

# Collaborative Research Programme On River Basin Management Planning Economics

## Terms of Reference for Valuation of direct market benefit

14 February 2007



Department of the  
**Environment**  
www.doeni.gov.uk



SCOTTISH EXECUTIVE



ENVIRONMENT AGENCY



DEPARTMENT FOR BUSINESS  
ENTERPRISE & REGULATORY REFORM



SCOTLAND & NORTHERN IRELAND  
FORUM FOR ENVIRONMENTAL RESEARCH



**UKMPG**  
The United Kingdom Major Ports Group



Country Land &  
Business Association  
RURAL ECONOMY IS OUR BUSINESS

The Collaborative Research Programme, under which this report has been produced, is jointly sponsored by Defra, Welsh Assembly Government, Scottish Executive, Department of Environment Northern Ireland, Environment Agency, Scottish Environment Protection Agency, Department of Business, Enterprise and Regulatory Reform, Scotland and Northern Ireland Forum for Environmental Research, UK Water Industry Research, the Joint Environmental Programme, UK Major Ports Group, British Ports Association, CC Water, Royal Society for the Protection of Birds, National Farmers' Union and Country Land and Business Association (the "Collaborative Partners"). The Collaborative Partners have made their best endeavours to ensure the accuracy of the information contained in this report. However, the Collaborative Partners cannot assume responsibility for the content of this report or for any opinions or statements of fact expressed therein or for any actions taken as a result of consulting this report. The report does not necessarily represent the viewpoint of any individual organisation.

© 2006 Defra, Welsh Assembly Government, Scottish Executive, Department of Environment Northern Ireland, Environment Agency, Scottish Environment Protection Agency, Department of Business, Enterprise and Regulatory Reform, Scotland and Northern Ireland Forum for Environmental Research, UK Water Industry Research, the Joint Environmental Programme, UK Major Ports Group, British Ports Association, CC Water, Royal Society for the Protection of Birds, National Farmers' Union and Country Land and Business Association. All rights reserved.

14 February 2007

Our Reference – 16810-00  
Your Reference – Market benefit

John Joyce  
Benefits Project Manager  
WFD Collaborative Research Programme on River  
Basin Management Planning Economics  
John Joyce Associates  
Unit 10f, 89 Shepperton Road,  
Canonbury Business Centre,  
London,  
N1 7BJ

Dear John

## **VALUATION OF DIRECT MARKET BENEFIT**

We are pleased to respond to your request for an assessment of the direct market benefit of achieving the Water Framework Directive (WFD) objectives.

### **1. BACKGROUND AND OBJECTIVES**

The WFD requires good ecological status or good ecological potential, except in cases where achieving these aims would be disproportionately expensive. One of the Collaborative Research Programme's series of projects (Project 3) has looked at the different types of benefits associated with improvements in water status. One type of benefit is the direct market benefit, which is the focus of this project.

The objectives of the work include the following:

- Product A: Review existing literature on market benefits;
- Product B: Identify the most significant market and resource benefits;
- Product C: Provide estimates for those benefits including uncertainty assessment;
- Product D: Present regional distribution of where the benefits are likely to occur if there are specific regional differences;
- Product E: Clarify whether generic information on direct market benefits could be useful for the River Basin planning; and
- Product F: Identify the need for further research.

## **2. APPROACH**

### **2.1 Setting out potential effects to be considered**

#### 2.1.1 Refining the potential areas of market benefit to be considered

The tender document includes a provisional list of market benefits. It is assumed that this list comprises the significant direct market benefits identified in Project 3, although if this is not the case, we would need to check that none from Project 3 were excluded from consideration in this project.

The first stage of the project will review this list, both to ensure that there are not additional benefits that should be included and to check that some are not double-counted or would be better considered grouped together.

- Commercial fisheries
- Recreational subsistence fishery products
- Drinking water
- Abstraction
- Power generation (mini and large scale hydro plus others)
- Navigation

At this stage, we have removed amenity from the list in the tender document to avoid double-counting other benefits. However, in previous work we have found that people wanted to include amenity benefits as they found them a persuasive argument. Although it has not been included in the proposal at this stage, it may be that following discussion with members of the project steering group, we include a description (but not quantification) of alternative ways of assessing the value of changes in water status, including through changes in amenity.

In the review, we would also look at whether some of the potential market benefits can be grouped together, for example drinking water and power generation may be considered specific uses of abstraction, and effects on commercial and recreational fisheries both rely on changes in water status sufficient to change fish populations. However, within these groups, the methods for assessing market benefits may vary and it may be necessary to consider them separately.

The task may also remove from the list some that are immediately considered to be of limited significance. However, this is more likely to happen after some additional assessment, as set out below.

#### 2.1.2 Considering potential resource benefits

Discussion following receipt of the tender document indicates that the project should consider potential resource benefits, benefits that could occur through reallocation of water use from uses with lower economic value to uses with higher economic value. These benefits may occur if the use of water bodies is currently constrained and if changes associated with the WFD may allow for additional use that has a market benefit.

In all the cases identified above (Section 2.1.1), the project will need to consider not only potential benefits to existing water users, but also benefits associated with an increased number of users, for example an increase in the number of people participating in angling. However, resource costs considered in this way go further, looking at new uses for different purposes. At this stage, we assume that any such economic benefits associated with reallocation of water resources would be considered in qualitatively and quantitatively within this study, with a discussion to highlight the potential ways in which market changes might occur if water uses are reallocated to different users.

## **2.2 Identifying the potential market benefits of WFD changes**

### **2.2.1 Identifying relevant changes in water status**

Following identification of the potential types of market benefits, the project will set out the changes in water status that may affect these benefits. Similar to the types of market benefits, this is likely to identify only the types and potential magnitude of changes in water status. However, it is very important to have an understanding of the changes in water status in order to identify the potential types of market benefits (see Section 2.2.2). We will consider these issues using the experience of Entec's staff who are currently working on WFD water quality issues and RBMPs, and will draw on the experience of Defra and Environment Agency staff as necessary.

### **2.2.2 Potential market benefits in each of the areas above**

To understand whether there will be a direct market benefit we will assess the extent to which water quality or water flows may affect the production costs or revenues of the relevant actors. The assessment would start by considering the types of changes expected as a result of the WFD, for example, the changes in biological and chemical quality, solids and litter, and flow levels. The effects of each of these changes in status would then be considered for each of the types of potential benefit identified above to determine where and why market benefits might occur as a result, drawing on the experience of Entec staff and members of the CRP steering group. We have allowed for one meeting with the steering group in the costs of this proposal, and this may be an appropriate point at which to discuss the project. Some of the potential benefits are set out below:

- Water quality improvements should in principle support increases in fish populations. However, the extent to which changes in water quality under the WFD affect overall water quality, and the degree to which these result in market benefits, particularly for recreational fishing, will need to be considered. For example, where the amenity of recreational fishing is not significantly affected by water quality, there may be an insignificant effect on expenditure in businesses supporting recreational fishing. Similarly, if the species most improved by changes in water quality are of no commercial value, there will be little impact on commercial fisheries.
- Water abstractors may be most affected where there is a change in water quality that affects their need for treatment. This is particularly true with abstraction for drinking water, where treatment costs may fall as a result of the WFD. In other cases, abstractors may be affected by changes in the levels of water bodies, or may have their activity restricted to achieve increased levels.

Potential effects on other forms of water use would be assessed bearing in mind similar issues. The assessment will also consider how the benefit is related to water status. For example, the market benefits may be related linearly to one aspect of water status, but may have a non-linear relationship with another aspect. In all cases, we would concentrate on the most significant potential market benefits.

### 2.2.3 Relating the potential market benefits to River Basin Districts (RBDs)

In order to assess the potential to apply national or generic estimates of market benefits within River Basin Management Plans, it is necessary to consider whether the market benefits or the value of the benefits differ between RBDs. At this stage, we would wish to explore with the steering group which of the potential differences would be material to the assessment. For example, the market benefits could vary dependent on the scale of economic activity, the nature of water uses, the specific local economic interactions, the existing baseline water environment, or other local measures.

### 2.2.4 Quantifying the potential market benefits

It will then be necessary to collate any quantitative estimates of the potential market benefits identified. We will review literature identified through our own searches as well as any indicated by members of the project steering group to assess the extent to which potential market benefits have been quantified. At this stage, we expect to assess benefits at an England and Wales level, and as such, we would not be looking to undertake calculations to estimate benefits associated with different areas. However, we will look to understand the methods that have been used and make recommendations, if appropriate, about how they could be applied in future.

We would also look to consult specific organisations to identify potential market benefits and to check estimates made in the project. At this stage, we have identified the following organisations, although we would look to the steering group to support us in identifying the best individuals within these organisations:

- Commercial and recreational fisheries- Environment Agency;
- Drinking water- Ofwat;
- Abstraction- Environment Agency. Depending on information available within the Environment Agency, we may need to contact other organisations, for example specific abstractors, to investigate their sensitivity to water status parameters;
- Power generation- at this stage, it is not clear how consultation would work for power generation, although it is likely to require discussion with particular generating companies; and
- Navigation- British Waterways and Port of London Authority.

In total, we have allowed for ten telephone conversations with relevant individuals to identify quantitative estimates of market benefit.

## **2.3 Using and improving the estimates of market benefits**

### **2.3.1 Using the estimates of market benefits**

Based on the assessment of the potential market benefits, their relationship with changes in water status, and an understanding of how this information may be used within the context of the WFD, the project report will also look to provide information to two further questions:

- Can generic estimates be used for specific RBDs?
- Can market benefits be included in the assessment of disproportionate cost?

This assessment will be made based on Entec's judgement, taking into account suggestions made by members of the project steering group.

### **2.3.2 Recommendations to improve information**

The project will also set out recommendations for how the assessment of benefits could be improved in the future. We have not allowed for any primary research into market benefits during this project, and as such, there may be recommendations for additional information on the valuation of market benefits. Recommendations may also suggest developing greater understanding of the link between aspects of water status and market benefits, or further development of an approach to RBD assessment. This will also highlight areas of uncertainty with the results of the assessment.

## **3. TIMETABLE AND BUDGET**

We have assumed the following timetable for completing the work:

- |   |   |
|---|---|
| • Start up of project                                 | Week beginning February 5 <sup>th</sup> |
| • Interim report with revised list of market benefits | February 23 <sup>rd</sup>               |
| • Draft final report                                  | March 23 <sup>rd</sup>                  |
| • Final report  | March 30 <sup>th</sup>                  |

We have assumed that the work needs to be completed by the end of March. This is a tight timetable and relies on timely inputs from the project manager and project steering group as appropriate.

Based on the tasks set out above, the estimated time to undertake the project is provided in Table 1.

**Table 1 – Budget with days per task**

<b>Tasks</b>	<b>Number of days</b>
Setting out potential effects to be considered	7.5
Identifying the potential market benefits	22
Using and improving the estimates of market benefits	7
Reporting	5
Project management	1
Total	42.5

With average rate of £600 per day, the total fee is estimate at £25,500. With an additional £500 for travel expenses, the total budget is therefore £26,000 (excluding VAT).

We have assumed that this will be undertaken according to the terms and conditions agreed with Defra for Project 2C, although we would be happy to discuss alternatives if necessary.

Yours sincerely,

**SABRINA DANN**

Direct Line – 01926 439085

E-mail – [danns02@entecuk.co.uk](mailto:danns02@entecuk.co.uk)