Evaluating a multi-criteria analysis methodology for application to flood management and coastal defence appraisals

Technical Summary FD2013

Joint Defra / EA Flood and Coastal Erosion Risk Management R&D programme

Background to R&D project

Project appraisal guidance has for some time suggested the use of Multi-Criteria Analysis (MCA) where it is not possible to value impacts or costs in monetary terms. However, there has been little guidance on how such techniques might be applied and their use to date has been limited. This project has provided guidance on the application of MCA within the current framework for the appraisal of flood management and coastal defence projects. The approach developed complements and extends the current flood and coastal defence approach to appraisals to provide a decision-making methodology that includes both those impacts which can be readily valued in monetary terms and those that can not.

Results of R&D project

The work followed from a scoping report undertaken in 2001/02 which looked at the existing appraisal and decision framework and whether the use of a MCA approach would be appropriate and acceptable. This project comprised two phases, the first included: scoping of impact categories; consultation to identify issues associated with the current approaches; methodological scoping; and a seminar on the proposed methodology. The second phase consisted of a range of case studies to develop the methodology in detail and produce guidelines for its application.

The MCA-based method has been developed to be used in parallel with the established cost benefit analysis and the two are brought together by using an expanded decision rule. The MCA-based approach is systematic and makes use of Appraisal Summary Tables (ASTs) that are used for screening at different decision levels and provide the framework for scoring and weighting of impact categories. The guidance report follows the steps proposed for the MCA-based methodology providing in each section general guidelines on the aim of each step, the necessary data and analysis and the outputs of each step. The case studies report provides a comprehensive record of the work in the project and the case studies analysis undertaken.

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R&D Outputs and their Use

The Technical Report will be available in hard copy format to a limited number of recipients, along with an accompanying CD containing electronic versions of the Project Reports 1 and 2. It will also be available to download from the internet, see details below. The research reports provide advice on the use of MCA and ASTs to assist in the appraisal of flood and coastal erosion risk management projects, strategies and policies. It should be noted that they do not constitute official government guidance, which is unlikely to be available until further work to develop the methodology and identify appropriate sources of data has been undertaken through pilot studies. In the interim it is expected that ASTs will be incorporated in the Project Appraisal Report template and it is suggested that any MCA application involving weighting and scoring or application of the extended decision rule should only be undertaken following consultation with Defra's Flood Management Division.

This R&D Technical Summary relates to R&D Project FD2013 and the following R&D outputs:

- **R&D Technical Report FD2013/TR – Guidance for the MCA-based element of the current approach to appraisal.** Published March 2005.
- **R&D Project Record FD2013/PR1 – Case Studies Report.** Published March 2005
- **R&D Project Record FD2013/PR2 – Annexes (x9) A-C.** Published March 2005

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The above outputs are available on the Defra website (www.defra.gov.uk/environ/fcd/research/). Copies are held by all EA Regional Information Centres and are available from Defra, see below

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Further copies of this summary are available from:

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