to CDMS have become an increasing concern over recent years, as the financial consequences resulting from their management, movement and disposal have increased. This has reflected increasing awareness of the environmental risks which are presented. In cases of ‘uncontaminated’ marine sediment, the dredged material has been put to a variety of other beneficial uses, largely involving land-based construction projects, habitat creation, coastal protection, beach nourishment and land drainage works.

The presence of contamination within sediments provides some difficult management, and disposal challenges mainly because the available options may be severely reduced or associated costs increased. In most cases the main alternative to at-sea disposal or other beneficial use is final disposal in landfill. Restrictions on the classes of waste going to landfill means that this is no longer a viable option for some types of CDMS.

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10 See 2.1.1 below
11 For a discussion of management and disposal techniques for CDMS, see the Report from Task 5.
12 For a discussion of these issues, see the Report from Task 3.
Thus, increased knowledge as to the risks presented by disposal of contaminated material in the marine environment has resulted in the imposition of higher standards for disposal through developments in international and domestic law and policy. Those standards have limited the range of management and disposal options for some contaminated sediments and increased the associated costs significantly.

As costs have increased and are likely to go on increasing significantly in the future, more focus has fallen upon the question of who should be responsible for paying for these costs as well as who should bear the risks consequent to and associated with the dredging of CMS.

When the costs of dealing with historic pollution are raised, there is inevitably discussion of the polluter pays principle as a justification for transferring those costs and any associated liabilities to those ‘responsible’ for making the situation arise in the first place.

The title of this report makes reference to one of the *leitmotifs* of national and international environmental law and policy namely the ‘polluter pays principle’ (PPP). The underlying assumption is that the principle has an accepted meaning. In the context of historic contamination the PPP would suggest a simplistic link between those who have ‘caused’ the contamination in the first place and the costs of having to ‘clean up’ the contamination. Unfortunately this interpretation is not as clear as it might first seem and there is little consensus as to what the PPP means in a practical context.

The concept of the ‘Polluter Pays Principle’ is used by different people in different ways in different contexts. The origins of the principle can be traced back to the OECD in the early 1970s. 13 In its earliest form, the principle was used as shorthand for approaches which made the producer of goods or other items responsible for the costs of preventing or dealing with any pollution caused by the production process.

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More recently the principle has been defined in broader terms to encompass a general economic approach to allocating the so-called externalities of pollution to those who cause the pollution. In this sense, the internalisation of the costs of pollution occurs when the polluter pays for all costs associated with the pollution. In the absence of such an allocation, costs are shifted to others including the community and those who suffer the consequences of dealing with the effects of the pollution.

More specifically, in the context of the management, movement and disposal of CMS, the increased costs and liabilities associated with operational activities are externalised to those responsible for those activities in the absence of other internalising recovery or transfer mechanisms.

Although expressed as a single principle, it does not have any single coherent application although it is often used as a justification for imposing new environmental liability schemes. There are a number of different functions which the principle can serve:

- remediation of damage (restorative)
- compensation for damage (redistributive)
- prevention of pollution/damage, with market correction through the internalisation of the ‘external’ consequences of polluting activities (preventative)
- as a deterrent (punitive)

As well as the imposition of liability, the Principle can be implemented through other mechanisms such as taxation or regulation (to prohibit activities, prevent or reduce impacts, etc).

2.1.1 The Polluter Pays Principle in CMS Relevant Legislation

The Polluter Pays Principle is enshrined within various pieces of legislation relevant to the management of CMS. These include:

- The OSPAR Convention
  Article 2.2(b) requiring the Contracting Parties to “apply the polluter pays
principle, by virtue of which the costs of pollution prevention, control and reduction measures are to be borne by the polluter.”

• The London Dumping Convention
Article 3.2 of 1996 Protocol providing that: “Taking into account the approach that the polluter should, in principle, bear the cost of pollution, each Contracting Party shall endeavour to promote practices whereby those it has authorized to engage in dumping or incineration at sea bear the cost of meeting the pollution prevention and control requirements for the authorized activities, having due regard to the public interest.”

• The Waste Framework Directive
Article 15 of Directive 2006/12/EC requiring that “In accordance with the "polluter pays" principle, the cost of disposing of waste must be borne by: (a) the holder who has waste handled by a waste collector or by an undertaking as referred to in Article 9; and/or (b) the previous holders or the producer of the product from which the waste came.”

• The Environmental Liability Directive
Recital (2) of Directive providing that: “The prevention and remedying of environmental damage should be implemented through the furtherance of the "polluter pays" principle, as indicated in the Treaty and in line with the principle of sustainable development. The fundamental principle of this Directive should therefore be that an operator whose activity has caused the environmental damage or the imminent threat of such damage is to be held financially liable, in order to induce operators to adopt measures and develop practices to minimise the risks of environmental damage so that their exposure to financial liabilities is reduced.”

2.2 Regulatory Controls on Dredging and Disposal

The costs and liabilities associated with the management, movement and disposal of CMS are largely linked to dredging activities in ports and harbours and around the coast of the UK. Almost all ports in the UK are required to undertake dredging (and subsequent disposal) of sediments for a variety of reasons, which can be categorised as ‘maintenance’, ‘capital’ works.

Operational dredging is subject to a variety of statutory regimes. Consent for dredging activities is controlled under a mosaic of statutory schemes including local powers or more generally under the Coast Protection Act 1949.

Licences are also required to dispose of dredged (waste) sediment at sea or for other beneficial use under the Food and Environment Protection Act 1985. Under section 5 of the 1985 Act, a licence from the Department for Environment, Food and Rural Affairs is required for the deposit of substances or articles in the sea or under the sea-bed from a vessel, vehicle, aircraft, hovercraft or marine structure, from a floating container, or from a structure on land intended for depositing solids in the sea. This applies to all vessels in United Kingdom territorial waters or within the limits the continental shelf. Section 6 requires a licence for the incineration of substances on vessels or marine structures within the same limits. The loading of vessels in the United Kingdom for dumping or incineration

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15 This section is in outline only. More detailed coverage of the regulatory control over dredging activities can be found in the Report compiled under Task 3.
16 Maintenance dredging removes sediments from existing channels and berths to maintain safe navigation. It involves removal of sediments arising from an area for which there is evidence that dredging has been undertaken to that level (or lower) during that period.
17 Capital dredging deepens existing or creates new channels and berths to provide additional infrastructure to enable construction projects or access for larger vessels. It involves removal of sediments from the seabed, generally for fresh navigation or construction purposes in an area not previously dredged for the previous 10 years.
18 Aggregates dredging covers the removal of sediments for the purpose of the supply of sands and gravel for construction and other related projects.
19 E.g. under Harbour Authorities local powers in relation to maintenance works carried out within harbour limits or where special Acts of Parliament apply e.g. Port of London Act 1968, s.73
20 Coastal Protection Act 1949, ss.18, 34.
21 The Food and Environment Protection Act 1985, Part II, originally replaced the Dumping at Sea Act 1974 and has been amended subsequently by the Environmental Protection Act 1990, s 146. The Act originally implemented international commitments under the Oslo Convention and the London Convention. These have now been replaced or superseded by the OSPAR Convention and the 1996 Protocol to the London Convention.
22 see s.8. Applications for sea disposal licences for dredged material must also consider whether there are any alternative methods of dealing with the waste material including other beneficial uses (s.8(2)).
anywhere is also licensed under these sections, and UK vessels anywhere in the world require a FEPA licence for disposal at sea.

A number of operations are exempted from the need for a licence by the Deposits in the Sea (Exemptions) Order 1985. These mainly involve deposits that are incidental to lawful operations or are subject to another regulatory system.

FEPA licensing of deposits at sea is currently the subject of proposals to introduce a new, broader regulatory system of marine licences introduced by Part 4 of the Marine and Coastal Access Bill.

In addition to the direct licensing of dredging and the deposit of waste materials under FEPA there are further indirect consequences of licensing which play a role in controlling the management and treatment of CMS. Some of the main provisions are set out in Table 2.

<table>
<thead>
<tr>
<th>Table 2: Environmental Legislation relevant to the management of CDMS</th>
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<td>Water Framework Directive</td>
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<td>Environmental Liability Directive</td>
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<td>Habitats and Wild Birds Directives</td>
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<tr>
<td>Countryside and Rights of Way Act 2000</td>
</tr>
</tbody>
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23 S.I. 1985/1699 (as amended).
24 eg navigation, fishing, dredging for aggregates, see Sch. 1 paras 9, 12 and 17 respectively.
25 eg pollution by oil or garbage, see Sch. 1 paras 1 and 2.
26 For a more detailed schedule, see the report from Task 3.
27 Directive 2000/60/EC. The Directive and implementing regulations (the Water Environment (Water Framework Directive) (England and Wales) Regulations 2003 (S.I. 2003/3242)) provide for designations of all surface waters as water bodies and the achievement of ‘good ecological status’ by 2015, monitored and implemented through the River Basin Management Plans which are directly relevant to applications for dredging consents and disposal licences covering activities within WFD waters.
29 The Conservation (Natural Habitats, &c.) Regulations 1994 S.I. 1994/2716 transpose the requirements of the Habitats Directive (92/43/EC) and the Wild Birds Directive (79/409/EC). They apply to capital dredging and maintenance dredging. In the latter case there is a Protocol which provides a ‘Baseline Document’ which draws on existing information describing current and historic patterns of dredging and is used as a foundation for obtaining the necessary consents under the Regulations. See Maintenance Dredging & the Habitats Regulations 1994 (DEFRA, 2007).
30 Requires consultation with nature conservation body where dredging activities are carried out where there may be damage to a SSSI.
<table>
<thead>
<tr>
<th>Environmental Assessment &amp; Strategic Environmental Assessment Directives ³¹</th>
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<tr>
<td>Waste Framework Directive ³²</td>
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<td>Marine Strategy Framework Directive ³³</td>
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<td>Bathing Waters and Shellfish Waters Directives ³⁴</td>
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<td>Dangerous Substances ³⁵ and Daughter Directives</td>
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<td>Landfill Directive ³⁶</td>
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</table>

³¹ Directives 85/337/EEC and 2001/42/EC.
³³ Directive 2008/56/EC.
³⁴ Directive 76/160/EEC (repealed and replaced by Directive 2006/7/EC), and Directive 2006/113/EC.
³⁵ Directive 76/464/EEC.
³⁶ Directive 99/31/EC.
2.3 Sources of Contamination

Detailed consideration of the challenges posed by the presence of CDMS is provided in the reports produced by Tasks 3 & 5. Information regarding the nature and presence of contaminants in CDMS is included in the work undertaken by Task 1. The way in which these may increase management, movement or disposal costs through regulatory control are explored in the report produced by Task 3.

Identifying the source of contamination goes to the heart of identifying who might be responsible for ‘causing’ the presence of the contamination and therefore who might be a candidate for allocating costs and liabilities under the polluter pays principle.

There are a number of relevant factors when considering the link between the sources and types of contamination and the allocation and apportionment of liabilities associated with the management, movement and disposal of CMS.

- Contamination of CMS has taken place over many years
- Activities which have produced contaminating substances may have ceased, or be ongoing (in which case they may still be producing the substances)
- Even if activities are no longer being undertaken or producing substances, migration from the site on which they were may still be on-going.
- CMS is made up of many different types of contaminants. There is no ‘typical’ CMS. Moreover, whilst not all ‘contaminating’ substances will influence the way in which CMS is managed or disposed of (with the consequential impact upon risks and costs), there is a wide range of substances which will do so
- Where liability for the costs of managing or disposing of CMS is an issue, there may be a number of substances which influence the
Even where those management decisions are affected by a single contaminant, or a small number of contaminants, there may still be a variety of sources for the contaminant(s).

Whilst many contaminants may be the result of human activity, there may be natural sources of the same substances, or of other substances which also influence decision as to how to handle CMS.

The means by which contaminants have reached sediments (‘pathways’) are also varied and might include direct discharge on-site (from works carried out in a berth, for example), movement of substances from dredging activities in the area, migration from (more distant) off-site locations, including industrial activities up-river, and through geological formations (such as aquifers).

Contaminants may have resulted from ‘one-off’ or relatively short-term activities, or may result from smaller scale discharges over a longer period of time.

All of these factors combine to suggest that identifying the source of contamination - one of the pre-requisites for establishing liability - is complex and uncertain. These complexities are a key focus of the case studies considered in Section 3.
2.4 The nature of costs and liabilities for CMS

The terms ‘costs’ and ‘liabilities’ are used widely in this report. In general terms, a legal ‘liability’ is payable in any situation in which a person is directly financially and legally responsible for something. For a liability to have any legal significance it must be created and be enforceable by law.

In this paper a distinction is drawn between costs which are a foreseeable consequence of the lawful management, movement and disposal of CMS and liabilities which may arise as a consequence of that management, movement or disposal.

Costs may arise as a result of the need to dispose of or treat CMS in new and more expensive methods after legislative changes. Liabilities may arise in relation to the costs of cleaning up or restoring environmental damage (e.g. in relation to biodiversity damage) or for compensating those who have suffered loss as a result of an interference with private rights (e.g. in relation to trespass or nuisance), such as the presence of contaminating substances.

The reason for the distinction is that the mere existence of increased costs (for example arising from the disposal of CMS) does not, in and of itself, create a liability unless there are mechanisms to allocate and apportion that liability under law. To put it another way, in most cases the cost of complying with tighter regulatory requirements falls upon the operator unless there are specific statutory mechanisms which provide for the recovery or transferability of those costs from or to other parties.

The liability issues arising from managing CMS involve two main and distinct ‘stages’ each giving rise to both independent and overlapping questions. The first stage may be described as the ‘original pollution’ stage involving historic or extant/continuing polluters causing the presence of contamination within the sediment. This might be as a result of point source emissions (e.g. from industrial processes) or diffuse pollution (e.g. nutrients from agricultural run-off); stationary (e.g. discharges) or moving (e.g. shipping) sources; lawful (e.g. within regulatory limits or under relevant permits, consents or authorisations, or not requiring regulatory authorisation) or unlawful (in breach of regulatory controls).
In relation to the first ‘original pollution’ stage the key definition is a temporal consideration - i.e. when did the activity which led to the presence of the contamination take place? The central aim of this report is to consider ‘historical legacy issues’ and so consideration is focused upon historic contamination and the recoverability and/or transferability of any associated costs/liability arising from operational activities.

In this context historic contamination includes contamination caused by activities/events which ceased before the ‘trigger’ date for the liability/cost being incurred where such events/activities are not covered under current regulatory regimes. These events/activities may have been lawful or in breach of some historic regulatory requirement.

This is in contrast to extant or ongoing contamination which is caused by activities/events which are contemporaneous to the trigger date for the cost/liability. Given the development of regulatory controls over recent years, it is likely that such continuing contamination will generally result from events/activities which are unauthorised.37

The second stage may then be described as the ‘operational management’ stage involving activities to manage, move and/or dispose of the CMS as a result of operational and/or statutory requirements. Such activities are generally regulated and licensed under regulatory regimes (mainly FEPA for disposal at sea and Environmental Permitting for managing and disposing of waste CDMS on land).38

Accordingly, our consideration of the transfer and recovery of any cost and liability for environmental damage and/or interference with private rights generally relates to costs/liabilities associated with operational activities carried out within existing regulatory frameworks. The consequences of failing to comply with such requirements are, however, referred to.

As a result, two types of liabilities are considered in this report:

37 Though contamination might result from authorised or uncontrolled activities.
38 See the Report by Task 3 for detailed consideration of these regimes.
• The increased operational costs of managing, moving and disposing of CMS

Namely the recoverability and/or transferability of any costs associated with the management, movement and disposal of historically contaminated dredged material. These costs have risen (or are anticipated to rise) as a result of increasing regulation and other prohibitions placed upon the disposal of CMS. Thus consideration of whether such increased costs can be passed on to those who were responsible for or who had otherwise ‘caused’ the historic contamination is relevant. In this report, this type of liability is referred to as “Operational Management” liability.

• Contingent liabilities which relate to subsequent disposal

Namely the recoverability and transferability of any cost/liability associated with the disposal of historic CMS. This would cover any potential liability for interference with a private right (e.g. ownership) associated with the licensed disposal of CMS. These liabilities are distinguishable from increased operational costs associated with disposal as they are largely contingent and dependent upon the exact nature of the interference. In this report, this type of liability is referred to as “Contingent Liability”.

2.4.1 Operational Management Costs

Operational Management costs typically reflect some form of ‘physical’ damage to property. Determining whether property (e.g. land) has been ‘damaged’ in the legal sense is not always straightforward. Establishing whether this is the case can be very important, however, as certain liability regimes will not allow financial losses to be recovered unless there is some form of physical ‘damage’.

In some cases, increased Operational Management costs may be such that further effects result, and different types of losses are suffered. One example is that the level of increased Operational Management costs may be such that the uses for which dredging is being undertaken are no longer economically feasible. These may be existing uses, where the costs of dredging increase to a level such that the funding for those costs can no longer be provided by the operating revenues (and any other sources) relating to the use as a port, etc. A similar type
of loss may be incurred where the rising costs of Operational Management inhibit or prevent proposed development, rather than existing uses.

2.4.2 Contingent Liabilities

Whilst the costs of undertaking Operational Management activities may involve different types of legal ‘losses’, the liabilities which might arise from the undertaking of those activities are much broader. These include further financial costs, in the sense of undertaking further management actions where initial actions have not been fully effective.

Importantly, they also include liabilities relating to effects on others. These can include the impacts on other (neighbouring) landowners and, importantly, natural resource damage. Thus the risks of damage to other ‘legal persons’ and their property, and also to the unowned environment may have to be included when considering contingent liabilities which may materialise from Operational Management activities.

Examples of the types of liability which might arise include damage in the form of physical deposit of material on other land, with related financial damage, and biodiversity impacts in the form of adverse effects on species or habitats. 39

A related type of liability are the contingent liabilities which may arise post-Operational Management, i.e. the risk of future damage arising after the completion of Operational Management activities. An example of how these may arise is where disposal (at sea) results in the need for further action at some point in the future. This might be as where damage of some kind, or the threat of this, results from the presence of the material. 40

Whilst the main approach of this report has been to assume that Operational Management activities are ‘regulatory compliant’ when undertaken, this may not always be the case, and so the potential liabilities which may arise in relation to such unlawfulness have to be recognised. Similarly, activities may be

39 Where the Environmental Damage (Prevention and Remediation) Regulations 2009 may apply, see below Section 4.5.
40 Again, the Environmental Damage (Prevention and Remediation) Regulations 2009 may be relevant here.
undertaken negligently, or in breach of contract, which may also form the basis for liability.

Those undertaking Operational Management activities will want to avoid, minimise, or otherwise ‘manage’ these Contingent Liabilities before and/or during their undertaking of them, as will those commissioning such activities.

2.4.3 Remedial Liability

Whilst the scope of this report is limited to Operational Management activities,\(^{41}\) so that dredging operations or other actions undertaken to address the effects of CMS in situ are not considered in depth, as we have seen, such ‘Remedial’ liability might be included in the Contingent Liabilities which result from undertaking those activities.

In some cases, the need to dredge CMS for Operational Management purposes may coincide with the presence of contaminants at levels and in circumstances where remedial liability may be enforceable through regulatory requirements. In such cases, it may be that legislative provisions can be used to require certain actions which form part (or even all of) the Operational Management activities. Whilst these coincidences of actions may be very limited, they suggest that consideration should be given to the possible application of liability regimes such as Part III of the Water Resources Act 1991 and Part 2A of the Environmental Protection Act 1990.\(^{42}\)

As identified above, such regulatory regimes will need to be taken into account when considering potential Contingent Liabilities. As with private law liability regimes, the precise scope and requirements which determine the availability of remedies under these regimes vary, with each having specific regulatory agencies, powers and responsibilities.

\(^{41}\) This follows clarification as to the scope of the Task provided by the project sponsors.

\(^{42}\) See Sections 4 & 7 (in particular).
2.5 Establishing Liability

The existence of increased Operational Management Costs and Contingent Liabilities when dealing with CMS do not, of themselves, establish a basic right to allocate and apportion those costs and liabilities to others. In order to establish a set of circumstances where such costs and liabilities can be established various factors must also be established.

The different types of liability regimes which may be relevant to CMS are considered in Section 4. The next section outlines a number of Case Studies which are used to explore the application of those regimes.
3. Historic CMS Case Studies

3.1 Development of Historic CMS Case Studies

The Case Studies set out below were provided by other consultants and stakeholders in the project. Most of them were provided by, or through, the Marine & Fisheries Agency. Following initial analysis of the legal issues arising from this range, a smaller number of Case Studies were identified which represented certain ‘typologies’ in the factual and legal issues presented by them.

Confirmation of our understanding of the factual and legal issues was assisted by a telephone interview conducted with the Head of Marine Development Control at the MFA. This provided the opportunity to explore other issues raised by the Case Studies, as well as those relating to the management of CMS more generally.

The Case Studies set out below provide ‘typical’ factual matrices providing the context for CMS liability issues. Those contexts cover a range of factual circumstances, but are limited in some respects in that they are restricted to cases:

- Within the jurisdiction of England & Wales;
- Concerning commercial facilities; and
- Which are ‘Coastal’.

Other contexts where CMS liability issues could arise, but for which Case Studies were not available include smaller facilities (such as small marinas), offshore facilities, and facilities in other jurisdictions (e.g. Scotland or Northern Ireland). The information received has suggested, however, that these Case Studies are appropriate for analysis of the liability issues covered by this report, in that they include the most significant liability issues and a broad range of the factual circumstances in which they might arise.

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43 The help provided by consultants and stakeholders is acknowledged. We are particularly grateful for the support provided by Carly Brooks of the MFA.
44 Mr Geoff Bowles, whose invaluable assistance is acknowledged, together with that of Dr Chris Vivian of CEFAS.
The Case Studies have been used to develop our understanding of CMS liability issues and the way in which they are presented in real world scenarios. They have also been used for the application of legal principles to explore how they might work in those scenarios. Finally, they have been used to identify and explore potential options for dealing with CMS liability issues.

From the Case Studies provided, five were selected for analysis in this report: Case Studies A to E.45

45 These Case Studies have been made ‘semi-anonymous’ by removing the names of the ports, locations, actors, etc. The factual situations will, however, make them identifiable to readers with prior knowledge.
3.2 Case Study A

Between 1990 and 1992 a wharf had been leased by the Harbour Commission to a company which used subcontractors to carry out shipbreaking of number of Russian submarines and other naval vessels. During these operations transformers in the vessels, which used PCB liquids as coolants, were broken up. Those liquids, together with normal oils, escaped from the vessels into the dock area and subsequently required clean up. Some oil and PCBs became incorporated into the sediment of the dock and adjacent area at significant levels.

PCB contaminated sediment extended outside the dock into the area of the harbour used as a turning circle for vessels that used the harbour and this would have restricted the use of the harbour if it had not been removed. The source of the sediment contamination was very clear: it being possible to ‘fingerprint’ and match the contaminants with a specific source. The timescale over which contamination had taken place was also very short, which made the case quite unusual. As the contamination resulted from a short-scale release, contamination of that type was unlikely to recur.

The company to which the site had been leased was in liquidation, and so establishing liability would be of little benefit, as the potentially liable party could not be pursued to recover costs, etc. Whilst an insurance policy had been required, that did not cover the risks which materialised and so could not used to fund remedial works.

The County Council led a project to clean up the wharf as part of regeneration of the landward side of the wharf. This involved a ‘one-off’ capital dredge, including the contaminated material. The sediment was dredged and put through a sediment washing plant to separate the highly contaminated fines from the rest of the relatively clean material.

The fines were buried in a ‘coffin’ underground within the redeveloped land area while the other material was recycled or disposed through the usual routes. Following the clean up, PCB levels above those suitable for disposal at sea were found in the sediments within the turning circle. Those sediments were disposed of in a ‘pit’ within a part of the harbour that was unused at the time. The (clean)
sediment dredged to make the pit was disposed of to sea. The contaminated sediment was then transferred to the pit (some 200 metres distance) capped with clean sand from the harbour entrance.
3.3 Case Study B

The River X is heavily contaminated with a number of substances. Zinc is thought to be present from the underlying geology and mining history. Zinc levels are also thought to be elevated through the painting of on one (or more) of the bridges over the River X for cathodic protection. TBT is present as a result of ship building. A wide range of contaminants have been introduced by industry along the river banks. Dredging operations include regular maintenance works and ‘one-off’ capital dredging activities.

The sources for specific contaminants are unclear, given the variety of sources and high natural levels. Contamination has taken place over a long period of time. Given the ‘migration’ which often takes place, there can also be very long ‘gaps’ between contaminating activities and the identification of contamination problems.

The wharves at the Port are owned by four local authorities. Businesses rent from these councils, or other businesses which sub-let them. A number of businesses currently based on the River X require ocean-going berths. There are plans for further investment, including the use of significantly contaminated berths for ocean-going vessels.

The disposal of dredged sediments from these berths will be extremely costly as disposal of dredged materials to sea is unlikely to be licensed. Accordingly, they will require alternative disposal routes with a consequent increase in overall development costs. The result of this has been a ‘Capping Trial’, which includes the removal of approximately 60,000m$^3$ of CMS.

The CMS was removed using dredging techniques to ensure that it is retained in an undisturbed, discrete and consolidated form. It is then disposed at a disposal ground in the North Sea using techniques to ensure that material remained in a consolidated form during descent to the sea-bed, with minimal loss of sediment and contaminants to the water column. Following disposal a 1m uncontaminated, silty, sediment cap was intended to be placed over the CMS, to isolate it from the environment, together with 0.5m of sand to protect the deposit from erosion.
In the short term, the businesses involved, along with the regional Government Office, the local authorities, the Environment Agency and the Regional Development Agency are considering encapsulating contaminated material and depositing it within sealed dry docks.46

The limited number of dry docks available means that other options need to be explored. Various bodies are therefore funding a research programme to better understand the source, extent and nature of the contamination within the river and estuary.47

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46 The first phase of this Capping Trial has now been completed, with future monitoring of the site under consideration by stakeholders.
47 Which commenced in October 2009.
3.4 Case Study C

The Harbour has had severe historical contamination problems, centred around a canal area. Contaminants include heavy metals, organo-tins and hydrocarbons. PAHs are the main contaminants, with some TBT problems as well. Whilst PAHs cannot be matched conclusively with specific sources by ‘fingerprinting’, some identifying features can be established. The canal area is itself highly contaminated, and is a likely source of contamination for the whole of the Harbour region.

The canal is in the immediate vicinity of an old Gasworks site, which is considered the overriding source of the PAH contamination in the canal and river system. The Gasworks were demolished some years ago, with the contamination leaching into the aquifer. This has resulted in elevated levels of contaminants appearing at sea, re-surfacing after transport via a geological syncline. This situation is likely to remain unchanged for many years to come. Pollution from the Gasworks site was investigated by the local authority and Environment Agency, following notification of the problem. These focused on the CMS and wider problems, rather than the condition of the aquifer itself. As the PAH levels in monitoring dropped, investigations of the Gasworks were scaled down.

The harbour is dredged regularly. As a result of the contaminant levels in the canal area, that site is not being dredged. If it were to be, it is thought likely that the dredged sediment would not be suitable for sea disposal. Accordingly, whilst dredged material from the harbour entrance, and the western and eastern arms (where contaminants are below Action Level 2) are disposed of at sea under a FEPA licence, there are areas at the harbour which are not dredged for economic considerations (the likely costs of Operational Management).
3.5 Case Study D

Historically, this region has been subjected to high inputs of metals from the mining and extraction industry. Industry along the River Y has produced industrial chemicals including PCBs and PAHs. There are also elevated levels of metals, with Zinc, Arsenic and Copper all being notably high. The geology is igneous which contributes to contaminants in the river basin.

An area of the marina contains high levels of copper and mercury and so dredged material from there is unsuitable for disposal to sea. There is also TBT contamination at levels preventing sea disposal. Dredging for the harbour area is undertaken regularly. As the main problem is from the (historic) TBT inputs, it is considered unlikely that problems will recur.

As a result of the contamination and the associated costs of non-sea disposal, a number of FEPA licence applications have been withdrawn and alternative Operational Management methods considered. An alternative means of disposal was trialled, with confined disposal of material from within the marina in a two-stage process.

The first stage was temporary storage of the dredged CMS, following which it was to be deposited in an excavation, capped by clean sediments, within the marina. The undertaking of this project resulted in a prosecution by the MFA for breach of FEPA licence conditions where CMS had been dumped offshore in breach of licence conditions. Constraints within the licence were influenced by the proximity of the disposal site to a nature conservation area (a protected site of European importance).
3.6 Case Study E

The overall quantity of material to be removed for the port was relatively small, but it was significantly contaminated with heavy metals. Contamination levels were high for Cadmium, Copper, Mercury, Nickel, Lead, Zinc and Arsenic. Arsenic and Copper were significantly in excess of the levels suitable for sea disposal and Cadmium, Mercury and Zinc were present at levels which caused concern about their impact on the marine environment.

Although background levels of heavy metal concentrations were not available for the River Z, they were available for a nearby harbour, which was considered to be comparable. Those indicated significantly lower concentrations of heavy metals, which suggested that the contamination concentrations at the port were significantly above naturally occurring background levels. Dredging takes place less regularly than in some of the other Case Studies. Contamination problems are thought likely to recur in the future.

The material was considered unsuitable for sea disposal, and the result was the refusal of a FEPA licence to dispose the dredged material at sea. This decision had implications for the longer-term operation of the port. If suitable alternative Operational Management methods could not be identified, the silting up of navigation channels could prevent the port from accommodating freight shipping and affect its commercial future.
3.7 General Issues from the Case Study Scenarios

Before outlining and applying the liability regimes which may be relevant to the Case Studies in the section, some general issues can be identified. Whilst the factual circumstances identify some common themes, they are also sufficiently diverse as to allow some clear distinctive features to be drawn which are pertinent to liability issues.

All of the Case Studies involve the impacts of sediment contamination on Operational Management activities. They involve 10s or 100s of thousands of tonnes of material. All of the cases also involve the partial or complete prohibition on disposal of sediments at sea under a FEPA licence.

As identified in Section 2 above, legal liability for the management, movement and disposal of CMS involves a series of temporal, spatial and evidential questions in addition to establishing the applicable legal and regulatory frameworks. In other words answering questions as to the appropriate legal obligations arising from managing, moving and disposing of CMS is dependent upon knowing (amongst other things):

- What activities were/are involved in causing the contamination
  - What sources of contamination can be identified?
  - How clearly can specific sources of contamination be identified?
  - How clearly can sources be identified with specific actions/activities (including ‘pathways’ for contamination of sediments)?

- Who is/was ‘responsible’ for actions/activities which caused the contamination?
  - When did those actions/activities take place?
  - Can the person ‘responsible’ still be identified (and are they traceable/solvent)?

- Whether those activities/events took place in compliance with or in breach of regulatory requirements
  - Were regulatory controls in place?
  - Were these complied with?
o What (if any) enforcement powers might be used in relation to the CMS?

- What kinds of impacts have resulted from the presence of contaminants?
  - Increased Operational Management costs (actual or prospective)
  - (Potential) restriction of port etc use
  - (Potential) restriction of port etc development
  - Remedial Liability (Nature conservation damage/other environmental impacts)
  - Likelihood of recurrence

- Whether the Operational Management activities regarding CMS present particular issues regarding Contingent Liabilities

  In all cases, there will be the question of the extent to which these factors can be determined the degree of certainty required to establish legal liability (under different liability regimes).
3.8 Use of Case Studies

Having identified some Case Study scenarios and identified some of the features of these relevant to the consideration of legal liability, section 4 of this report uses those scenarios as the basis for assessing the potential application of liability regimes.

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<tbody>
<tr>
<td>Case Study D</td>
<td>Unclear - Multiple contaminants &amp; sources; Human &amp; natural inputs; Long history of inputs.</td>
<td>(a) Contaminant presence: Very unclear - Multiple activities; contribution to CMS levels unclear; Long period; Solvency/tracing issues. (b) Contingent Liability: very clear - Single activity &amp; short time period.</td>
<td>(a) Contaminant presence: Possible - Difficulty of identifying specific sources &amp; powers in place at relevant times. Powers not used. (b) Contingent Liability - powers in place &amp; used.</td>
<td>Actual: Operational Management Costs; Contingent liabilities (Criminal) Potential: Harbour Use &amp; Development restrictions. Main Contaminant: Recurrence not likely.</td>
</tr>
<tr>
<td>Case Study E</td>
<td>Very unclear - Multiple contaminants &amp; sources; Human &amp; natural inputs; Long history of inputs.</td>
<td>Very unclear - Multiple activities; contribution to CMS levels unclear; Long period; Solvency/tracing issues.</td>
<td>Possible variety - range of sources/activities; Difficulty of identifying specific sources &amp; powers in place at relevant times. Powers not used.</td>
<td>Actual: Operational Management Costs; Likely: Harbour Use &amp; Development restrictions. Recurrence likely.</td>
</tr>
</tbody>
</table>
4. Legal Liability Regimes

4.1 Overview of Liability Regimes

Liability for environmental damage and/or interference with private rights only exists within legally enforceable liability regimes. These regimes impose different ‘heads’ of liability and provide mechanisms which can implement the Polluter Pays Principle by allocating and apportioning liability to different parties.

An important point to make at the outset is that establishing legal liability is rarely easy, and this is certainly the case with historic contamination of sediments. A combination of limitations on legal liability and practical hurdles to establishing this suggest that imposing liability will be very difficult in the main.

In relation to liability for historic contamination, there are three main types of liability regimes which may be relevant:

4.1.1 Private Law Regimes

Private law liability regimes attempt to allocate largely compensatory liabilities for interference with private interests, such as interference with ownership rights. For example the ‘torts’ of nuisance & trespass might provide compensation and other remedies for the deposit of CMS on land without consent or where there has been an unreasonable interference with those ownership rights. In addition the law of contract and tort of negligence may give rise to liabilities for breach of private obligations. These may be of particular relevance to Contingent Liabilities arising from the Operational Management of CMS.

4.1.2 Statutory Regimes

What we have termed ‘Statutory’ regimes, are those whereby the State has powers to impose liabilities on people and organisations. These can be sub-divided into two groups: (i) Administrative/Regulatory liability; and (ii) Criminal liability. In relation to CMS liabilities, there are close relationships between these groups of regimes. In particular, criminal liabilities will generally arise where there has been
a failure to comply with some element of a Regulatory regime (such as the holding of a licence).

**Administrative/Regulatory liability regimes**

Administrative or regulatory liability regimes attempt to allocate and apportion remedial, compensatory or restorative liabilities largely when those who are regulated have failed to comply with their obligations under the relevant regulatory regimes.

For example where waste CMS is deposited otherwise than in accordance with a FEPA licence, the person who deposited the waste can be required to remove it or pay the costs incurred by the regulatory agency for removing it. 48

The application and consideration of such regimes is largely relevant to Task 3’s consideration of Operational Management issues. There are, however, circumstances where such regimes create liabilities in relation to the presence of historic contaminants within CMS.

**Criminal liability regimes**

Most criminal liability regimes operate as an adjunct to administrative and regulatory regimes. Thus where those who are regulated have failed to comply with their obligations under the relevant regulatory regimes there are criminal sanctions which can be applied.

The Statutory liability regimes which may be relevant to the Operational Management of CMS and the Contingent Liabilities which may result, are fairly limited in number.

By contrast, those which may be relevant to activities which have produced contaminants are numerous. Given the periods of time over which such activities may have taken place in the Case Studies, it may be very challenging to identify exactly which regimes and powers were in place for activities at the relevant times.

48 See section 10 of the Food and Environmental Protection Act 1985 (recovery contingent on a criminal offence being committed).
(even where specific sources can be associated with specific contaminant presence).

Whilst it falls squarely within the class of Statutory Regimes, we have considered the regime introduced to implement the Environmental Liability Directive separately. As well as consideration of this regime forming a specific element of the Task, the regime has characteristics which justify a separate analysis of its application.

Before moving on to the application of principles under the Liability Regimes to CMS within the context of the Case Studies, a couple of further points are worth making.

First, the liability standards which apply across the different regimes vary in nature. Within private law, liability under the tort of negligence requires fault to be established, whilst liability for trespass and nuisance is closer to ‘strict’ liability (as are liabilities under regulatory regimes). Regulatory regimes should generally incorporate more defined standards for establishing liability, whereas ‘nuisance’, for example is based upon concepts such as ‘unreasonable’ & ‘substantial’ interference with land.

Secondly, in the case of historic contamination, the issues of proof and evidence to support claims (which are important in all cases) will be particularly difficult to address. It is also likely that such cases will be more reliant upon general private law liabilities (with the consequential problems discussed below), rather than specific regulatory ones, given the gradual development of regulatory controls over time.
4.2 Private Law Liability Regimes

A number of private law (or ‘civil’) liability regimes are potentially relevant to Operational Management of CMS, including liability for historic contamination. It is important to consider the requirements for, limitations on, and the nature and extent of remedies available, for each specifically. Having said that, there are general issues, such as establishing causal links, which arise across the private (and other) liability regimes. Whilst the details of these can vary between regimes, their broad commonality means that they can be considered generically. It is apparent from consideration of these regimes in the context of the CMS Case Studies that there are significant limitations on their application to historically contaminated marine sediment.

The four main private law liability regimes which are considered are: 49

- Private Nuisance
- Trespass
- Negligence
- Contractual & Property Agreements

The first three of these are generally referred to as ‘torts’, or ‘civil wrongs’. In the following sections, each is outlined in brief, then applied to the CMS Case Studies.

4.2.1 Private Nuisance

Private ‘nuisance’ is a regime for protecting property rights, but one which has been used to establish liability for ‘environmental damage’ to land. It is both broad in nature and flexible in its application to a range of different

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49 Further liability regimes may also be relevant to pollution incidents, such as ‘Public Nuisance’. This is both a crime and a ‘tort’ arising where there are acts or omissions which endanger the life, health, property, morals, or comfort of the public, or obstruct the public in the exercise or enjoyment of rights ‘common to all Her Majesty’s subjects’. Whilst Public Nuisance might possibly be applicable to the contingent liabilities arising from operational management of CMS, it does not appear applicable to liability for operational management costs.
circumstances. The relevance of Private Nuisance to CMS is two-fold (if the elements of the tort can be established):

a) Claimants may be able to require clean up of CMS, or damages relating to clean up, so that the costs of dealing with dredged material may be recovered or reduced; and

b) Contingent Liability arising through the management of dredged material can include liability in the form of Private Nuisance

A nuisance will be committed if a party creates, authorises, adopts, or continues a state of affairs which unreasonably interferes with the use and enjoyment of someone’s interest in land. This means that, in contrast with trespass (considered below), the interference with land must cause damage in order to be actionable. That ‘damage’ can be to either the activities undertaken on the land, or to the condition of the land itself.

The tort is usually committed through the use of land and judged by its impact on other land. Accordingly, it is based upon property interests - a ‘tort against land’ - so that anyone seeking a remedy in nuisance must have a proprietary right in the land affected (and not simply a personal licence to use it, for example). One question which arises here is whether a private nuisance can result from a ship, with court decisions not being entirely clear on this point.

The duty not to create a private nuisance also extends to not authorising others to do so (though this does not make landlords liable for the acts of their tenants unless they have clearly authorised those acts). Where a party knows that a nuisance has been created or exists, there is a duty to take reasonable steps to abate (or eliminate) it, so that the duty also extends to adopting or continuing a nuisance.

Private nuisance can usually be considered a ‘strict liability’ tort in one sense - that there is no need to prove fault in order to make a claim. The extent of

50 Explored in the application of liability regimes to the CMS Case Studies in Section 4.6 (below) and the Hypotheticals in Section 5 (below).
51 Confirmed by the House of Lords in ‘Hunter v Canary Wharf’.
52 The Court of Appeal and House of Lords in ‘Southport Corp. v. Esso Petroleum’ [1954] 2 Q.B. 182 taking opposing views on the point, without having to decide on it (the case involving oil discharged from a tanker which washed ashore).
liability is restricted through a ‘foreseeability’ test, however, and certain types of
nuisance incorporate elements of faulty behaviour.

An ‘unreasonable’ interference’ will be with the usefulness or amenity of
land. The types of interference are:\(^{53}\)

- encroachment onto another’s land;
- physical damage to another’s land; and
- interference with another’s enjoyment of his/her land (or rights over land)

Not all interferences of this type will be unreasonable; neighbouring
landowners are required to accept a degree of ‘give and take’. Thus a claim of
nuisance will often depend upon a balancing exercise between the reasonableness
of a defendant’s use of their own land and the impact upon a claimant’s
proprietary rights. Factors which a court will take into account in striking this
balance include the:

- \textit{locality} of the nuisance - what may be unreasonable is one area may not be
  in another;
- \textit{nature, duration and intensity} of the nuisance - so that less frequent
  interferences might not be actionable unless their impact is serious, for
  example; and
- \textit{use} which the claimant makes of the relevant land - which must itself be
  reasonable, and not ‘hypersensitive’.

Where land is subject to ‘non-natural’ use (which actually means something
giving rise to an extraordinary degree of risk), the ‘rule in ‘\textit{Rylands v. Fletcher}’
may apply. The requirements for liability here are that something is brought onto
land which is not naturally there, that is known to be likely to do harm if it
escapes, and then escapes. In such cases, the defendant will be liable for the
natural and anticipated consequences (with the same test of ‘foreseeability’ as for
general nuisance judging whether damage is too remote). Defences include
statutory authority, and that the escape was an act of God, or a third party.

\(^{53}\) As set out by the House of Lords in ‘\textit{Hunter}’.
There are a number of potential defences available to nuisance actions (such as express statutory authority), though some are of limited practical benefit:

The question of ‘foreseeability’ is a critical one in seeking to apply the principles of private nuisance to historic contamination of CMS. The requirement is that the damage caused by the use of land, such as the carrying on of an industrial process with release of contaminating substances, must have been reasonably foreseeable at the time the activity was carried out.

Whilst this does not require that the precise type of damage was foreseeable at the time, it does mean that something more than simply ‘harm’ in the abstract must have been reasonably foreseeable. The main case which establishes this principle, ‘Cambridge Water Co v Eastern County Leathers plc’ concerned the spillage of solvents on the defendant’s land over a long period of time, which migrated to contaminate water in a borehole.

The standards imposed for drinking water increased over time to the point that the abstracted water was no longer compliant. The House of Lords decided that, whilst damage caused by a large spillage of solvents might have been reasonably foreseeable at the time, the groundwater pollution resulting from repeated spillages of small amounts would not. Accordingly, the defendants were not liable in nuisance.

An important question in relation to the nature of the ‘harm’ suffered is whether the ‘material effect’ of the contamination would have been reasonably foreseeable at the relevant times. As well as foreseeing whether spillages or discharges might migrate to other land, this could include the question of whether any material adverse effects might result from that.

A further aspect of foreseeability which was considered in the ‘Cambridge Water’ case was the potential liability for substances which had been released at a time when the damage resulting had not been reasonably foreseeable, but which later became so. The House of Lords decided that at the stage where substances had passed beyond the control of the original polluter, strict liability under nuisance could not apply. In such cases, there may be liability for their recovery to the extent that it is reasonable to require the polluter to take steps to do so.
This follows the principles which have been developed for nuisances arising ‘naturally’ (such as accumulation of rainwater), which can give rise to a ‘measured duty of care’. Here a landowner will have a duty to do whatever is reasonable in all the circumstances to prevent the hazard from causing damage to a neighbour. What is reasonable will include reference to knowledge of the risk, means to prevent it from materialising, and taking action within a reasonable time. Rather than strict liability, there are elements of fault in these cases which are absent from the general tort of nuisance.

The question of foreseeability is one to be considered on the facts of each case, but it is clear that this will present a significant challenge to establishing liability in nuisance in many cases of historically contaminated CMS.

4.2.2 Trespass

A second type of private law liability regime which might be relevant to historically contaminated CMS is the tort of trespass. Trespass consists of the direct interference with personal or property rights, without lawful excuse. Whilst there is no requirement for actual damage to result from a trespass for it to be actionable (unlike nuisance), there are limitations which make it less likely to provide a mechanism for establishing liability in the case of historically contaminated CMS.

The distinction between nuisance and trespass is based upon the directness of interference, with more direct interference likely to constitute a trespass, and less direct interference potentially mounting to a nuisance. A further distinction is that trespass must be intentional or negligent.\(^{54}\)

In the context of CMS, the deposit of waste materials on another’s land without consent might constitute a trespass. It is much more likely, however, that contaminants will have migrated over a period of time, and so be considered consequential, rather than direct or immediate damage. In such a case, it will not be possible to rely on the tort of trespass.

\(^{54}\) See the ‘Southport Corp. v. Esso Petroleum’ case (cited above) and ‘Jones v. Llanrwst Urban District Council’ [1911] 1 Ch. 393.
4.2.3 Negligence

A further ‘tort’ which may be relevant to historically contaminated CMS, which is not reliant upon property rights, is that of negligence. This is of limited application as it requires a claimant to establish that a ‘duty of care’ was owed to it by the defendant and that the defendant failed to exercise the relevant standard of care in undertaking that duty.

Thus a significant limitation on the use of negligence is the requirement for ‘fault’ to be established on the part of the defendant. An example of this limitation is that compliance with current regulatory standards will often be sufficient to avoid liability. Whether a duty of care exists will depend on the circumstances, with relevant factors: the foreseeability of harm occurring; whether it was reasonable to rely on the defendant exercising reasonable care; and whether it is reasonable to impose a duty. Establishing this in a historic context will be particularly problematic.

The requirement for harm to have been reasonably foreseeable means that the same issues which arise with respect to nuisance in this regard will arise in a negligence claim.

Negligence actions may be more relevant to Contingent Liabilities arising from Operational Management activities, where establishing that a duty of care exists and that there has been a breach (with reasonably foreseeable damage caused) may be more readily achievable. Compliance with ‘best practice’ can be important in establishing negligence. If best practice is complied with, then a party may well be able to establish that they have met the requisite ‘standard’ of care (if a duty of care is found to exist).

A type of liability which is similar to the private law negligence regime is ‘Breach of Statutory Duty’. This may provide a remedy where a claimant suffers a loss in circumstances where the defendant was under a duty imposed by statute.

The scope of this regime is very limited, however, as the courts have held that an action will only be possible where it can be established that Parliament
intended that a civil law remedy should be provided, rather than control solely through criminal penalties, for example. Such a right would also have to be given to a limited class of persons, rather than the general public.

4.2.4 Contractual & Property Agreements

A distinct type of private law liability may arise in cases where specific agreements have been entered into between parties. Examples of such contractual arrangements might include development works, maintenance works, or other activities have taken place on-site, or close to the location of the CMS. Such agreements will generally have included some provisions regarding the carrying out of works, etc.

These contractual obligations may form the basis for bringing an action if they have been breached. Whilst certain contractual obligations can be imposed by statute, those of a type likely to be relevant to historically contaminated CMS will generally be as a result of specific agreement between the parties. Accordingly, the availability of remedies will be a matter of private agreement.

A particular form of agreement is a lease or a contractual licence regarding the occupation of land.\textsuperscript{55} As awareness of contamination issues has developed, it has become increasingly common for property agreements to include detailed provisions regarding the use of land and clean up of any damage which may result (on or off site), for longer-term agreements in particular. As with general contractual agreements, statutory obligations may be implied into leases (or ‘tenancy’ agreements), but again these are limited and unlikely to be relevant for CMS.

In both contractual and property agreements, the enforcement of any obligations is limited to the ‘parties’ to those agreements, rather than a broader class of persons who may have rights under tort law.

\textsuperscript{55} There are legal distinctions between these types of agreements which are important as a matter of property law, but which will not generally be relevant to the issues considered in this report, save for any noted in the text.
4.3 Statutory Liability Regimes

Whilst a detailed evaluation of the regulatory regimes applicable to the management of CMS is provided by Task 3, this section provides an overview of how civil, ‘administrative’ and criminal liability may arise through non-compliance with regulatory requirements. It also outlines two of the most significant regulatory regimes which can create more general remedial liability.

4.3.1 Regulatory Regimes

A common way of structuring statutory liability regimes is to:

(a) make the carrying out of specified activities a criminal offence;
(b) unless it is undertaken under, and in compliance with, an authorisation (‘permit’, ‘licence’, ‘consent’, etc).

An example of this structure, which is relevant to the Operational Management of CMS is the “Environmental Permitting” regime,\(^{56}\) where:

(1) ‘Regulated facilities’ (including many waste management operations) require an environmental permit (granted by the Environment Agency);
(2) The Environment Agency can attach any conditions it sees fit to a permit; and
(3) A number of criminal offences are established, including -
   (i) operating a regulated facility without a permit, and
   (ii) operating it in breach of permit conditions.

As well as criminal penalties, ‘administrative’ sanctions, such as enforcement notices, may be imposed. Here the Agency specifies the steps to be taken to remedy, or avoid, contravention of conditions, and the timescale for this. The courts can also include orders that the effects of offences be remedied in sentencing for failure to comply with enforcement or suspension notices.\(^{57}\) Where other remedies are not effective, the Agency can seek an injunction in the High Court to secure adequate compliance.\(^{58}\)

\(^{56}\) See the Environmental Permitting (England and Wales) Regulations 2007 (S.I. 2007/3538).
\(^{57}\) Regulation 44.
\(^{58}\) Regulation 42.
As well as providing an example of the regulatory controls (and liabilities) which may be applicable to Operational Management of CMS, the Environmental Permitting Regulations are an example of the type of controls which may be applicable to activities producing the contaminants found within CMS. Two important points are worth making in relation to historic contamination of CMS:

i. the regulatory controls in place at any one time will differ, as regulatory controls have tightened, standards become more stringent, sanctions and enforcement powers (including powers to require, or pay for clean up), have developed over time;

ii. which means that establishing exactly when an activity producing contaminants took place, and even the precise time when substances were released, will be critical in seeking to identify whether any regulatory powers may be used.

The difficulties in establishing these facts, identifying a regulatory regime which is still enforceable, etc present major challenges in using all but extant regulatory controls for imposing liability.

4.3.2 Remedial Liability regimes

Certain regulatory regimes provide for more general liability than the specific ‘command and control’ systems outlined above. Two of the most important ones, which have potential relevance to historic CMS are Part III of the Water Resources Act 1991 (dealing with pollution of controlled waters) and Part 2A of the Environmental Protection Act 1990 (dealing with contaminated land). Both provide a means of requiring clean up of CMS in certain circumstances.

Water Pollution Provisions

Section 85 of the Water Resources Act 1991 provides criminal offences in relation to pollution of “controlled waters”, which includes coastal waters and territorial waters extending three miles from the from the territorial sea baseline. Of principal relevance to CMS is the offence of “causing” or “knowingly permitting”
any poisonous, noxious or polluting matter or any solid waste matter to enter controlled waters.

“Poisonous, noxious or polluting matter” is not defined, but case law suggests that “polluting” matter must be capable of causing harm, but need not cause actual harm.59 “Causing” requires some specific act, but the result need not have been foreseeable. This would often comprise the original polluter, but could include a number of parties undertaking different acts within a ‘chain’ of causation. Where there is no specific act, but passive permission for the entry of polluting etc matter, a party may be considered to have “knowingly permitted” such entry, such as a landowner to allows matter to leach into waters, though it originates from another site. This will require knowledge of the entry, and a failure to take (reasonable) steps prevent it.

Criminal liability may result in fines, imprisonment, costs and compensation orders.

Of more significance for the management of CMS, s.161 provides powers for the Agency to carry out works to prevent or clean up pollution of controlled waters, and recover the costs of these from those who “caused” or “knowingly permitting” its presence in the waters, or the place from which entry was likely. This means that landowners not responsible for the presence of contaminants within controlled waters may still be responsible for clean up costs.

‘Works Notice’ provisions have been added to s.16160 through which the Agency can require parties within s.161 to carry out specific works or operations (rather than undertaking the works itself and then seeking to recover its costs).

Amongst the defences available to proceedings under s.85 is that of ‘authorised discharges’.61 This excludes ‘entries’ of matter which are under and in accordance with regulatory consents, included ‘FEPA Licences’, and Environmental Permits. With regard to Operational Management activities, this means that compliance with the relevant regulatory authorizations will be the key to liability

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As well as the defence of ‘authorised discharges’, the application of these provisions to CMS is restricted through their focus on controlled waters, rather than pollution of sediments themselves. Accordingly, they can be used to require clean up, etc where those waters have been polluted. If there is no ‘pollution’ of waters (or likelihood of this) from the CMS in situ, they cannot be used to require clean up of the CMS. These powers may be of relevance to dredging undertaken for remedial purposes, but will not usually be applicable to capital or maintenance dredging.

The Contaminated Land Regime

Under Part 2A of the Environmental Protection Act 1990, (current) ownership of a (historically) contaminated site may result in the imposition of liability for the costs of remediation of the site, where none of the persons responsible for causing or knowingly permitting the presence of contaminating substances (“Class A” liability) can be ‘found’, current owners may be made liable for remediation costs (“Class B” liability). Thus liability may be incurred despite the owner not being responsible for the condition of the land.62

Liability under Part 2A is significantly limited by the definition of “Contaminated Land”. Whilst this includes land under water (including sediments) within a local authority’s area, ‘land’ is only “Contaminated Land” if it appears to be in such a condition that: ‘significant harm’ is being, or there is a significant possibility of such harm being, caused, or pollution of controlled waters is being, or is likely to be, caused.63 “Harm” is limited ‘receptors’ or ‘targets’ in the form of human being, nature conservation sites, buildings, and other property. Land (including sediments) would only fall within the scope of Part 2A if such ‘harm’ arises from the presence of substances in situ. If that might result from the removal or management of material, but not from the status quo, this would not normally result in liability under Part 2A.

Part 2A comprises a complex scheme whereby liability is imposed and apportioned between parties through a complex system of rules. The way in which

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62 This would only apply in relation to sediments which require clean up/dredging for remedial purposes, of course.
63 S.78(2) Environmental Protection Act 1990.
it can apply to CMS is explored in Case Study C (below).
4.4 General Issues & Remedies

4.4.1 General Issues

There are a number of further issues which are of general relevance to the different types of liability regimes:

*Time and Limitation Periods*

Time is a critical factor in a variety of ways. For historic contamination there is the question of the date on which the contamination arose. This will be difficult to determine because much contamination will be aggregated from a number of sources over lengthy periods of time. Many sources of contamination will have been compliant with regulation because relevant regulatory regimes may not have been in force during the relevant period(s) of contaminating activity. Thus the enforcement mechanisms available under these regimes may not be available.

The recoverability or transferability of costs and liabilities may also be restricted by Limitation Periods. Private law actions cannot be brought after the expiry of specific periods of time laid down in the Limitation Act 1980. These periods vary according to factors such as whether personal injury is involved, the nature of the action (e.g. whether it is a negligence or contractual claim), and whether the damage caused is ‘latent’. Regulatory actions may be subject to different rules, with Part 2A applicable to actions undertaken many years ago. Generally, licence conditions may only be enforced during the operation of the licence.\(^{64}\) Limitation periods for bringing criminal prosecutions also vary according to the specific offence and the court in which proceedings are brought.

An important example of limitation on regulatory liability is that under the Environmental Damage (Prevention and Remediation) Regulations 2009, which is considered in section 4.5 (below).

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\(^{64}\) Though there may be restrictions on surrendering a licence, etc.
Proof and Causation

An obvious problem with imposing liability is that evidence will be required to prove matters alleged. Whilst the standard of proof will vary between ‘criminal’ and ‘civil’ actions, a common problem will be that both documentary evidence and witnesses are generally harder to produce regarding historic matters.

In the marine environment, the location of the source, destination of the contamination and site of any damage is uncertain. The natural movement of contaminants in the marine environment can make it difficult to link source, pathway and target. The artificial intervention caused by the management, movement and disposal of CMS also breaks the causal chains between source, pathway and target - thereby adding a further layer of complexity.

Establishing that an activity, or omission, has ‘caused’ the presence or entry of substances can be a complicated issue in law, with different approaches taken to the concept of ‘causation’ in different areas of law. It is clear, however, that there may often be multiple ‘causers’ of the same contaminant, including the same ‘event’ by which a contaminant was released. A particular issue is that pollution may have come about from a variety of sources, which raises questions of joint responsibility and the allocation of liability between parties.

It is often technically difficult and expensive to identify evidence to link specific activities with damage and establish a ‘causal link’ in law between them. It is particularly challenging when the relevant activities took place many years ago, and where there are a number of possible sources of the same contaminants in an area. The problems presented with private law liability can be mitigated to some degree as it will generally be sufficient to show that there was a ‘material contribution’ to damage.65

Joint & Several Liability

‘Joint liability’ may result from different actors within the same chain of events, such as a factory operator and maintenance contractor, or from separate events resulting in the presence of contaminants contributing to a pollution

problem. In private law claims, whether each of the parties is responsible for all of
the costs of dealing with the pollution, or only that attributable to their own
contributions, will generally depend upon whether these actions result in
‘different’ damage, or cause the claimant to suffer a single injury. Where one
party’s contribution to the damage is insignificant, they may be found not jointly
liable (or not liable at all). The case may be different for statutory liability, with
Part 2A including rules addressing this issue which provide detailed guidance on
how liability is to be allocated and apportioned between parties.

Identifying an Existing ‘Polluter’

Linked closely to evidential factors is the challenge in identifying the
‘original polluter’ who was responsible for the historic contamination. Even
assuming an evidential link between the source of historic contamination and an
individual polluter, it still may be impossible to transfer or recover any costs or
liabilities from that ‘original polluter’. 66

In many cases the ‘original polluter’ will not exist in the same legal entity.
Corporate bodies may have reorganised, merged with other companies, been
privatised or simply gone out of business, and individuals may have died. Even if a
solvent body can be identified, the legal connection with the historic
contaminating activity can be difficult to establish. Examples include the
privatisation of previously public owned utilities, such as gas and water companies,
and the changes to local government organisation.

In all cases of corporate liability the corporate identity will be at issue
where there has been a change in ownership of companies or of land. The precise
terms on which such transactions took place may have to be considered - whether
the transaction was of shares or of assets, and any provisions as to allocation of
future liabilities, in particular.

66 Such liabilities are sometimes conceived of as ‘orphan liabilities’ (see, for example, Chapter D of
Similarly the specific statutory mechanisms for reorganisation of local authorities have to be analysed in order to identify the liability transfer provisions in each case. 67

Regulatory factors - has there been a breach?

Where an original source can be traced, there is still the question of whether the contamination was a result of a breach of a regulatory regime (either current or historic).

Where activities were not controlled by regulation at the relevant time, or activities were compliant with regulatory permits, liability may only arise through private law mechanisms. Where activities are ‘regulatory compliant’, this will not normally provide an absolute defence to private law claims, though the existence and extent of any exemption will depend upon the specific statutory provisions in each case. 68

Technical Factors

‘Contamination’ is referred to in a very generic sense without any reference to the technical variables which determine the appropriate ‘trigger’ levels. The presence of ‘contamination’ in CMS does not necessarily lead to harm and/or damage, whether actual or potential, to the environment, private property or human health. The existence of contamination needs, therefore, to be put into some form of context against which the need to intervene and require management, movement or disposal can be assessed.

This assessment has formed part of the decision to grant FEPA licences for disposal and/or beneficial use. Relevant factors include the nature of the polluting substance, the presence and identity of a ‘target’ that is being affected by the contamination (for example, humans, nature conservation, or private property

67 An example of the importance of specific legislative ‘succession’ schemes to establishing whether an existing statutory body is the same as that responsible for the historic release of contaminants is found in the case of ‘R. (on the application of National Grid Gas Plc formerly Transco Plc) v. Environment Agency’ [2007] UKHL 30. The House of Lords decision also includes some discussion of corporate structures and historic liability for contamination.

68 An important example being the defence against liability under the Environmental Damage (Prevention and Remediation) Regulations 2009 provided by compliance with ‘listed’ permits (Regulation 19), discussed in the next section.
interests), and the costs and benefits of carrying out management, movement or disposal. There are many circumstances where contamination within CMS would not cause damage or harm to any interest if it were left undisturbed.\textsuperscript{69} In this context, the act ‘causing’ the CMS to be ‘polluting’ would be the operational activities, such as dredging. In such cases, it is the operational activities which act as the ‘trigger’ for the imposition of potential liabilities.

4.4.2 Remedies

Further issues arise regarding the nature of the remedies available. In private law, the usual remedies are injunctions - either requiring someone to take action, or to refrain from actions - and damages. Damages provide financial compensation for losses suffered, and so are assessed by reference to such damage but are not required to be used in order to remedy those losses (so far as possible). As well as comprising a requirement for some private law claims (see section 4.2, above), ‘foreseeability’ of damage will act as a limit on the extent of liability in many cases, so that damage which was not reasonably foreseeable (or is considered too ‘remote’) will not be recoverable. Recoverable losses can limited in other ways, depending upon the private law liability regime applicable.

As outlined in section 4.3 (above), the remedies available under statutory liability regimes can be more varied, including criminal and administrative sanctions. Provisions whereby remedial works can be required, or the costs of carrying these out recovered, may be particularly important in cases of biodiversity impacts or other ‘environmental damage’.

4.4.3 The impact of variable factors on establishing liabilities

The existence of these variables makes the allocation of Operational Management Costs and Contingent Liabilities entirely dependent upon the exact nature of the facts surrounding a particular case.

For example, high levels of a single contaminant from a single source with clear links to a single polluter who is still in existence suggests that the transfer of

\textsuperscript{69} Though this will not always be the case, and remedial operations and liabilities for these may come into play in order to address such situations.
liabilities would, in the event of an appropriate legal allocation mechanism, be possible. On the other hand any lack of clarity in any one of the variable factors will mean, even in the event that there is a clear legal allocation mechanism, a much greater chance that liability would not be established.

Accordingly, in seeking to understand the potential to recover or transfer costs or liabilities, these variables must be considered within specific factual contexts. These are considered further within the facts in the individual case studies.
4.5 Environmental Liability Directive

We were asked specifically to discuss the implications of the Environmental Liability Directive\textsuperscript{70} ("ELD") within this part of the project. In common with the other liability regimes considered (above), we consider that whilst potentially relevant in some cases, the ELD's scope and effect limit its application to the management of CMS very significantly. As the ELD has now been transposed into domestic law, most of this section considers liability under those implementing regulations.\textsuperscript{71}

4.5.1 Overview of the ELD

The ELD came into force on April 30, 2004. The purpose of the Directive is to establish a common framework of environmental liability based on the "polluter-pays" principle, to prevent and remedy "Environmental Damage".\textsuperscript{72} Three types of damage can constitute Environmental Damage:

- "Water Damage"
- "Habitats/Species Damage"
- "Land Damage"

The Directive is implemented by a number of regulatory regimes within the UK, with specific regulations - the Environmental Damage (Prevention and Remediation) Regulations 2009\textsuperscript{73} (the "ELD Regulations") - applying where liability is more limited within, or in the absence of, such regimes.

\textsuperscript{70} Directive 2004/35/EC on environmental liability with regard to the prevention and remedying of environmental damage.
\textsuperscript{71} The general compliance of the implementing regulations with the obligations under the Directive has been assumed, so that no issues of 'direct effect' are raised.
\textsuperscript{72} Article 1.
\textsuperscript{73} S.I. 2009/153, which are the regulations applying to England and came into force on 1 March 2009. The transposing regulations in other jurisdictions within the UK are: the Environmental Damage (Prevention and Remediation) (Wales) Regulations 2009 (S.I. 2009/995, which came into force on 6 May 2009); the Environmental Liability (Scotland) Regulations (S.S.I. 2009/266, which came into force on 24 June 2009); and the Environmental Liability (Prevention and Remediation) Regulations (Northern Ireland) 2009 (S.R. 2009/252, which came into force on 24 July 2009). Whilst there are differences between these sets of regulations, these have not been identified as important for the analysis within this report.
Liability can include remediation of actual damage caused, and prevention of damage in the face of an imminent threat (the primary objective being the prevention of damage).

Liability is imposed on operators of Occupational Activities and may result where it is possible to establish a causal link between the damage and activity. Occupational Activities may be subject to one of two types of liability: those listed in Annex III (Schedule 2) are subject to enhanced liability provisions whereby liability is ‘strict’ and may arise for all three types of Environmental Damage. For other Occupational Activities, liability may only arise in the case of Habitats/Species Damage, and where the operator caused the damage intentionally or negligently.

Schedule 2 of the ELD Regulations includes “Waste management operations” subject to permit or registration in pursuance of the Waste Framework Directive,74 which would include activities under a FEPA licence. It also includes a number of other activities, such as those subject to permits under the IPPC Directive.75

Where an imminent threat of Environmental Damage is caused, an operator is required to take immediately all practicable steps to prevent it, and notify the enforcing authority.76 The enforcing authority may serve a notice requiring specified measures to be taken to prevent the damage77. Failure to comply with the duty of prevention, or a notice is an offence. Where an activity has caused damage, similar provisions imposing a duty, permitting service of a notice and creating an offence, are provided for the prevention of further damage.78

Where the enforcing authority decides that Environmental Damage has been caused, it must notify the operator of that fact, that the operator was a cause of that damage, and that the operator must submit proposals for achieving remediation of the damage in accordance with Schedule 4.79 Once proposals have

74 Directive 2006/12/EC.
75 Directive 2008/1/EC.
76 Regulation 13(1).
77 Regulation 13(2).
78 Regulation 14.
79 Regulations 18
been received, the enforcing authority has a duty to serve a remediation notice, which will include the remediation requirements.\textsuperscript{80}

The geographical scope of the Regulations covers Water Damage up to 1 nautical mile seaward from the baseline, and to the limits of the Continental Shelf and Renewable Energy Zone for Habitats/Species Damage.\textsuperscript{81}

There are a number of specified exemptions from liability,\textsuperscript{82} including Environmental Damage caused by terrorism, or an incident which falls within the scope of specified international in relation to oil pollution compensation conventions. The Regulations only apply to Environmental Damage caused by pollution of a diffuse character if it is possible to establish a causal link between the damage and specific activities. Perhaps most importantly, there are temporal limitations on liability (which are discussed below).

There are also some ‘defences’ to enforcement action (in the form of grounds for appeal), which include that the operator was not at fault or negligent and the Environmental Damage was caused by an emission or event expressly authorised by, and fully in accordance with the conditions of a permit listed in Schedule 3 (which includes FEPA licences).\textsuperscript{83}

In cases of ‘multi-party causation’,\textsuperscript{84} each single ‘operator’ can be required to undertake remediation works. Such operators can seek to recover contributions from others. The Regulations will not normally be able to be applied to cases where Environmental Damage results from the cumulative impacts of activities by several operators over a period of time (as it will often not be possible to identify the operators concerned, for example).

Where Environmental Damage is caused by the activities of a small number of identifiable operators, but it is not possible to show that the actions of any

\textsuperscript{80} Regulation 20. There are provisions for appeals to be made against both notifications (Regulation 19) and remediation notices (Regulation 21).

\textsuperscript{81} Regulation 6.

\textsuperscript{82} Regulation 8.

\textsuperscript{83} Regulation 19(3).

\textsuperscript{84} Where a single emission or event leads to Environmental Damage, but two or more operators are responsible for that emission or event (e.g. the producer and user of a polluting product), or where there are several emissions or events leading to Environmental Damage (such as more than one source of pollutant discharges to water).
single operator caused the damage to breach the relevant thresholds, an enforcing authority can may notify and serve remediation notices on each one. Guidance suggests that operators in this situation should endeavour to agree proposed remediation options and allocation of costs between themselves.\textsuperscript{85}

4.5.2 Some Key Issues

Before considering its application to CMS, it is worth making some preliminary points regarding the Environmental Liability regime:

a) the provisions relate to the prevention and remediation of Environmental Damage - this means that they can impose liability for clean up and other remediation activities, but not compensation for damage between private parties.

b) the temporal scope of the Regulations is limited in not applying to damage caused by an emission, event or incident that took place before a ‘threshold’ date of March 1, 2009, or which took place subsequent to March 1, 2009\textsuperscript{86} when it derived from a specific activity that took place and ‘finished’ before that date;\textsuperscript{87}

This restriction on temporal scope is important as it means that the primary means of implementation should be through the prospective control methods for potentially contaminating activities, such as Environmental Permitting.

There is a further temporal limitation in relation to damage which is caused after that ‘threshold’ date, in that enforcement action must be taken within 30 years of the emission, event or incident concerned.

\textsuperscript{86} The relevant dates in the Directive, rather than the Regulations, are both April 30, 2007 (see Case C-417/08 as to the late transposition of the ELD in the United Kingdom).
\textsuperscript{87} Article 17. Whilst some questions arise regarding when ‘incidents’, ‘events’, ‘emissions’, and ‘activities’ ‘finish’, this will clearly exclude most historical sources from the scope of those regulations. Whether the burying of a drum of chemicals is classed a “specific activity”, so that damage caused by a subsequent leak from it after the said date, for example, is not entirely clear.
4.5.3 Application to Operational Management of CMS

In considering the application of the ELD Regulations to Operational Management of CMS, a very clear distinction can be made between those aspects which relate to possible liability for historic contamination, and those relating to the Operational Management activities themselves.

As set out above, operations including management and disposal under a FEPA licence fall within Schedule 2 and so strict liability may arise for any of the three types of Environmental Damage. Other activities which do not fall within the scope of Schedule 2 will be liable for Habitats/Species Damage caused intentionally or negligently. Thus there appears to be scope for Contingent Liability under the ELD Regulations, should such damage be caused (as discussed below).

For the historic sources of contaminants in CMS, however, the ELD Regulations appear to add little to existing (and past) liability regimes. This is for two reasons:

- The exclusion of liability for activities and events which finished before March 1, 2009
- The restriction on “damage” covered by the regime

This second point is worth exploring a little further, by considering the three types of Environmental Damage:

- “Habitats/Species Damage” comprises adverse effects on the integrity of a SSSI or on the conservation status of other species or habitats protected at European level by the Birds and Habitats Directives,\(^88\)
- “Water Damage” comprises adverse effects consistent with a deterioration in the water’s status under the Water Framework Directive;\(^89\) and

\(^88\) Directives 79/409/EEC and 92/43/EEC. For this type of damage, the Regulations apply to the seabed of the continental shelf around the UK, and to the waters in the Renewable Energy Zone.

\(^89\) Directive 2000/60/EC. For Water Damage, the Regulations apply to all water up to 1 nautical mile seaward from the baseline in England and Wales.
• “Land Damage” comprises contamination which results in a significant risk of adverse effects on human health.90

These are fairly high thresholds for ‘damage’, with “Land Damage” narrower than the concept of damage used in determining whether land is “Contaminated Land” for the purposes of liability under Part 2A of the Environmental Protection Act 1990, for example. In any cases where Environmental Damage is caused after the ‘threshold’ date, the nature of that damage and the remediation liability which could result, suggest that the likelihood of those actions assisting with the undertaking (or funding) of Operational Management activities for CMS seems very limited.

4.5.4 Application to Contingent Liability for CMS

The Contingent Liabilities which might arise as a result of Operational Management activities would, however, appear to have scope for the inclusion of liability under the ELD Regulations. This could arise from activities relating to heavily contaminated sediment, which is not for disposal at sea, or from less heavily contaminated material which is disposed of under a FEPA licence.

Some specific examples might include damage caused to protected habitats and/or species as a result of Operational Management activities undertaken after the ‘threshold’ date. This might be caused by deliberate depositing (in breach of licence conditions) of CMS in the proximity of an area including protected species or habitats. Such an event may be one where the operator was negligent as to whether Environmental Damage was caused, even if the damage was not intentional, which would mean that liability could be imposed outside the class of Operational Activities listed in Schedule 2.

Environmental Damage might also be caused by migration of contaminants from a disposal site, where Operational Management techniques have proved

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90 The extent of ‘land’ covered is not set out clearly in the regulations, but the general definition of ‘land’ under the Interpretation Act includes land covered with water, and so the Regulations would appear to cover sediments to the extent of local authorities’ jurisdictions (as the enforcing authorities for the purposes of Land Damage), which can vary in different locations (see “Extent of Local Authority Jurisdiction in the Marine Environment” (www.jncc.gov.uk/pdf/tyldesley_reportall.pdf; accessed June 23, 2009)). An important point, however, is that the nature of this type of damage suggests that it is much less likely to arise in relation to CMS than Water or Habitats/Species Damage.
ineffective. \(^91\) Accidental damage might also be caused when transporting or treating CMS which is not intended for disposal at sea. As the potential risks to nature conservation sites should be considered as part of the FEPA licensing process, this seems a less likely possibility than Habitats/Species Damage arising from activities in breach (or in the absence) of a FEPA licence. Non-negligent and ‘regulatory compliant’ activities may also benefit from the Regulation 19(3) ‘defence’ outlined above.

Similar activities could conceivably cause “Water Damage” if within the 1 nautical mile limits, and on a scale that had the requisite adverse effect. Short-term transient effects from which a water body recovers without the need for remediation measures are unlikely to be sufficiently significant to cause deterioration of status. \(^92\) Pollution incidents which are most likely to lead to Water Damage include those which result in serious contamination of sediments in the water body, or on surrounding land, which then acts as a longer-term source of pollution. \(^93\)

Importantly, the duties on operators do not just arise when Environmental Damage is caused. Instead the primary duties to notify and take preventative action are triggered by ‘imminent threats’ of such damage.

This suggests that, whether or not required by regulatory authorisations, those undertaking Operational Management activities where Environmental Damage could be caused should monitor activities and sites closely so as to be in a position to prevent or minimise and such damage being caused. They may also consider developing plans for taking action should such a threat or damage materialise. The uncertainties, costs, and practical difficulties of taking such steps in the marine environment may, however, prove a major deterrent beyond regulatory requirements.

Liability for Environmental Damage in the marine area is enforced by the Environment Agency (for “Water Damage”), and by the Marine & Fisheries Agency (for “Habitats/Species Damage”). \(^94\) The Guidance to the 2009 Regulations

\(^91\) Such possibilities are considered in section 5 (below).
\(^92\) See the Guidance to the Environmental Damage Regulations, para. A1.81.
\(^93\) See the Guidance to the Environmental Damage Regulations 2009, para. A1.83.
\(^94\) Though enforcement for activities operating under an Environmental Permit may be different.
recognises the difficulties faced in taking remediation measures in the marine environment, and that options may be limited and/or unreasonably costly,⁹⁵ and that remediation in the marine environment is likely to require a different approach to that on land.

As well as the costs of preventing damage, and physically remediating any caused to return a site to ‘baseline’ condition,⁹⁶ operators may be liable for “compensatory” remediation measures with regard to the time period before those are fully effective. Where on-site remediation is not fully effective in restoring to baseline condition, liability may also include “complementary” remediation measures at another site.

⁹⁵ Para. A2.8. In these cases options which contribute to the prevention or mitigation of other pressures may be more appropriate.
⁹⁶ Referred to as “Primary Remediation”.
4.6 Application of Liability Regimes to CMS Case Studies

4.6.1 Case Study A

The nature of this case study is such that it is quite different from the others in two respects. First, the contamination resulted from recent use of the property, rather than resulting from interference from the use of other land. Whilst clear and direct damage can be identified as having resulted from activities, liability in these circumstances would normally be based upon (and shaped by) contractual and property agreements. Secondly, and very importantly, the result of the contamination was such that water pollution was caused by the presence of the contaminants \textit{in situ}. This means that dredging and clean up of the CMS was required (at least in part) for remedial purposes.

The directness of the ‘interference’ suggests that the ‘legacy’ of contamination could constitute a trespass. In such circumstances, any action would appear better brought under that liability regime, rather than a nuisance action (where the application of that area of law is more uncertain, as the interference relates to the same land.\footnote{Whist landlords can be liable in nuisance to their tenants in some circumstances, the future resumption of possession in these circumstances means that the application of private nuisance is uncertain.}

Difficulties arise where contractual/property agreements do not contain provisions relating to the use of the land and/or clean up of any pollution which results. Even where there are such provisions within a lease or other agreement, there remains the possibility that the ‘polluter’ cannot be traced, has insufficient assets, or otherwise cannot be made to fulfil its obligations. In this Case Study, the insolvency of the relevant companies resulted in these not being effective. Mechanisms for ensuring that obligations can be met can be included, such as the provision of bonds or other financial security. The Case Study demonstrates the importance of detailed matters here, such as ensuring that an insurance policy covers the relevant risks.\footnote{These issues are explored in section 7 (below).}

The Environment Agency appears to have considered bringing proceedings against the subcontractors under Part III of the Water Resources Act 1991, and also
using its powers under s.161 to require the Harbour Commission, as landowners, to bear the clean up costs. The basis for this would have been that, whilst they had not ‘caused' the presence of polluting matter in controlled waters, they were ‘knowingly permitting’ its (likely) entry through knowledge of its migration back into the water from the sediments and failing to take action to stop it. The action does not appear to have been pursued, for reasons such as a lack of clarity on the meaning of “knowingly permit” and a suggestion that the initial clean up operations undertaken by the National Rivers Authority99 had caused the contaminants’ presence in the sediments.

The Case Study illustrates the way in which remedial dredging can coincide with operational dredging, but a clear distinction between these types of liability must be maintained. It also illustrates the practical difficulties of identifying and taking action against ‘original polluters’, even where polluting activities have been fairly recent. As well as at least one of the companies being in liquidation, individual directors were not traceable for the purposes of bringing proceedings under Part III of the Water Resources Act 1991.100

The contamination resulted from activities which had ceased before the coming into force of the ELD Regulations, so that there cannot be liability under that regime relating to the presence of the contaminants.

Should a similar case arise in the future, the awareness of potential contamination risks, and associated costs, should prompt the taking of specific measures to deal with potential liabilities. Liability may be established through contractual/property agreements, together with enforcement and security mechanisms.101

There would also be the potential for Contingent Liability in private law arising in relation to the Operational Management activities. As the original remediation works were not entirely successful, these could conceivably include negligence and/or contractual actions in relation to land owned by the party commissioning the works.

99 As predecessor of the Environment Agency.
100 In the actual Case Study, this was to be taken under a statutory predecessor to s.85 (s.107 of the Water Act 1989).
101 Again, these issues are explored in section 7 (below).
If the result of Operational Management activities were to cause direct or indirect interference with land belonging to others, there is the possibility of trespass and/or nuisance actions being brought by those landowners. If the activities are undertaken otherwise than in accordance with the relevant regulatory authorisations, regulatory and consequent criminal liability may arise. Whether liabilities may arise under the ELD Regulations would be determined, in the main, by the nature of the contamination and whether it causes any Environmental Damage whilst *in situ*. 
4.6.2 Case Study B

In contrast with Case Study A, there are very significant difficulties in identifying specific sources of specific amounts of contaminants. This is likely to be a common problem in cases of CMS. The Case Study scenario includes a research project which aims to establish greater clarity in this regard. Even if that were to be successful, very significant challenges remain in establishing liability in private law. Given the length of time over which source activities may have taken place, there are real difficulties in establishing that the user of land was unreasonable at the particular time.

It may be even more difficult to establish that the damage was ‘reasonably foreseeable’ at the time the activities released the contaminants. The question of whether the ‘material effect’ of the contamination would have been reasonably foreseeable at the relevant times arises here. As the nature of the ‘harm’ is increased disposal costs (as a result of tightening regulatory controls), that might not be considered to have been foreseeable even where other ‘downstream’ impacts might be. In addition, the loss of control over substances once they have entered the river (for example) would limit liability to steps which it is considered reasonable for a landowner to take. The time and distance over which contaminants are likely to have migrated means that any interference is unlikely to be sufficiently direct to constitute a trespass.

It is difficult to identify any duties of care owed to those suffering from CMS problems, though these might arise depending upon the precise source of the contaminants. It is possible that contractual/property agreements may have been in place, but this seems unlikely. As with Case Study A, there remain practical difficulties in enforcing any obligations which have existed.

To the extent that specific contaminant sources can be identified (if at all) in cases of this type, it would seem that a distinction can be made between activities which have ceased and those which are ongoing. Foreseeability issues (and practical questions such as the tracing and solvency of ‘polluters’) are less problematic for ongoing activities.
Many of the activities producing contaminants in this Case Study may have been subject to regulatory controls. In order to establish Statutory Liability, however, the precise controls over specific activities at the relevant times will need to be identified. Contaminating activities, such as upstream industrial plants, may have been subject to Pollution Prevention & Control permitting (and previous systems such as the Control of Pollution Act 1974).

Controls may also have been imposed through Discharge Consents (under the Water Resources Act 1991). Powers to require clean up and consequential liabilities have developed over time. As with the application of private law liabilities, however, it is much easier to see how regulation of ongoing activities might be used to prevent further contamination, rather than to impose liability for historic contamination.

Similarly, the ELD Regulations will have no application to historic contaminating activities. As the CMS does not appear to be causing Environmental Damage in situ, even ongoing contamination sources may not fall within that regime.

As with Case Study A, it is the Contingent Liability for Operational Management activities where liability might more clearly be established (should damage arise from those). The nature of any damage caused and the conditions imposed under the relevant regulatory regimes (such as the FEPA licence conditions for the capping trial) will be of great importance here.

102 These are considered in Section 5.3 (below).
4.6.3 Case Study C

Whilst there are a variety of sources on contamination in Case Study C, a significant difference between this scenario and Case Study B is that a main contaminant and source is identified. Some of the same issues arise, however, with regard to private law liabilities.

Essentially, these relate to the foreseeability of damage resulting from activities at the time they were carried out, the lack of direct interference (trespass), and lack of identifiable duties of care (negligence) or contractual/property agreements. To the extent that contamination results from a number of (uncertain) sources, there are also issues of identification and contribution to interference/’damage’.

Although the main source is a historic activity, it appears that contaminants are continuing to be released from the site (through an aquifer pathway). In these circumstances, it might be argued that the current owner of the land from which contaminants emanate has adopted or continued the nuisance. If the elements of nuisance, including causation, can be established, it may be that a claim for an injunction and/or damages could be made. The evidential and other challenges of bringing a private nuisance claim may prove prohibitive, however. Accordingly, it might be preferable to consider Statutory Liability. Here the position is different from that in both case Studies A & B in important respects. Whilst identifying the specific regulatory controls in place at specific times may be similarly problematic, the pathway through which contaminants apparently continue to migrate comprises ‘controlled waters’. 103

Continuing entry of ‘poisonous, noxious or polluting matter’104 into such waters may bring the source land within Part 2A of the Environmental Protection Act 1990. As noted in the introductory sections to this report, this Statutory Liability regime was introduced to address historic contamination of land, and so attempts to avoid some of the limitations of general liability regimes. Whilst the degree of pollution resulting from the entry of substances into controlled waters

104 Section 78(A)(9) of the Environmental Protection Act 1990.
The fact that entry is ongoing could provide the basis for requiring remediation actions. Thus it might be possible for regulatory bodies (not landowners or other private individuals) to require remedial works despite regulatory controls not being in place at the time of the activities releasing substances to land, and the damage not being foreseeable at that time.

Whilst the aim of any such remediation requirements will be to prevent further pollution of the controlled waters, the effect should be to prevent inputs of contaminants into that pathway to sediments. There are some important limitations on the use of Part 2A in the context of case Study C.

First, the regime can be used to prevent inputs into the pathway, but not to require clean up of the sediments themselves. Secondly, for land polluting controlled waters, it is only those who have ‘caused or knowingly permitted’ the presence of contamination in the contaminated site (known as ‘Class A’ appropriate persons) who can be liable, and not current owners who were not responsible for that presence (known as ‘Class B’ appropriate persons).

This means that unless the contaminants create a significant risk of significant harm in relation to the old Gasworks site, the current owners of the site will not be liable under Part 2A unless they were also responsible for the presence of the contamination. A significant problem here is establishing that a Class A person can be ‘found’.

Operational Management activities in this Case Study do not include significant amounts CMS at present, the management approach being to avoid

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105 Amendments made by s.86 of the Water Act requiring this to comprise ‘significant’ water pollution not yet having been brought into force in England and Wales. This is an example where the position in Scotland differs, with section 78A of the Act as in force there requiring that “significant pollution of the water environment is being caused or there is a significant possibility of such pollution being caused.”

106 Local Authorities or the Environment Agency, depending on the nature of the site and its historic uses.

107 Unless the sediments are causing a ‘significant risk of significant harm’ whilst in situ, when other provisions of Part 2A may apply, including to other people.

108 The liability of the privatised successors the Gas Boards for activities undertaken by the Boards was the exact issue considered by the House of Lords in the ‘Transco’ case referred to in section 4.4.1 (above) where their Lordships found that the successor was not liable.
dredging the more problematic areas. To the extent that this is undertaken, similar issues arise as with the previous Case Studies.
4.6.4 Case Study D

For historic contamination of sediments, Case Study D raises very similar Private Law Liability and Statutory Liability issues to those with Case Study B.

The key distinctive element is that the Case Study demonstrates how Contingent Liabilities have actually materialised in the form of both types of Statutory Liability. The carrying out of Operational Management activities resulted in a number of breaches of FEPA licence conditions. Those breaches then resulted in prosecutions of the marina owners and of the managing director of the dredging contractor. Fines were imposed totalling nearly £35,000.

The contractual agreements in place could establish Private Law Liability as between the dredging contractor and marina owner, or other party commissioning the activities. Most clearly, such agreements could impose liability to clean up any contamination on the commissioning parties’ land resulting from the activities. Conducting the operations may also create a duty of care on which neighbouring owners might base a negligence action, should the requisite standard of care for carrying out operations not be met.

Contractual arrangements can be used to enable the commissioning party to seek recovery in relation to liabilities it might suffer in relation to the Operational Management activities, such as nuisance or trespass actions.

Given the proximity of sensitive locations in the form of protected habitats, it is quite easy to see how Environmental Damage might be caused, so that Contingent Liability could also include liability under the ELD Regulations.
4.6.5 Case Study E

Case Study E raises very similar issues to those in Case Study B. Application of both the Private Law and Statutory Liability regimes is very problematic, with identification of sources, specific activities and regulatory controls in place at the relevant times extremely challenging.

The feature which perhaps distinguishes the Case Study most from Case Study B is the commercial context. The scale of commercial operations, and desire to develop further the port facility and related services, in Case Study B has supported a research project looking at potential contamination sources, and a trial project evaluating a novel Operational Management technique. By contrast, the commercial position in Case Study E has prohibited the dredging of CMS as this is not economic.

The implication of this is that the funding of the investigations required in considering possible Private Law Liability actions may be unrealistic. The funding of any legal proceedings, even if possible in law (which looks doubtful), would be even more challenging.

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<th>Table 4: CMS Case Study Liability Summaries</th>
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<tr>
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<th>Ongoing Sources:</th>
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<td><strong>E</strong></td>
<td>Unlikely</td>
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<td>N/A</td>
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5.1 Development of Hypotheticals

The ‘Contingent’ liabilities which might arise in relation to the Operational Management of CMS have been referred to in preceding sections. During the course of producing this report, it became clear that stakeholders were interested in the potential liabilities which might arise in using novel CMS disposal options. One particular concern was whether those responsible for the presence of contaminating substances in sediments might be liable (at least in part) for the financial costs of disposal/management.109

More generally, those undertaking (novel) Operational Management activities have expressed interest in managing their own (and third party contractors’) liabilities. Section 7 of this report considers methods of managing future liabilities.

We were provided with three examples of ‘novel’ disposal/management methods for CMS by the Project Leader. These examples were amended to develop scenarios for exploring the Contingent Liability issues of concern to stakeholders. As these are examples of techniques which might be used and not (generally) ones currently in use, these have been referred to as ‘Hypotheticals’ (which also helps to distinguish them from the actual Case Studies used to explore the liability issues arising from contamination of the sediments themselves in Sections 3 and 4, above).

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109 This Report considers liability issues only; the novel methods clearly raise regulatory issues, where the work undertaken in Task 3 might be relevant.
5.2 Hypothetical 1 (Geobags & Offshore Disposal)

5.2.1 Hypothetical Scenario

Geotextile bags are used around the world (including the Netherlands, USA and Far East) for the containment of (non-contaminated) sediments for use in coastal and maritime engineering. They are used in preference to hard engineering structures to create dykes, seawalls, artificial river banks, bunds to pond water etc. Figure 1 shows a schematic of a set of submerged geo-bags which are being used currently to construct an artificial surfing reef offshore Bournemouth. The bags are filled with clean sand and fine gravel.

In the UK the use of this approach for the containment and disposal of contaminated marine sediments is mooted by some as an appropriate method. However, to date this approach has not been used. If the use of such an approach were sanctioned by the MFA then this may present a cost-effective disposal method.

Two methods are envisioned; either placement of the geobags on the seabed at a licensed offshore disposal site, or excavation of a pit using a dredger and then covering of the bags with the removed material.

Figure 1: A schematic of a set of submerged geo-bags which are being used currently to construct an artificial surfing reef offshore Bournemouth. In this example, the bags have been placed on a seabed proper, not in an excavated pit, and they are not subsequently buried).
5.2.2 Application of Liability Principles

Likely future liabilities arising out of the use of this method for CMS management would seem to be associated with the escape of contaminants. Such an occurrence could create a variety of liabilities, depending upon the specific circumstances. As these events may take place some time in the future, developments in regulatory and private law over the life-cycle of the project may be influential.

If there have been breaches of licensing controls, or other regulatory requirements, then regulatory liability may arise. This will be influenced by the specific licence conditions imposed, together with the nature of any harm caused. Administrative sanctions might include fixed penalties for less serious escapes, with clean up requirements and/or criminal liability for more serious situations. Liability could include corrective work to the disposal site, as well as clean up off-site.

As compliance with a FEPA licence or Environmental Permit provides a legal defence to water pollution offences, damage which results from a breach of licence conditions, etc may result in criminal liability and clean up costs under Part III of the Water Resources Act 1991.

If “Water Damage” or “Habitats/Species Damage” were to result, then liability may arise under the ELD (including the duty to preventative action where there is an ‘imminent threat’ of such damage). As the operations would take place after the entry into force of the ELD Regulations, they should be applicable where relevant. Compliance with regulatory permits may provide a defence to ELD liability. A more detailed explanation of potential Contingent Liability under the ELD is provided in Section 4.5 (above).

Private law liability might arise whereby the operator is responsible for damage such as impacts on mussel-beds. This could be much broader than liability under the ELD as it is not limited to the types of ‘environmental damage’ within the ELD’s scope. One example is that liability could cover damage to unprotected species or habitats through contamination (though some kind of property rights would normally need to be affected). It could also extend to losses unrelated to the contaminated nature of the material, such as the loss or deterioration of the
‘surfing reef’. Liability would be most clearly imposed through contractual provisions, which might be used to allocate liabilities between parties in multi-party activities. It might also arise under the torts of negligence, or nuisance, where issues such as, whether a duty of care exists (and has been breached), or damage was reasonably foreseeable, will be relevant.

The existence and scope of the liability of various parties may be more complex in cases of novel CMS Management Methods. Where techniques do not have a proven track record, there may be more scope for questioning the design of the project, rather than just its execution. This might result in parties claiming that others were in fact responsible for causing losses, whether by negligent design or operation, or undertaking responsibilities in breach of contractual obligations. A further dimension could be responsibilities for monitoring sites so that further works can be identified to avoid or mitigate losses.

In the case of Geobags specifically, a further dimension could be the design and manufacture of the bags, or other materials, themselves, as well as the design and implementation of the project.

In all cases, general issues such as establishing causal links between the CMS operations and damage, and proof of other matters, will be important factors. Limitation periods, which vary according to the specific liability regime, may also be important. For example, the limitation period for the ELD Regulations is 30 years (though whether this is from the depositing of the CMS, or the ‘event’ of a release, for example, is not clear).

In most cases it is difficult to see how the parties originally responsible for the presence of contaminating substances within sediments could be made liable for Contingent Liabilities. The major challenges in establishing liability for their presence within CMS, which are considered in Section 4, include practical difficulties such as identifying solvent polluters who can be connected to the contaminants to the requisite legal standard. Even in such cases, as explained in Section 4, establishing liability under extant regulatory regimes, through reasonable foreseeability (for a nuisance action), or breach of a duty of care (for negligence), is considered very difficult. If liability could be established regarding the presence of contaminants in CMS, extending that to damage which arises, not
as a result of that presence, but as a result of how that presence was managed, presents a further obstacle. Whilst this might not seem much of a step from responsibility for the presence of contaminants, one method of managing that presence is leaving the material in place. Establishing a need to move the material, and create new risks, whilst maintaining the causal links may be very challenging.
5.3 Hypothetical 2 (Confined Aquatic Disposal in Seabed Pits)

5.3.1 Hypothetical Scenario

In the USA the use of confined aquatic disposal (CAD) cells are increasingly becoming the selected option for the management of unacceptably contaminated sediments. CAD cells, which are either (most frequently) large, deep pits dug out of the seabed (A), natural seabed depressions (B), or where the level seabed is used as placement surface followed by capping with clean sediment. (B) or (C) are often selected as the preferred alternatives because these approaches provide an acceptable compromise when cost, logistics, regulatory acceptance, environmental risk, and perception of various alternatives are considered. The excavation of a deep pit with a thicker cap presents additional costs. The capping trial referred to in Case Study B was (C); a level-bottom capping project (i.e. no pit or excavation was involved). The CDMS was deposited on a relatively flat bottom and the cap piled up over it.

Figure 2: Schematic of confined aquatic disposal (CAD) cells. (A) Cell dredged to meet specific project needs. (B) Cell using existing bottom depression or old borrow pit; (C) Level seabed used as placement surface followed by capping with clean sediment.
5.3.2 Application of Liability Principles

The liability principles appear to apply in the same way for CAD projects as for Geobags. The experience of the Port-of-Tyne Capping Trial seems to reinforce the potential complexity which may be result from the novel design and (associated) monitoring responsibilities, including site selection. This situation will potentially create an ‘intermediate’ tier of disputes regarding the need for additional works and responsibility for undertaking these. Clarity in contractual agreements, including decision-making processes, will be critical (as will the usual considerations of appointing competent consultants and contractors, with appropriate insurance or other financial support).
5.4 Hypothetical 3 (Maritime Structures)

5.4.1 Hypothetical Scenario

An option that is available to developers is to use treated CMS as fill material for coastal maritime structures e.g. sea walls, wharves etc. The factors which may influence this particular disposal option include type of contamination, treatment costs etc. The main concerns of stakeholders are the liabilities associated with an accidental or unwarranted release of contaminated sediments to the local environment, e.g. if a structure collapses.

Figure 3: Photograph of a seawall structure. A potential use for treated CMS?

5.4.2 Application of Liability Principles

Again, the basic position regarding potential liabilities is as with Hypothetical 1. An important note regarding such Management Methods is that the

110 A significant regulatory issue arises if any structure straddles the high water mark, as differing regimes regulate the submerged part of the structure (FEPA) and the above water part (Environmental Permitting Regulations).
liabilities do not necessarily arise from the contaminated nature of the material. For example, Species/Habitats Damage giving rise to (what can be considerable) liabilities under the ELD Regulations could arise from the physical collapse of a structure just as much as the release of contaminating substances from it over time.

It is perhaps worth pointing out that a substantial failure of the structure could result in liability for wider consequences, such as personal injuries caused.
5.5 General Issues from Hypotheticals

The potential liabilities relating to the undertaking of CMS Operational Management activities are complex and fact dependent. This means that they may depend upon what types of activities are carried out by which parties, to what standards, in which areas. Novel CMS Management Methods are likely to increase this complexity by increasing the importance of factors such as design and monitoring (as well as possibly site selection).

Liability of the parties responsible for the presence of contaminants within the CMS will be unlikely in most cases. If we compare the position with that of contaminants in soil, there are (not surprisingly) similarities. Private law liabilities are very difficult to establish, which helped to stimulate the development of a specific regulatory regime for clean up of contaminated land; Part 2A of the Environmental Protection Act 1990. Under Part 2A, a fundamental question is whether contaminants are causing ‘harm’ in situ. If they are, then polluters and/or landowners may be liable for remediating the land. But if not, there is no responsibility for cleaning up. Where development of land creates a (significant) risk of (significant) harm, etc, liabilities will be created. In many cases, however, the main liability will rest with the developer of land as the person who introduced the ‘pathway’ for contaminants to potentially reach ‘receptors’ and so risk causing ‘harm’. Accordingly, it is the ‘developer’, together with contractors, who must manage the risks created by the need to remediate land.

Those principles, including Part 2A, appear to apply to CMS, where the undertaking of capital or maintenance (though not remedial) dredging, seem analogous to property development. Arguably, the case of maintenance dredging, which continues an activity or use of land, is different. The law appears to make no distinction, however.
6. Ownership Issues

6.1 Land Ownership

Ownership of land is important for CMS liability for a number of reasons. At least two aspects are relevant; ownership of land where CMS is present, and ownership of sites where disposal is to take place.

Ownership of specific sites can be complex in a number of ways. First, although the ‘freehold’ ownership of a site will often be held by the Crown Estates\(^\text{111}\) (as the foreshore and the land below the low water mark extending for twelve miles generally vests with the Crown), some sites may be owned by other bodies, such as port authorities, local authorities, private individuals or the National Trust.

Secondly, the ownership of specific locations may be further complicated as a result of the grant of leases to others. Local authorities often own or lease part of the seabed below low water mark, with many owning part of the foreshore. Though less common, a number of local authorities own part of the seabed along the coast of their area, and many more lease part of the foreshore or seabed.\(^\text{112}\) Leasehold ownership is also held over parts of the seabed by other bodies, including private sector organisations (such as renewable energy developers).

‘Ownership’ of land is therefore often ‘fragmented’, so that several people and/or bodies can have property rights over the same piece of land at the same time. This means that the right to bring claims in nuisance may be enjoyed by those owning the ‘freehold’ of a property, and also those with leasehold interests which are granted out of that freehold estate. As a number of leases can be granted over different parts of a site, or for different periods of time over the same area, the ownership structure can be complex.

\(^{111}\) The foreshore may be owned by the Duchies of Cornwall or Lancaster in the relevant areas.

\(^{112}\) Detailed consideration of ownership is beyond the scope of this report. For a detailed study, see “Extent of Local Authority Jurisdiction in the Marine Environment” (www.jncc.gov.uk/pdf/tyldesley_reportall.pdf; accessed June 23, 2009). Information regarding the Crown Estate’s ownership of the foreshore and seabed is available from: www.thecrownestate.co.uk/our_portfolio/marine.htm, with maps available at: www.thecrownestate.co.uk/metal-detecting (both accessed August 12, 2009).
Ownership can be important in imposing liability, but also in providing the rights from which liability can be imposed on others. Examples from the discussion of liability regimes (above) are:

- Contaminated Land liability under Part 2A of the Environmental Protection Act 1990

- Liability as a ‘knowing permitter’ of pollution of controlled waters (under Part III of the Water Resources Act 1991)

- Private law liability regimes often require the ownership of rights over land in order to bring a claim (‘standing’). The requirement for ‘property’ rights in order to found an action in nuisance reflects the nature of that regime - it being a ‘tort against land’ - and limits those who can bring claims. Claims for trespass are similarly based upon interference with property rights.
Ownership of CMS sites is critical to the question of liability for CMS Operational Management (and Contingent Liability). As well as potentially imposing liability and providing rights to impose liability on others, ownership provides a very significant degree of control over the use of land. This means that, subject to regulatory intervention, a landowner can not only seek to recover losses incurred as a result of interference with his land (or rights relating to it), but can also seek to stop or prevent any such interference. In the CMS context, this most obviously arises in relation to the undertaking of dredging operations.

A specific issue we have been asked to consider is the position of ‘third party’ CMS site owners, such as the Crown Estates, where port authorities (or others) wish to dredge the site for capital or maintenance purposes. The outcome of such operations will be to ‘clean up’ the site owner’s land. The question raised was whether the site owner can be required to contribute to the costs of this ‘clean up’ through liability mechanisms.\[113\]

A useful starting point for exploring this issue is to consider the fact that the Crown Estates (and presumably others) charge for the dredging of material on its land. This suggests that it is not the landowner who wishes to have the material removed. In cases of capital or maintenance dredging there is unlikely to be any direct benefit to the third party CMS site owner because the CMS is not considered to be causing environmental (or other) harm in situ; it is the movement of the material and its subsequent disposal which produces risks.

In the types of cases explored in this report, there is generally no need for a landowner to deal with CMS in situ as dredging is not being carried out for remedial purposes.\[114\] As discussed in preceding sections, the situation is very different where remedial action is required.\[115\] Accordingly, landowners may derive a benefit from having CMS removed, but this is not a benefit requested by them. In the

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\[113\] Where the site owner is the same party as that wishing to dredge, such as a port authority, this issue is clearly redundant.

\[114\] This does not mean that in situ CMS does not have impacts, and remedial works may be necessary in other types of cases.

\[115\] Such cases have been fairly infrequent, but may increase as obligations under of the Water Framework Directive take effect.
absence of regulatory requirements or statutory duties, a landowner has no legal
duty to permit such operations, let alone contribute towards those costs.

Where there are benefits which are desired by the landowner, these should
be reflected in negotiations as to reduced charges, or contributing to management
costs, but should be commercial (or possibly political) matters, and so are separate
from the legal responsibilities of such parties as ‘landowners’.

Given the base position that landowners are generally under no legal duty
to pay for, or even permit, operational dredging activities, such activities in fact
create new liability risks for them. Again, this is reflected in the agreements used
by the Crown Estates. As well as the financial charges, there are provisions
requiring the ‘dredger’ to indemnify the landowner against any liabilities which
may arise “by reason of or as a result of the dredging and placing of material or
arising by reason of the works”.

\[116\] Such as remedial clean up/dredging required under Part 2A of the Environmental Protection Act
1990, as considered in section 4.3.2 (above).
6.3 Ownership of Disposal Sites

As noted above, legal ownership of many CMS sea disposal sites will be held by the Crown Estates, typically where below the low water mark. As regulatory authorisation does not of itself permit a nuisance or trespass to land, even licenced deposits of CMS will require the permission of the landowner (which may be based upon the payment of a fee).
7. Managing liabilities for CMS

Wherever CMS is managed in some way through movement, treatment or final disposal there will always be an element of risk. Section 5 of this report identified some of the Contingent Liabilities which may be created when novel or innovative methodologies are used. These liabilities are, however, only examples of the many different potential risks associated with CMS management.

The typical response to such risks is to utilise various management strategies and tools which seek to either reduce or transfer the liability. Reducing the liability will often take some form of financial security or bond which is held on account to meet any contingent liabilities which arise in future. Transferring liability normally results from contractual arrangements as between various parties who are connected to the CMS management operation in question e.g. owners of land, operators and/or port authorities.

In many ways the suggested mechanisms build upon tools which are familiar both within existing structures for dealing with environmental risks from CMS and/or can be developed easily from mechanisms which have been used for some years when dealing with land based contamination and remediation.

The suggested mechanisms for addressing risks from managing CMS are:

- Contractual provisions - namely indemnities
- Corporate restructuring in the shape of Special Purpose Vehicles
- The Provision of Financial Guarantees/Bonds
- Insurance
7.1 Indemnities

7.1.1 Nature of Indemnities

As a general approach, indemnities are an effective mechanism for transferring Contingent Liabilities as between parties. Certainly there is good evidence that they are considered to be a suitable risk transfer device under existing dredging licences.

Fairly basic risk transfer mechanisms have existed in the form of simple indemnities specified as general conditions to dredging licences granted by Port Authorities. For example, the standard Port of London dredging licence includes a standard condition:

“To indemnify the PLA against all actions proceedings claims demands costs expenses and losses arising out of the dredging or the grant of this Licence”117

The purported effect of this indemnity would be to make the holder of the licence (i.e. the operator), responsible for any Contingent Liabilities, notwithstanding the fact that the law might make the authority liable. In these circumstances the operator would ‘stand in the shoes’ of the authority and meet any claims made against the authority.

Thus an indemnity is simply a legal mechanism whereby one party agrees that it will save another party from any financial or other losses where certain specified circumstances exist. In this way an indemnity can be very wide and general (as in the case of the standard condition above) or related to very specific risks. For example a dredging operator may agree with the Port Authority to meet any liabilities arising from the future beneficial use of CMS. Alternatively a geotechnical engineer designing a seabed pit or the manufacturer of Geobags could indemnify the operator for any losses arising out of the design of the pit or faults in the bags.

117 A similar provision can be found in the Crown Estates Precedent licence issued to operators as land owner
An indemnity allows the person who is covered to claim the full amount of any loss to the party giving the indemnity (subject to any limits or caps which are contained in the indemnity). Indemnities can also be transferred as between different parties. Thus an operator can indemnify a landowner and any successor in title for any losses following the beneficial use of CMS on their land.

The basic questions raised when considering indemnities as a method of managing liabilities from CMS are:

- Who gives the indemnity and for the benefit of whom?
- What is the nature of the indemnity (i.e. what liabilities are covered)?
- What are the pros and cons of using indemnities?

Parties - who gives the indemnity and for the benefit of whom?

The nature of the various parties involved in CMS Management means that the scope for giving, and receiving the benefit of, an indemnity is relatively wide. The likely parties receiving the benefit of an indemnity would include:

- Owners/occupiers of land affected by CMS management operations
- Parties requiring CMS management operations - Ports and Harbour Authorities

In contrast, the likely parties who would be required to give an indemnity include:

- Parties with primary responsibility for CMS management operations - Operators
- Parties with secondary responsibility for CMS management operations - Sub-contractors/Agents

In the case of owners of land being dredged or where CMS management operations are carried out (e.g. beneficial use), there is little or no incentive for any agreement to the operations unless there is an indemnity given by those who are responsible for the operations. Thus the normal position would be that owners/occupiers of land would require a general indemnity as a central condition...
of any agreement to use the land. In the same way those responsible for licensing CMS operations (outside statutory mechanisms) may also require a general and unlimited indemnity.\textsuperscript{118}

This is only a very general picture and the extent and nature of the indemnity will vary depending upon the nature of the activity and the risks associated with that activity. Various factors will influence negotiations on risk allocation, though ultimately the most important will be bargaining power and the relative risk sensitivity of the parties.

7.1.2 Issues with Indemnities

\textit{The creditworthiness of the party giving the indemnity}

Perhaps the most significant issue with indemnities is that they are entirely dependent upon the continuing financial standing of the party giving the indemnity. In most cases the party giving the indemnity will have sufficient funds to cover the indemnity at the time it is given. The contingent nature of the liability, does, however mean that where an indemnity is triggered some years in the future, any funds may have been dissipated and or otherwise be insufficient to meet any claim. This problem can be partially addressed through the use of bonds and/or financial guarantees (see below).

\textit{Future Legislation}

Indemnities for losses arising from the management of CMS would normally relate to breach of [Environmental] Laws (which is widely defined) to include all relevant private law, orders of public authorities and legislation including European law. One of the key issues when drafting indemnities is whether they cover laws in force at the date of the indemnity or they extend to future legislation. In an area such as the marine environment, where the statutory controls have been relatively under-developed it is reasonable to expect that more controls will be introduced (including the implementation of the Marine Bill). In such circumstances the party giving the indemnity must be clear that they are agreeing to pay for categories of

\footnotesize{\textsuperscript{118} In practice, indemnities will almost always be restricted in some ways (such as their temporal or financial scope, or the types of losses covered) and so not be entirely ‘unlimited’.}
losses which may not be in existence at the date of the agreement. This risk may be reduced by providing that changes of law enacted after the date of the agreement do not fall within the terms of the indemnity.

Limitation Periods

It is typical for indemnities to be time limited. In circumstances where Contingent Liabilities may not be triggered for many years, careful consideration needs to be given as to the appropriate period over which the indemnity will have effect. Most periods will be linked in some way to the magnitude of any risks associated with the CMS. The party who has the benefit of the indemnity (e.g. the Ports) will wish to avoid too short a period, particularly where novel management methods are used which have little track record in terms of reliability. The party giving the indemnity will want to ensure that the period is only long enough to address foreseeable risks.

Financial limitations and thresholds

Most indemnities are not limitless in terms of the amount of losses which are covered. Most parties giving an indemnity will want a ‘cap’ on liabilities. In normal circumstances the cap will be related to the cost of services undertaken under any agreement. In other words it would be highly unlikely for a cap to exceed the value of the works undertaken unless the risks were considered to be minimal. At the other end of the spectrum it is also typical that the party who has the benefit of the indemnity may be responsible for claims below a specified threshold (known as de minimis claims).

Counter-indemnities

Not every risk which is associated with the management of CMS will arise through the operational activities themselves. For example CMS which is put to beneficial use on land may be disturbed by future activities undertaken by the land-owner or other related party. In such circumstances it will be important to identify counter- or cross- indemnities which transfer liabilities back to the party which has primary responsibility for triggering the circumstances which have given rise to the damage.
Claims procedures

Where indemnities are relied upon as a method of transferring Contingent Liabilities it is important to identify clear conditions and procedures where a claim against the indemnity can be made. In general the trigger for claims should be very specific and related to actual claims made by third parties (i.e. under private law claims in negligence/nuisance) or regulatory authorities (i.e. under statutory regimes) rather than circumstances which might give rise to claims. The management of CMS will give rise to the prospect of contamination, notwithstanding at acceptable levels. Removing the prospect of subjective assessment of contamination should make the enforceability of any indemnity clearer.
7.2 Financial Guarantees/Bonds

As mentioned above, one of the major disadvantages of indemnities is that they are only as valuable as the creditworthiness of the party giving the indemnity. In other words where a party has few funds or other assets, any claim against an indemnity will be pointless. In order to address this, many parties who would have the benefit of indemnity prefer to have the certainty of an identifiable fund or guaranteed source of finance to meet any Contingent Liabilities should they arise. Thus, it is common practice to seek financial guarantees and or bonds which provide sufficient cover to meet any foreseeable losses which might occur from CMS management activities.

The certainty that such financial guarantees provide is offset by a number of factors. First, the amount of guarantee or bond might not be sufficient to cover any liability. Secondly, the guarantee and/or bond does not normally last indefinitely giving rise to the question of coverage beyond the term. Thirdly, the financing of such guarantees and bonds has to be taken into account when the costs of CMS management operations are calculated. The provision of financing for long term risks is expensive and may raise the costs of normal activities beyond a level that is economic.
7.3 Special Purpose Vehicles

In addition to methods of transferring risks as between parties it is possible to try to minimise the financial risks associated with the management of CMS through the ‘ring fencing’ of liabilities. Where large bodies or corporate entities with significant financial reserves undertake risky activities it is not unusual for them to create a separate corporate entity (sometimes referred to as a ‘special purpose vehicle’ or simply SPV) which ensures that any Contingent Liabilities associated with specific activities are linked to a company with defined objectives and limited funds. The SPV is normally a Limited Liability Company, thereby ensuring that any large-scale liabilities can be avoided.

In this way SPV’s are used by multi-faceted organisations to isolate specialised risk from the main operations of the organisation. Thus in the case of Ports and Harbour Authorities, the responsibility for contingent liabilities from CMS operations would be set aside in a separate corporate entity to undertake the management activities thereby achieving a narrow set of goals without putting the entire organisation at financial risk.

Another advantage in creating an SPV is that it may be created through a joint venture and owned by one or more interested parties. Thus a SPV created by operators and ports to explore and develop novel treatment and disposal methods for CMS would have the benefit of shared enterprise whilst placing specified limits on Contingent Liabilities.

The SPV must be truly independent and therefore, when setting up a SPV, there be sufficient separation between the parent organisations and the SPV. Unless there is a clear separation there is a chance that any claim for a Contingent Liability will be linked to the parent organisations. One way of doing this is to establish the SPV as an ‘orphan’ entity with separate management team and corporate structure.
7.4 Insurance

Although it is an underdeveloped market, there is no obvious reason why it would not be possible to insure against Contingent Liabilities arising from the management of CMS. This would most effectively be dealt with through specialised policies because in general, the protection provided by public or general liability policies would be inadequate as a response to the specialised risks associated with CMS.

In particular since about 1990, the insurance industry has adopted a general position that cover for gradual pollution is excluded from public liability policies. Since that time most public liability policies exclude any losses caused by pollution or contamination other than those caused by a sudden, unexpected and unintended incident. Thus any losses resulting from long term contamination caused by CMS activities would be excluded from most, if not all, public liability policies.

As a result of the incomplete and uncertain coverage under traditional public liability policies, the only effective way of ensuring a comprehensive coverage of environmental risks arising from CMS management would be through the development of specialised insurance policies. Typically environmental insurance policies cover:

- Site specific risks from pollution incidents and contamination. This would be relevant for disposal and treatment sites. This would apply to damage occurring both on-site (e.g. arising from accidental damage) and off-site (e.g. arising from migrating contaminants). It would be restricted to the period of the policy and so would require renewal.
- Operational risks which provide for first and third party injury and property damage in addition to the cost of cleaning up contamination which results from a pollution incident on a disposal or treatment site.
- Losses associated with incomplete or inadequate treatment of CMS.
- Losses associated with treatment or other services carried out by sub-contractors
• Lossess associated with ‘Environmental Liability’ under the Environmental Liability Directive

Most policies are designed to cover site specific risks or specific activities. Although the marine environment is somewhat unusual it would not be uncommon to cover activities which were undertaken at sea (including dredging) although the geographical extent of policy coverage may be limited to strict operational areas.
7.6 Conclusion - Strategies for Managing Liabilities

Given the significant limitations on the potential imposition of liability for historic contamination of sediments, consideration of legal risk management in this area has naturally focused on Contingent Liabilities.

In considering any strategy to manage CMS, it is important to consider ways in which the risks associated with CMS operations can be managed in an efficient and ordered fashion. In the absence of risk management mechanisms the uncertainties of Contingent Liabilities may act as a disincentive to operators when developing new techniques and/or maintaining dredging operations.

On the other hand risk management tools which are too complicated or expensive will increase the costs of dealing with CMS to an unacceptably or unsustainably high level. Balancing effectiveness with complexity and cost is the key to providing suitable risk management tools.

It is not possible to identify specific techniques or structures as those most appropriate for managing Contingent Liabilities for CMS. The most appropriate will vary according to the specific case. Factors which might be relevant include:

- The nature of the risks identified (including types of risks, scope of financial scale, certainty of assessment, etc)
- Complexity of relationships (e.g. the number and nature of the parties involved)
- The availability and cost of insurance to cover identified risks
- Existing insurance policies held by relevant parties
- Timescales

Consideration of such factors should suggest the best mechanism/structures (or more likely ‘mix’ of mechanisms/structures) in each case. A further question will be regulatory acceptance of some approaches. The Special Purpose Vehicle may be an effective mechanism for managing risks in the sense of allocating and restricting liability, but may not (alone) be acceptable from the perspective of ensuring that liabilities which may materialise in the future are met.
8. **Key Findings**

Liabilities relating to historically Contaminated Marine Sediments can be grouped within two categories:

- “Operational Management” liability (reflecting the increased costs of managing, moving and disposing of CMS); and
- “Contingent Liabilities” (arising from such operational management).

The application of liability regimes, and the different variables, to particular fact patterns found in the CMS Case Studies suggests that there are no general answers to questions relating to the recovery and transfer of costs and liabilities incurred as a result of operational dredging activities to those who were responsible for historic contamination. Each set of facts will give rise to different considerations. It is possible, however, to identify some general points raised by the application of the polluter pays principle (‘PPP’) in the context of liability for the management, movement and disposal of historic CMS:

A **Costs and liabilities cannot be transferred or recovered unless there is some specific legal mechanism which allows them to be transferred or recovered.**

In our initial discussions with operators and other interested parties it has sometimes appeared that there is an assumption that the PPP operates as a binding principle with a presumption that any increased costs or new liabilities arising from operational activities will somehow be recovered from those who have ‘caused’ the contamination in the first place. To put it another way, there is a presumption that those costs will be ‘internalised’ by polluters. This is not the case in the absence of specific legal mechanisms which impose liabilities on the ‘original polluter’ and instead the costs/liabilities are ‘externalised’ and fall upon those ‘responsible’ for the operational activities.

B **The application of liability regimes and principles to CMS Case Studies suggests that liability on the part of ‘historic polluters’ will not be imposed in most cases of ‘Operational Management’ liabilities**
The limitations of private law liability regimes include difficulties in establishing that ‘duties of care’ existed at particular times (required to establish liability in negligence), and that damage was ‘foreseeable’ at the time when contaminating activities were undertaken (required to establish liability in nuisance).

With regard to statutory/regulatory liability regimes, one of the distinguishing features of contamination that occurred in the past - sometimes, many years distant - as compared to current contamination, is the likely regulatory lawfulness of the actions that caused the presence of the contaminative substances.

Liability for actions is usually established by reference to legal regimes as they stood at the particular time these were undertaken. Whilst there is an example of liability which is, arguably, retrospective in effect in the form of Part 2A of the Environmental Protection Act 1990, it is very unusual for laws to have effect on actions that took place before the law came into force, such as imposing sanctions upon conduct that was lawful when it occurred.

C Whilst liability for remedial works required to address CMS *in situ* might be more readily established, such cases are generally outside the scope of the project

Liability for historic contamination may be imposed under Part 2A of the Environmental Protection Act 1990. Remedial works may also be required under other regimes, such as the Water Resources Act 1991. Other than in (possibly rare) cases where the need for remedial works and operational dredging activities happen to coincide, such regimes will not be relevant to Operational Management of CMS. They may, of course, be relevant should remedial works be required as a result of such activities, and so comprise an element of ‘Contingent Liability’.

D Even where the requirements for establishing liability in law can be met, there may be significant legal and practical obstacles to actually securing money or actions from other parties
Legal obstacles to recovering costs etc include the need for sufficient evidence to establish the matters alleged to the requisite standard of proof. This may be especially challenging when seeking to establish causal links between actions and outcomes in the circumstances (such as the potential for multiple ‘polluters’) likely to exist with regard to CMS. The historic nature of the liability alleged also makes access to contemporaneous records, etc more difficult. A further, very important, issue is the identification of a solvent liable party which is still living/in existence. Without this, there will be no source from which to fund the liability.

E The application of the Environmental Liability Directive (‘ELD’) is limited to Contingent Liabilities

The application of the ELD to CMS is limited by a number of factors. Most importantly, it is prospective in effect, meaning that the implementing regulations do not cover activities undertaken before March 2009. The regime is also concerned with (preventing and) securing remedial works for ‘Environmental Damage’, rather than awarding compensation between private parties. The nature of such ‘Damage’ is also limited. The likely relevance is, therefore, to the potential Contingent Liabilities which might arise when undertaking operational management activities. These might include damage caused to protected habitats, or deterioration of water quality, for example.

F Consideration of the ‘Hypotheticals’ relating to novel operational management techniques suggests that the nature of Contingent Liabilities which might arise can be complex

The potential liabilities which might arise here are fact dependent, and may involve a number of parties. It is not possible to say exactly which parties will be liable, to what extent, should contaminants escape from such activities. This will be determined by the precise circumstances of each case. Important factors will include the nature of the damage resulting, the performance standards of each of the parties (e.g. the design, implementation, subsequent monitoring, etc), and other circumstances which might have contributed to the escape or damage. Precisely where liability falls may also be influenced be the legal agreements in place between the parties, as well as regulatory controls.
Ownership of CMS sites, and disposal sites, is important as it can result in liability, but will not usually do so where remedial works are not required.

Whilst liability may arise for landowners in relation to the condition of their land, this is generally restricted to circumstances where that condition is such regulatory remedial requirements are triggered, or the effects upon other landowners impose private law liability. The general effect of ownership of land is that it provides control over its use. Accordingly, in the absence of regulatory requirements or statutory duties, a landowner will not usually have any obligation to permit operations such as dredging, let alone contribute towards their costs (even if these have the effect of cleaning up the land).

The identity of the ‘polluter’ can be considered from different perspectives, including that of the person creating environmental risks, so that there are justifications for applying the PPP to those undertaking CMS Operational Management activities.

There is sometimes a presumption that the PPP refers only to the original source of the historic contamination, and is sometimes argued as a ‘shield’, rather than a ‘sword’, by confining it to a principle that only the ‘polluter’ should pay for damage. In identifying who the ‘polluter’ is, broad notions might include parties such as the producer of the products or supplier of services (even if the ‘pollution’ is directly caused by the use of those products or services by others), or even the consumers who provide the incentive for the production of products or supply of services. In the case of CMS, it seems clear that at least two classes of person could fall within the definition of ‘polluter’. As well as the ‘original polluter’ (in the form of the immediate originator of the source of contamination) the concept could (and arguably should) include parties who are not responsible for the presence in any way, but introduce a new ‘pathway’ through which contaminant present risks to the environment. Where CMS is not considered to require remedial works whilst in situ, the case for applying the PPP to those who remove it (and so trigger regulatory requirements) seems a strong one.
Where operational activities create extra costs and/or liabilities, it should not be assumed that the original source of the historic contamination is seen to be a part of the chain of causation within which such costs can be apportioned. Questions as to the nature of ‘pollution’ or ‘contamination’ may be approached on the basis of simply ‘matter out of place’, or requiring there to be an element of ‘damage’ relating to that presence. Thresholds for both concepts may be set by standards of differing kinds. Thus there is no corollary between the mere fact that there are harmful substances within the CMS and the extra costs incurred or harm caused as a consequence of managing, moving or disposing of it.

I A range of structures and techniques for the management of Contingent Liabilities can be employed in order to allocate and address legal risks

There are a number of legal risk management techniques, such as insurance, indemnities and Special Purpose Vehicles, which can be utilised. Without these, the uncertainties of such liabilities might inhibit operational management of CMS, and the use of novel techniques in particular. There are strengths and weaknesses for each of these and the appropriate ‘blend’ will need to identified on a case-by-case basis. For novel operational management methods in particular, an important consideration may be the regulatory acceptance of some techniques.