



SID 5 Research Project Final Report

Note

In line with the Freedom of Information Act 2000, Defra aims to place the results of its completed research projects in the public domain wherever possible. The SID 5 (Research Project Final Report) is designed to capture the information on the results and outputs of Defra-funded research in a format that is easily publishable through the Defra website. A SID 5 must be completed for all projects.

A SID 5A form must be completed where a project is paid on a monthly basis or against quarterly invoices. No SID 5A is required where payments are made at milestone points. When a SID 5A is required, no SID 5 form will be accepted without the accompanying SID 5A.

- This form is in Word format and the boxes may be expanded or reduced, as appropriate.

ACCESS TO INFORMATION

The information collected on this form will be stored electronically and may be sent to any part of Defra, or to individual researchers or organisations outside Defra for the purposes of reviewing the project. Defra may also disclose the information to any outside organisation acting as an agent authorised by Defra to process final research reports on its behalf. Defra intends to publish this form on its website, unless there are strong reasons not to, which fully comply with exemptions under the Environmental Information Regulations or the Freedom of Information Act 2000.

Defra may be required to release information, including personal data and commercial information, on request under the Environmental Information Regulations or the Freedom of Information Act 2000. However, Defra will not permit any unwarranted breach of confidentiality or act in contravention of its obligations under the Data Protection Act 1998. Defra or its appointed agents may use the name, address or other details on your form to contact you in connection with occasional customer research aimed at improving the processes through which Defra works with its contractors.

Project identification

1. Defra Project code	<input type="text" value="FD2017"/>
2. Project title	<input type="text" value="National Evaluation of the Costs of Meeting Coastal Environmental Requirements"/>
3. Contractor organisation(s)	<input type="text" value="Risk & Policy Analysts Limited
Royal Haskoning Limited
ABP Marine Environmental Research Ltd"/>
4. Total Defra project costs	<input type="text" value="£ 47,550"/>
5. Project: start date	<input type="text" value="15 July 2005"/>
end date	<input type="text" value="13 April 2006"/>

6. It is Defra's intention to publish this form.
Please confirm your agreement to do so..... YES NO

(a) When preparing SID 5s contractors should bear in mind that Defra intends that they be made public. They should be written in a clear and concise manner and represent a full account of the research project which someone not closely associated with the project can follow.

Defra recognises that in a small minority of cases there may be information, such as intellectual property or commercially confidential data, used in or generated by the research project, which should not be disclosed. In these cases, such information should be detailed in a separate annex (not to be published) so that the SID 5 can be placed in the public domain. Where it is impossible to complete the Final Report without including references to any sensitive or confidential data, the information should be included and section (b) completed. NB: only in exceptional circumstances will Defra expect contractors to give a "No" answer.

In all cases, reasons for withholding information must be fully in line with exemptions under the Environmental Information Regulations or the Freedom of Information Act 2000.

(b) If you have answered NO, please explain why the Final report should not be released into public domain

Executive Summary

7. The executive summary must not exceed 2 sides in total of A4 and should be understandable to the intelligent non-scientist. It should cover the main objectives, methods and findings of the research, together with any other significant events and options for new work.

1. Background/need

The Government's aim for flood and coastal erosion risk management is to manage risks by employing an integrated portfolio of approaches, which reflect both national and local priorities, so as to:

- reduce the threat to people and their property; and
- deliver the greatest environmental, social and economic benefit, consistent with the Government's sustainable development principles.

An important aspect of sustainable development involves meeting the key coastal requirements of the European Birds and Habitats Directives and Ramsar sites, and Defra's public service agreement target of bringing 95% of SSSIs into favourable condition by 2010.

2. Main objectives/aims

The aim of the study is to gain a clearer understanding at a national level of the costs of flood management work that may be needed over the next 100 years to meet the key coastal environmental requirements and to inform the Government Spending Review. To do this, the study is to:

- assess the costs of maintaining the defences protecting vulnerable fresh water and brackish Natura 2000/SSSI/Ramsar sites in England for three standards of defence (existing, 1 in 5 and 1 in 20 standard)¹;
- estimate the potential costs of replacing the sites that are protected by flood management works in more sustainable locations; and
- estimate the potential costs of creating replacement saltmarsh habitat to maintain the extent of saltmarsh in each designated estuary.

3. Results

A total of 192 discrete lengths/types of defence, with a total length of 455 km, were identified that are protecting 32,000 ha of vulnerable Natura 2000/SSSI/ Ramsar sites in England. The main defence type identified is 'earth embankments' (with/without revetment and crest wall), accounting for 78% of identified defence types. A total of 98% of the sites are currently protected to a standard of 1 in 5 or greater, with 69% protected to a standard of 1 in 20 or more. Around 90% of the defences (by length) are managed by the Environment Agency, with 5% privately owned, 4% owned by the MoD and 2% managed by Local Authorities.

Costs of protecting fresh and brackish water Natura 2000/SSSI/ Ramsar sites

The costs of protecting fresh and brackish water Natura 2000/SSSI/Ramsar sites where there are currently defences are estimated at:

- cash costs (undiscounted totals over 100 years):
 - maintaining existing standard: £3,300 million ±60%;
 - 1 in 5 standard: £1,800 million ±60%; and
 - 1 in 20 standard: £2,900 million ±60%.
- discounted (present value) costs (using the Treasury discount rate of 3.5% (reducing)):
 - maintaining existing standard: £870 million ±60%;
 - 1 in 5 standard: £430 million ±60%); and
 - 1 in 20 standard: £870 million ±60%.
- equivalent annual costs (i.e. the constant annual cost which has the same present value, when the discounted costs are summed over 100 years, as the actual costs):
 - maintaining existing standard: £29 million per year;
 - 1 in 5 standard: £14 million per year; and
 - 1 in 20 standard: £29 million per year.

These cost estimates appear large when first considered. However, they can be compared with current expenditure of flood risk management of around £500 million per year in England and Wales. Over 100 years, this is equivalent to total costs of £50,000 million (undiscounted) or around £15,000 million (discounted). This means that the costs of protecting the Natura 2000/SSSI/Ramsar sites would account

¹ Where the existing standard results from the historical legacy of past agricultural land use rather than a standard selected/constructed to meet nature conservation needs and the 1:5 and 1:20 standards are based on English Nature's advice to Defra on indicative standards for environmental assets.

for 6% of total expenditure over the next 100 years to continue to provide the existing standard of defence or a 1 in 20 year standard, and 4% of total expenditure to provide a 1 in 5 year standard.

Cost of replacing vulnerable fresh and brackish water sites

The costs of replacing fresh and brackish water sites in more sustainable locations are £510 million (cash costs) and £150 million (discounted, with equivalent annual costs of £5.2 million per year). Many of the assumptions made in estimating the per hectare replacement costs are likely to result in an under-estimate of the total costs. As a result, uncertainty within the replacement costs is likely to be at least equal to uncertainty in the defence costs. If it is assumed that the estimated replacement costs may under-estimate potential costs by 60%, the cash costs would increase to £820 million and the discounted costs to £240 million.

Costs of re-creating saltmarsh habitat

The costs of replacing saltmarsh lost due to coastal squeeze in England are estimated using two different scenarios:

- costs of re-creating intertidal habitat (i.e. the same area that is lost needs to be re-created) at £500 million to re-create 4,400 ha of intertidal habitat (equivalent annual cost of £16 million per year); and
- costs of re-creating the same area of saltmarsh habitat (i.e. double the area of saltmarsh lost needs to be re-created assuming 50 per cent mudflat will form) at £1,000 million to re-create around 8,800 ha of saltmarsh (equivalent annual cost of £33 million per year).

There is likely to be considerable uncertainty in these figures due to the use of linear interpolation of the rate of saltmarsh loss from historical data.

4. Conclusions/recommendations

The outputs of the study are supported by a spreadsheet. This provides full details of all calculations undertaken when estimating the costs of protecting the Natura 2000/SSSI/Ramsar sites. It also allows some of the base assumptions to be changed and new information to be included as it becomes available such that the costs can be recalculated. Thus, the cost estimates presented here could be refined by collection of additional data. This is likely to be particularly important in terms of (i) current condition of defences and, hence, the time before they are likely to require replacing and (ii) the current standard that is being provided. Better data on these two factors should help to reduce uncertainty in both the costs of protecting fresh and brackish water Natura 2000/SSSI/Ramsar sites and their replacement costs.

Project Report to Defra

8. As a guide this report should be no longer than 20 sides of A4. This report is to provide Defra with details of the outputs of the research project for internal purposes; to meet the terms of the contract; and to allow Defra to publish details of the outputs to meet Environmental Information Regulation or Freedom of Information obligations. This short report to Defra does not preclude contractors from also seeking to publish a full, formal scientific report/paper in an appropriate scientific or other journal/publication. Indeed, Defra actively encourages such publications as part of the contract terms. The report to Defra should include:

- the scientific objectives as set out in the contract;
- the extent to which the objectives set out in the contract have been met;
- details of methods used and the results obtained, including statistical analysis (if appropriate);
- a discussion of the results and their reliability;
- the main implications of the findings;
- possible future work; and
- any action resulting from the research (e.g. IP, Knowledge Transfer).

References to published material

9. This section should be used to record links (hypertext links where possible) or references to other published material generated by, or relating to this project.

The report is supported by a spreadsheet in which key assumptions relating to the cost estimates can be changed.