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

Chris Vivian and Ruth Edwards[1], Paul Bardos[2] and Sabine E. Apitz[3]

[1]Cefas, Pakefield Road, Lowestoft, NR33 0HT, UK
Phone: +44-(0)-15 0256 2244
E-mail: chris.vivian@cefas.co.uk

[2]r3 Environmental Technology Ltd, Whiteknights, PO Box 233, Reading RG6 6DW, UK
Phone: +44-(0)-118 378 8164
E-mail: paul@r3environmental.co.uk

[3]SEA Environmental Decisions Ltd., 1 South Cottages, The Ford, Little Hadham, Hertfordshire SG11 2AT, UK
Phone: +44-(0)-1279-771890
E-mail: drsea@cvrl.org

Introduction and Background: The UK Department for Environment, Food and Rural Affairs (Defra) and the UK Marine Management Organisation (MMO) require a contaminated dredged material (CDM) management framework that addresses and balances a range of regulatory, socioeconomic and technical issues, including an assessment of sustainability. An approach was designed to guide applicants through the selection and design of CDM management alternatives (MAs).

Results and Discussion: The selection of appropriate MAs for CDM requires the consideration of a range of technology-, sediment-, site- and region-specific considerations that affect the feasibility, effectiveness, cost, risk and sustainability of various options. Because of potential complexity and project-specificity, the cost, risk and sustainability assessments for an appropriate comparative assessment of CDM MAs require the development of potential project designs, addressing proposed approaches for entire processes from site preparation and dredging to transport, staging, pre-treatment and treatment to disposal, re-use, effluent control and restoration.

However, such design and assessment is expensive, and such work is unjustified for MAs that can be determined to be infeasible or unreasonable in advance. Thus, the decision framework is tiered to minimize costs and improve efficiency; early tiers are designed to eliminate infeasible or unreasonable MAs using largely qualitative criteria to avoid unnecessarily costly and detailed assessments of inappropriate MAs. More detailed, quantitative assessments are applied in later tiers to reduce the uncertainties and better characterize risks, costs and trade-offs for remaining options. Thus, detailed assessment of cost, risk, fitness of purpose and sustainability needed for final comparative assessment is only carried out on short-listed reasonable MA project designs. This tiered approach is designed to specify an appropriate minimum level of information required for each level of decision-making. Throughout the decision-making process, information from earlier tiers is used to structure and organise subsequent information collection to reduce complexity wherever possible.

In parallel with, and feeding into every layer of the tiered assessment is a Project Sustainability Appraisal drawing upon the SURF-UK framework. There is no "absolute" measure of sustainability, so sustainability assessments are specific to a project and its context. A key part of assessing sustainability is engagement with the stakeholders. As sustainability assessment is essentially a subjective process, transparency in the assessment and consensus about approach will greatly improve the chances of achieving agreement between stakeholders, and hence the chances of an acceptable and durable decision. The sustainability assessment can be used to provide an overarching process to help find an agreed view between the different project stakeholders. Like the general decision support approach, the sustainability assessment approach is also tiered and iterative. It interacts with the overall decision framework; guiding the selection and short-listing of MAs, and also the more detailed design and comparative assessment of short-listed MAs. This paper reports on the first phase of the project to develop this guidance, and will lay out the path forward for the next phase.

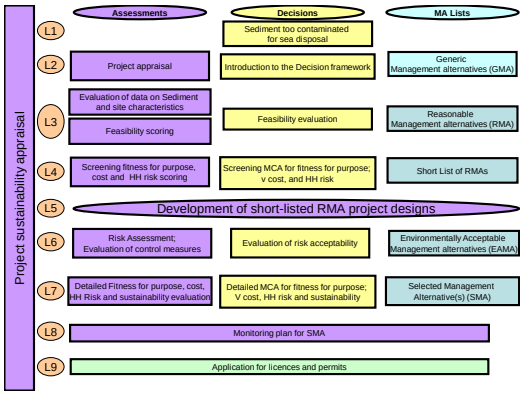

Fig. 1: Tiered framework for the selection of management options. From [1].

Reference: [1] Vivian et al (2011) *Cefas contract report ME5403 Module 18.*

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