

# **A Draft Decision Framework for Assessing Options for the Disposal and Treatment of Contaminated Dredged Material in England and Wales**

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# Outline of Presentation

1. Background
2. Assessments to Support Decisions Related to Contaminated Dredged Material (CDM) Management
3. The Draft Decision Framework
4. Defra Consultation

# 1. Background

1. While sediments proposed for dredging in the UK have been generally getting cleaner, available options for managing them have reduced
2. Starting 2007 – Defra ME1104 project - Developing a UK Strategy for managing contaminated marine sediments - 6 tasks plus a synthesis report
3. Need for a Decision Framework identified that takes into account national, EU and international convention requirements
4. Coverage – England and Wales

## 2. Assessments to Support Decisions Related to CDM Management

- Have to evaluate all the feasible management options and compare the risks, costs and regulatory issues for each option
- Have to be carried out on a case-by-case basis due to:
  - Site-specific sediment characteristics
  - Disposal/treatment options sensitive to varying sediment characteristics
  - Disposal/treatment options are not equally available in all areas
  - The potential for differing costs and wider benefits
- Thus, no *a priori* preferred disposal or treatment options

# 3. The Draft Decision Framework

1. Project Appraisal
2. Introduction to the Framework
3. Evaluation of Sediment Characteristics Data
4. Identification of Management Alternatives
5. Initial Screening of Alternatives
6. Initial Assessment of Alternatives
7. Detailed Assessment of Alternatives
8. Selection of Alternative(s)
9. Develop Monitoring Plan

## 3.1 Project Appraisal

1. Project appraisal is an integral part of the assessment framework.
2. In making its final assessment, it is best practice for the regulator to adopt a process in which “.... *the relevant costs and benefits to government and society of all options should be valued, and the net benefits or costs calculated*” (HM Treasury, 2003). These societal costs and benefits include resource costs incurred by the applicants and also wider social costs or benefits, including health or environmental risk.

## 3.2 Introduction to the Framework

1. A framework to promote and provide a consistent and holistic approach to identifying environmentally acceptable management alternatives for CDM.
2. The USEPA document 'Evaluating Environmental Effects of Dredged Material Management Alternatives – A Technical Framework' (USEPA, 2004) has been adapted.
3. Considers both sea and land-based options
4. Requires the application of the waste hierarchy as in the revised Waste Framework Directive
5. The dredging process has to be considered as well since dredging of contaminated sediments has the potential to cause significant risks to the environment and human health

## 3.3 Evaluation of Sediment Characteristics

1. Essential to consult all relevant agencies before utilising the framework to ensure that required sampling, testing, and evaluations are appropriate and satisfactorily conducted.
2. Evaluate existing data on sediments
  - Quantity and 3-D geometry
  - Physical/geotechnical
  - Contaminants
3. Perform additional testing as required
4. Assess sediment characteristics in relation to potential disposal and treatment options



## 3.4 Identification of Management Alternatives

### Sources of information include:

- ME1104 Task 5 Report
- USACE Environmental Research and Development Center, 'Center for Contaminated Sediments' at: <http://el.erdc.usace.army.mil/dots/ccs/ccs.html>
- USEPA 'Contaminated Sediment in Water' at: <http://www.epa.gov/waterscience/cs/>
- Federal Remediation Technology Round Table (2002) Remediation Technologies Screening Matrix and Reference Guide, 4th Ed. <http://www.frtr.gov/matrix2/>
- USEPA Contaminated Sites Clean Up – Sediment Remediation <http://www.clu-in.org/contaminantfocus/default.focus/sec/Sediments/cat/Remediation/p/2>
- Sediment Management Work Group at <http://www.smwg.org/>

## 3.5 Initial Screening of Alternatives

1. Initial screening is undertaken to eliminate from further consideration those management alternatives that clearly are not reasonable for the specific project.
2. The screening should utilize all available information and should consider factors such as environmental concerns, cost, technical feasibility (e.g. disposal/treatment site availability and site characteristics that may be incompatible with dredged sediment volume or characteristics or available dredging plant), and legal considerations.

## 3.6 Initial Assessment of Alternatives

1. Eliminate unreasonable alternatives
2. Further screen remaining options
3. Multi-Criteria Analysis can be used to provide structured, transparent and consistent assessments

## 3.7 Detailed Assessment of Alternatives

1. Risk Assessment of Management Alternative(s)
2. Evaluate Management Actions or Control Measures to Minimize Impacts
3. Retention of Environmentally Acceptable Alternatives

## 3.8 Selection of Alternative(s)

1. Evaluation of Wider Socioeconomic, Technical, and Other Applicable Environmental Considerations
  - A final decision on the alternative or alternatives selected often requires weighing and balancing a much broader set of relevant factors including environmental, engineering, infrastructure implications and wider economic issues.
2. Environmentally Preferred Alternative(s)
  - Depends heavily on professional judgment and subjective evaluation.
3. Selection of Preferred Management Option(s)
  - A record provided of the reasoning used to reach the decision.

## 3.9 Develop Monitoring Plan

Appropriate monitoring plan to cover both the dredging operation and the selected management alternative(s) where not already covered by a monitoring scheme. This should:

- Assess compliance with design and performance standards;
- Assess short-term remedy performance and effectiveness in meeting sediment cleanup levels; and/or
- Evaluate long-term remedy effectiveness in achieving remedial objectives and in reducing human health and/or environmental risks.

## 4. Defra Consultation

- The Consultation document on the Draft Decision Framework and the ME1104 Task Reports are on the Defra website at:  
<http://archive.defra.gov.uk/corporate/consult/ports-marinas/>
- Consultation closed 29 October 2010 and a summary of responses has been published
- The responses are being considered and a Revised Decision Framework together with associated guidance will be published later in 2011