

WFD RBMP – Economics

Collaborative Research Programme

Prospectus and Business Case Annexes

VERSION	1.6
STATUS	FINAL
DATE	MAY 2008
AUTHOR	KEVIN ANDREWS, JONATHAN FISHER, JOHN JOYCE, CAROL SINKER

**UK Collaborative Research Programme on River Basin Management Planning
Economics**

TABLE OF CONTENTS

Annex 1 - CRP Strategic Approach to Benefits.....	3
Introduction	3
The issue.....	3
Components of the work plan.....	4
Prioritisation and Scheduling of Work.....	5
Annex 1.1 – Original Note to PSG on the Strategic Approach to Benefits	7
Action	7
1.1 Background	7
Issues to note	8
Summary.....	9
Annex 1.2 - Issues Log for the CRP Work on Benefits	10
UK Water Industry Research (UKWIR)	10
Scottish Executive (SE).....	13
Ofwat (personal view of Melinda Acutt, not necessarily Ofwat).....	13
Environment Agency (EA)	14
Royal Society for the Protection of Birds (RSPB).....	16
Welsh Assembly Government (WAG)	16
Natural England (formally English Nature)	17
Joint Environment Programme (JEP).....	17
Annex 1.3 Challenges for Benefits valuation for RBMP – A note prepared by The Environment Agency for the CRP	18
Introduction and purpose	18
Analytical framework.....	18
Challenges.....	18
Alternative methods for Tackling the Challenges.....	21
Annex 1.4 – CRP Objectives and Approach	24
Annex 1.5 – project Details	26

ANNEX 1 - CRP STRATEGIC APPROACH TO BENEFITS

Introduction

This note sets out the CRPs approach to work on the benefits of WFD requirements. The first section sets out the issue. The second section sets out the main components of a workplan. The final section prioritises and schedules this work.

The issue

As set out in the Annex 1.1 during the planned strategic review of the approach to benefits the CRP was faced with a fairly clear choice between undertaking an intensive period of work on benefits to plug the main gaps in benefits information for the WFD, or taking a longer term approach and relying on more qualitative and quantitative information for the first plan.

As identified in Annex 1.2 there is a general consensus from CRP members on the need for a longer term approach. The five main issues raised are:

1. There needs to be sufficient checks and balances for the first plan to ensure that:
 - Overall scale of the first POM is “about right”
 - Wrong (poor value for money) schemes don’t go forward in preference to good value for money ones,
 - Right schemes (e.g. good value for money but with non-monetised benefits) don’t get pushed out.
 - What is done accords with the phased approach to the Directive in particular to improve understanding before finalising action if this risks disproportionate costs.
2. The longer term approach does not mean that no benefits work is done for the first plan. Targeted “high value added” studies will need to be done to help contentious decisions, provide illustrative information and demonstrate progress. Work is needed to progress information on non-use values, on direct benefits (like cost savings in Drinking Water Protected areas) and on indirect impacts (for example non-water environmental costs and benefits of water industry capital schemes or changes in land management practices).
3. There should be a link with other ongoing work, especially in preparation for PR09 and other planned work (e.g. UKWIR work on the CBA framework and evaluation of emerging approaches like SCAMP¹).
4. There is a need to make the appropriate use of existing information. The aim should be to critically appraise existing information before its used but not throw out good enough information in the search for something new.
5. Work on affordability needs to be incorporated and links made with work on Disproportionate Cost Analysis (sector affordability). Account needs to be taken of

¹ Sustainable Catchment Management Project – looking at land use changes to achieve multiple objectives within a drinking water catchment owned by United Utilities.

UK Collaborative Research Programme on River Basin Management Planning Economics

affordability issues arising from implementing existing and potential future policies and mechanisms.

Annex 1.3 sets out in more detail the main issues and challenges faced.

Components of the work plan

Following the comments received on the Project 4 Note, eight components of new work were identified. Given the need to produce assessment guidance for work on benefits as part of the disproportionate costs analysis, this means there are ten work-packages needed within the original specification for projects 4, 5 and 6. These are summarised below.

Project 4 – Analysis to specify benefits – combination of short and long term work to provide rigorous benefits information needed for the long term assessment of disproportionate costs, while enabling a proportionate and well prioritised programme of measures for the first plan. Sub-projects as below.

Project 4a Expert workshop - precursor to any further work. The objective of the workshop will be to peer review and develop the workplan for benefits.

Project 4b Context study - what factors influence people's enjoyment of the environment and therefore WTP for improvements i.e. is access to a river a deciding factor, facilities at a beach affecting beach use, physical limitations on water sports enjoyment compared to the quality of the water as a limiting factor. This is a precursor to any further benefits work. It will help obtain stakeholder preferences and buy-in and help develop survey questionnaire (4c). Likely to be done through focus groups.

Project 4c Overall benefits survey - benefits survey to look at values of improvement and no deterioration scenarios – applied to whole POMs. Survey with additional questions. Done at a national level but take account of differences in each RBD. Used as a check on the overall scale of the first POM. Would include all categories of benefit and not attempt to disaggregate.

Project 4d Survey of preferences/attitudes to risk - obtain preferences for different levels of risk of the outcomes of the improvements/no deterioration happening/not happening. Used for prioritisation within the first POM and help identify poor and good value for money projects.

Project 4e - Direct benefits study - study of the financial cost savings and other direct benefits arising from improvements in WQ (for example for drinking water protected areas).

Project 4f - Waterbody use and access - study of water body use (and access) data to deal with substitutability, marginal impacts, distance decay etc. distributional

UK Collaborative Research Programme on River Basin Management Planning Economics

issues etc. Should be done as GIS. Looks at factors affecting use of waterbody. Link to benefits realisation plan.

Project 4g - Basic science support - ensure that any further work on cause and effect of measures takes into account the human welfare end-points which would need to be valued. This will need to take an ecosystem services approach and account for the incremental changes of measures given expected status. It will identify good qualitative descriptions of benefits arising in different circumstances and definition of the indicators needed to describe these benefits quantitatively.

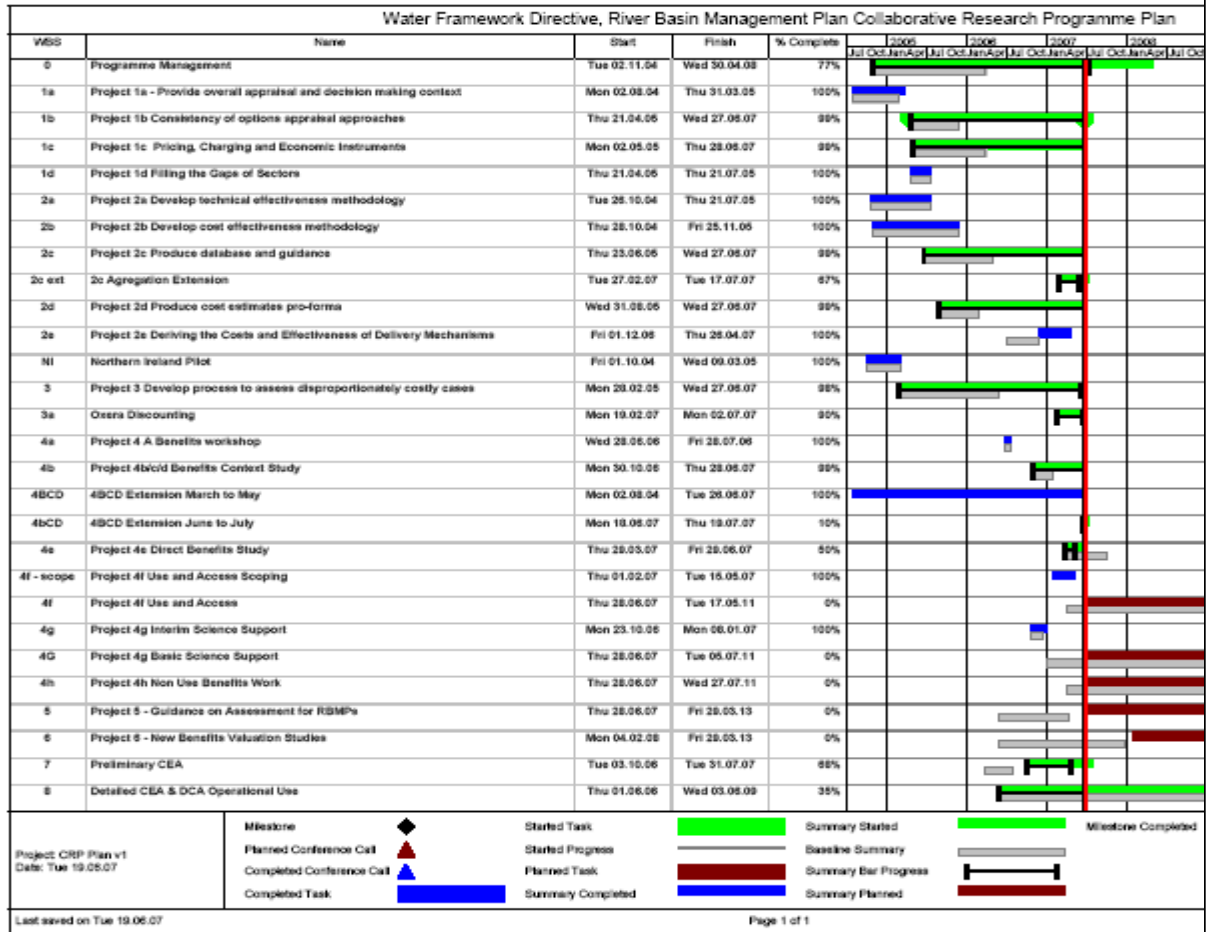
4h - Non-use benefit work - focused work to derive non-use estimates for RBMP building on the scoping study undertaken by the EA (2005). The short term work would include developing a better understanding of what non-use values are and why people are concerned about them, defining areas where non-use values are required for the WFD and defining new studies that can address current challenges to non-use valuation in the medium to long term.

Prioritisation and Scheduling of Work

Careful prioritisation and scheduling of the above work is needed to meet the needs of the Agencies and stakeholders and in particular to feed early information into the Significant Water Management Issues report, due in 2007.

Project 4 a-e and h are considered to be short term work packages. They will deliver in mid 2007. Project 4f and 4g are considered to be longer term. They will need around four years to complete. Project 5 and 6 both have short and long term components related to an interim output that is useful for the first plan and a longer term output that is useful for the second plan. Given the likelihood that benefits values developed through empirical work will go out of date, aspects of this workplan will need to be repeated for subsequent river basin plans.

UK Collaborative Research Programme on River Basin Management Planning



ANNEX 1.1 – ORIGINAL NOTE TO PSG ON THE STRATEGIC APPROACH TO BENEFITS

Action

PSG members to consider the strategic steer from the Economics Steering Group on how to approach benefits assessment for the first and subsequent River Basin Plans. Particularly:

- There needs to be a long term approach to solving the problems associated with benefits valuation rather than a quick fix for the first River Basin Plan,
- There should be a focus on qualitative and quantitative descriptions of benefits for the first plan backed up with targeted new valuation work.
- Priority should be given to the revision of the overall benefits assessment work to provide the information necessary to revise the WFD RIA (for England and Wales).
- There may need to be additional work in relation to affordability and links made between this work and any benefit valuation.

1.1 Background

The CRP is about to start defining the work plan for the work on benefits (Projects 4, 5 and 6). As originally envisaged, Project 4 would take the outputs of Project 3 (an initial specification of benefits and gap assessment) and translate this into a specification which could be used to commission any new empirical research which may be required (Project 6). Project 5 would develop guidance on the application of these values in the Disproportionate Cost Assessments (DCA). A significant sum of money is available for this work (c.£1million) but we need to make best use of these funds. The ESG consider that it is worth pausing at this stage to consider in more strategic terms the development and use of benefits information within the objective setting process and RBP processes. Consideration should be towards not only the first cycle of River Basin Planning (RBP1) but also looking forwards to RBP2 and the later cycles of the WFD.

The assessment of disproportionate cost is now widely understood to be principally an “extended” cost-benefit assessment (though not necessarily in formal monetary terms given the need for proportionality and the inherent difficulty of monetising some benefits). The CEA assessments will define the most-cost effective programme of measures to achieve the default objectives (GES/GEP). In an unknown number of cases² the POM will need to be analysed to assess whether the costs are disproportionate. This will involve a consideration of the benefits (monetised or otherwise) in order to help set a less stringent objective (e.g. meeting GES/GEP in 2021 or meeting moderate ecological status as an alternative).

In addition in England and Wales further information on benefits is required to update the RIA for the WFD. There is a ministerial commitment to revise the RIA at an appropriate

² To be defined by Project 3 - ongoing

UK Collaborative Research Programme on River Basin Management Planning Economics

point prior to the detailed RBP. The requirement to update the RIA is not part of the CRP work programme but nevertheless there are linkages which need to be managed.

Issues to note

1. There are major outstanding challenges to being able to undertake rigorous benefits assessment for the WFD. There are unlikely to be any simple quick fix solutions to these challenges. It will take considerable time and money to develop, test and then apply appropriate methodologies to sort these problems out.
2. First, there are significant gaps in the available scientific information (i.e. proper impact specification, assessment and description) that will not be solved in time for the economic valuation of those impacts to be undertaken for RBP1. As a result, even with sufficient funds to undertake the economic valuation, not all categories of benefit will be amenable to assessment. Therefore, as an integral part of the CRP work on benefits over the next two years, we need a longer term plan for benefits valuation and the WFD. It seems unlikely that the scientific and economic issues with benefits evaluation can be solved to contribute substantially to the first RBP.
3. Consequently, it is necessary to consider alternative strategic approaches to benefits assessment for the WFD. One option may be, for the first round of planning, that work should focus on a specification and descriptive (qualitative and quantitative) assessment of the benefits of meeting WFD objectives. This could then provide a sound base of environmental information on the benefits for the subsequent substantive new benefits valuation studies for use in later planning periods. It will require considerable time to overcome satisfactorily the major technical challenges to doing such studies (see below). So it may be that such new studies will be of most use for RBP2 and beyond.
4. The descriptive assessments of benefits in RBP1 could be supplemented by any currently available monetary valuations where the impact assessment is sufficiently well understood (e.g. some use benefits), although this is likely to mean that there will remain significant environmental benefits that are not valued in monetary terms.
5. In addition targeted valuation would be needed in a small number of cases where benefits valuation is clearly likely to alter the outcome of the Disproportionate Cost Assessment.
6. Consequently, Project 4 could focus on determining how to specify and assess properly the various benefits in descriptive and quantitative terms and provide clear guidance for this for RBP1, based on the structure established in project 3. Project 3 will already have done this for many categories of benefit. Project 4 would focus on the remaining categories where Project 3 has not been able to identify an appropriate qualitative and quantitative description. It may be that some 'demonstration' monetary studies may also be possible during this first phase.
7. This can then provide a sound base of environmental information on the benefits for the subsequent substantive new benefits valuation studies. This will be in a number of areas and hence it will still be necessary to prioritise activity in order to fill gaps. A crucial area is likely to be non-use benefits. This concerns not only the WTP values but also more significantly in terms of the number of beneficiaries experiencing these benefits.

UK Collaborative Research Programme on River Basin Management Planning Economics

8. Inevitably there will be uncertainty in the benefits for the first RBP and there will need to be a transparent and consistent way of accounting for this uncertainty in the objective setting process.
9. Some priority should be given to revising the strategic view of benefits to assist in the revision of the WFD RIA. The priority here is to improve the quality of the evidence base underpinning the Agency's "Overall Benefits Assessment" work. This improving work needs to be part of a measured long term strategic approach set out above.
10. There is a related need to link any work on benefits assessment to work required on affordability. Affordability arguments are likely to be advanced in a number of situations in terms of DCA. Activities are likely to claim that a certain level of expenditure is going to be unaffordable, sectors and pressure groups are likely to argue that whole programmes are or are not affordable, and Ministers will need to come to some view about what is an affordable River Basin Plan. Despite these requirements, affordability concerns are often not well addressed within benefits valuation exercises. Work on affordability is therefore likely to be needed along side work on benefits estimation.

Summary

There would seem to be a fairly clear choice to be made between:

- 1) trying to undertake a large programme of work on benefits valuation over the next 18 months to two years
- 2) take a more measured longer term approach to benefits focussing on getting the qualitative and quantitative descriptions right for the first plan and preparing for more comprehensive approach in the second plan.

The advantages of 1) would be to provide monetised information on benefits to help set objectives in the first plan. However given this work is likely to be hampered by the extensive limits in the scientific and economic understanding of the issues, there are real questions as to whether this can provide a sufficiently robust outcome. The advantage of the second approach will be that we will eventually develop a robust evidence base for objective setting. The disadvantage is that it will not be available for the first plan. Consequently the first plan will need to rely on more extensive use of qualitative and quantitative descriptions of benefits. The outcome of the consideration of qualitative benefits and monetised costs is likely to be more influenced by subjective assessments than otherwise. There will inevitably be arguments that the resulting decision on the plan put too high or too low a weight on the non-monetised benefits. This emphasises the need for a way of handling uncertainty in the benefits estimates.

Kevin Andrews
16/01/2006

ANNEX 1.2 - ISSUES LOG FOR THE CRP WORK ON BENEFITS

This issues log has been prepared following the comments and discussion on the original Project 4 strategic benefits note. It will be updated and kept live during the development of Projects 4, 5 and 6.

UK Water Industry Research (UKWIR)

Longer term approach needed but still need to check scale of first POM and prioritise.

- We strongly urge a measured, longer term approach to valuing environmental benefits as an appropriate context for Project 4. A rushed approach over the next 18 months would lead to similar problems experienced at PR04, with the water industry facing a *fait accompli* because of lack of time to ensure that the assessment of benefits is robust. Without sound scientific data, the outcome could be 'precautionary' over-the-top measures. There needs to be checks in place to ensure that expensive and potentially non-cost beneficial schemes are not approved due to this lack of data. Adopting a pragmatic approach now, without tight time constraints, would help develop a more robust economic solution.

Analysis is needed for first plan and should link with other work for PR09

- A series of specific local studies should be undertaken before 2009. Project 4 should provide a framework for how these studies should take place and what they should cover. It is possible that water companies may be able to include such studies as part of their preparation work for PR09. A framework approach to Cost Benefit Appraisals is currently being developed as part of an on going UKWIR project. The results from this project should be taken into account in Project 4 when they are available later in 2006.

Any work on overall benefits must reflect uncertainty and focus on the whole POM

- We are not convinced that the priority should be given to the revision of the overall benefits assessment to be used in the WFD RIA. There is a need for Project 4 to focus on what is required when making CEA decisions at a local level. Any benefits used in the overall WFD RIA should have a wide range of uncertainty in the estimates that are developed. At the very least any valuation approaches used for this 'top down' benefits assessment should be tested against actual locally calculated examples. The ways that 'top down' and 'bottom up' approaches to benefits valuation can be reconciled have been considered in some studies, for instance the LEADA approach used by Yorkshire Water at PR04. Some of the issues raised on affordability and the degree to which non-use benefits are taken into account can be covered by separating costs and benefits to consumers and the environment.

UK Collaborative Research Programme on River Basin Management Planning Economics

- A criterion for disproportionate cost should be people's willingness to pay for a whole programme, rather than just evaluation of individual measures. Either willingness to pay for the whole programme needs to be addressed in the CRP, or another study needs setting up to inform the RIA.

Any work on affordability must consider what is happening in the baseline

- It is important that statutory obligations and the aggregate impact of 'choices to be made' schemes are taken into account when determining affordability and disproportionate costs.

Prior to undertaking any work on benefits or preferences, the context needs to be understood.

- In our view (for instance as identified in the UKWIR report 04/EQ/01/1 "Environmental Benefit Assessment"), the key factor in a successful benefits methodology is for the approach to benefits valuation to reflect the contextual framework under which the benefits will be used. One particular issue related to this is the appropriateness of the Benefits transfer used from individual valuation studies. This should be added to the list of issues considered by project 4. We are not convinced that any element of the EA's BAG approach can be extended or modified to meet this concern without new studies that are undertaken in the WFD contextual framework as a test of this. If these new studies are only at a high level in order to inform the RIA, then it would seem unlikely that they would significantly inform an extension of the BAG valuations.

Any new valuation work will have a limited shelf life and need updating.

- It is questionable whether any benefit valuation studies undertaken for RBP1 would be applicable to future RBPs as the surrounding economic circumstances will be different and people's responses will be different.

Work on benefits must be lined to the work on cost-effectiveness and be sufficient to cope with the expected number of disproportionate cost cases. The number of potentially DC cases may be larger under this approach.

- One principle of cost effectiveness analysis that should not be overlooked is that benefits should be documented in physical quantitative or qualitative terms and compared in unit terms to whether the cost is reasonable. The purpose of the valuation studies is therefore to advise on which of these measures' costs are disproportionate. Therefore we would disagree with the suggestion in issue 5 that it is only a small number of cases where benefit valuation is likely to alter the outcome of the Disproportionate Cost Assessment. We would suggest that the number of cases will vary with the range of uncertainty that there is about the costs and the benefits. This range is likely to be large in the absence of valuation studies, particularly if there are no studies that consider the difference in WTP between measures across different sectors.

UK Collaborative Research Programme on River Basin Management Planning Economics

Work is need on relative preferences to enable prioritisation of POMs. This could be done in a number of ways the merits of which should be looked at. Work should concentrate on developing agreed rules, given uncertainty, rather than trying to get a single answer.

- To a large extent the degree to which benefits studies are required depends on the degree to which the Cost Effectiveness Analysis can operate on the basis of a set of relatively simple rules as to where good status is at risk, the extent to which it is clear what measures can be put in place to deal with this risk (or quantified existing environmental problem in some cases) and the likely net benefits from these measures. This need not be too subjective an assessment. The pair wise comparison approach which we have asked to be taken into account as part of project 2c to establish preferences between measures or groups of measures is an example of a simplified assessment that is not wholly subjective even where detailed monetarised costs and benefits are not available. Economic concepts that deal with ambiguous risks or uncertainties such as 'bounded rationality' are appropriate where you try to optimise the position from where you currently are with the data you have (the "context") rather than presuming that a benefits study can provide a comprehensive 'cost benefit maximised' answer that can be applied to many different situations. There are various heuristic rules that could be built into benefits assessment based on preference studies rather than valuation studies, such as questioning individuals' preferences between visible environmental damage, heritage protection and sewer flooding inside properties. These would be cheaper to undertake and would support the qualitative and quantitative description approach to establishing benefits. Rules such as "eliminate for RBP1 any measures where the benefits decision changes on whether non use values are included" could be developed (based on evidence) in this way without it being wholly subjective. We would therefore be more comfortable with a more measured long term benefits approach if we could be sure that the type of approach to uncertainties that we have proposed for project 2c was being built into the overall CEA.

Work on affordability is needed and could take the Green Book work on distributional impacts as a starting point – giving information on the relative scarcity value of improvements

- On issue 10, one possible approach to affordability is set out in the Green Book, where it suggests that marginal benefits vary with marginal income. A suggested relationship for distribution weights based on income quintiles is given. This approach could also be used to take into account the scarcity value within a river basin area, on the basis that achieving good status should generally have lower benefits for a small stretch of river than a whole river or for an improvement that improves the generality of good status in a river basin rather than for one river that is surrounded by nearby rivers that are already at a good status.

Scottish Executive (SE)

UK Collaborative Research Programme on River Basin Management Planning Economics

A longer term approach is the right one even if it raises questions.

- Agree with the longer-term approach. It doesn't make sense to try and rush this at the expense of robustness, even if a slower approach is likely to cause more questioning of the approach.

Need to link and compare with outputs from public preference surveys such as that starting in Scotland

- Just for awareness, the Scottish Exec is working up a social research spec for determining how the public value the water environment, with part of the quantitative data being gathered through MORI. We are focusing on geographical distribution (urban/rural and which people would rather have cleaned up); distribution of improvements (everywhere a little or a few places a lot); and perceived wider benefits (tourism; reputation as 'clean' country). Not sure how much of a social benefits angle this will contribute to, but it should provide results in time for RBMP1.

Ofwat (personal view of Melinda Acutt, not necessarily Ofwat)

The long term approach is fine but should not delay valuation work which is needed for the first plan

- I am delighted to support a long term approach to addressing the difficulties of benefits valuation for the Water Framework Directive (WFD). However, I am deeply concerned that the proposed long term approach appears to be simply to delay vital work on benefits assessment once again. It is my view that a measured, long term approach to benefits valuation must include both descriptions and monetary valuations in time for the first River Basin Management Plan (RBMP), which can then be revised as more work is undertaken and more information becomes available for subsequent RBMPs.
- It is my understanding that in preparation for PR04 a decision was taken that it was too difficult to undertake new benefits assessment work in the time available and that, as a consequence, the benefits assessment approach used was a provisional approach based on benefits transfer, which would be re-visited after PR04. I am concerned that once again it is being suggested that there is insufficient time available. I wish to avoid a situation in which, due to lack of time or information, the approach which was provisional at PR04 is re-used at PR09. This approach, whilst a good step forward, was a provisional approach and has been subject to a number of reviews, not least one by UK Water Industry Research (UKWIR report 04/EQ/01/1), which highlights serious shortcomings of the PR04 approach and proposes new stated preference research. I consider the findings of the UKWIR study to be compelling.

There are important links with the PR09 process and a need to coordinate with the CRP

UK Collaborative Research Programme on River Basin Management Planning Economics

- Robust cost benefit analysis is required to justify customer funding of water companies' improvement schemes. It is my view that such work is best co-ordinated with that of the CRP for the WFD.

The effort put into benefits assessment should be in proportion to the potential risk of poor expenditure decisions. A large programme of work on benefits is not difficult to justify.

- Turning to proportionality, it is useful to consider the costs of potential action in comparison to the justification for that action. I note that since privatisation, water companies have invested in excess of £15bn in environmental improvements. A further £3bn will be added to this figure over the next four years to deliver further improvements to the quality of sewage effluent and storm sewage overflows. Preliminary analysis of the potential costs falling on water companies as part of the delivery of the WFD objective which was carried out jointly by Ofwat, EA and Defra indicates capital expenditure in the region of £9bn. Operational costs, with their commensurate energy and carbon impacts also need to be considered. Clearly this is a preliminary figure. However, it indicates the substantial nature of the investment under consideration.
- Such a large level of investment with its consequent impacts, not only for customers' bills, but also for the environment in terms of building, transport and energy costs makes it incumbent on all of us to ensure that there is a full and comprehensive research programme to consider the benefits of action, including monetary valuation. I attach a copy of Ofwat's response to Defra's consultation on your Evidence & Innovation strategy which supports the work of the CRP and calls for increased funding.
- I am passionate about this issue as, using the figures above, if only 1% of the potential level of water industry capital investment was not justified by the benefits this would mean a misallocation of £90m, before taking account of external environmental and social costs.

Environment Agency (EA)

A more strategic approach is the right one but it needs to link to the objective setting process including social as well as environmental impacts

- We welcome and agree with this note's statement of the need "at this stage to consider in more strategic terms the development and use of benefits information within the objective setting process and RBP processes". We would like to emphasise the importance text in italics above and the need to examine all aspects of this matter carefully. This includes not only environmental impacts but also social impacts such as impacts on socially disadvantaged groups.

UK Collaborative Research Programme on River Basin Management Planning Economics

Need to focus on decision making problems and make the best use of qualitative, quantitative and monetised information appropriately summarised

- Important to do and use benefits assessments and valuations where it can aid decisions on possible measures. This means using good monetary valuations where they are available. But importantly we must also ensure that all non-monetised benefits are fully considered and taken into account in the appraisal and decision-making process. Therefore strongly agree with the need for CRP project 4 to help determine how to specify and assess impacts in descriptive and quantitative terms. This should encompass stakeholders' views on the nature and significance of the specific impacts in question for the various types of measures. We would welcome the opportunity to participate in this study and involve not only the Agency's economists but also our experts in social issues and technical assessments of environmental improvements. The study should use the essential qualitative, quantitative and monetary valuation building blocks for assessing benefits and draw on other available methods such as social impact assessments. The qualitative and quantitative information might be in the form of an appraisal summary matrix as per the New Approach to Transport Appraisal (NATA) – as outlined in our report on integrated appraisal for RBMP for the WFD and also employed in our assessments for PR04.

Need to look at the problem positively and constructively making best use of existing information, not jettisoning this in the search for something new.

- Need a measured long term programme to develop and apply agreed methods for tackling all the challenges to derive agreed valuations for the non-monetised benefits – i.e., support option 2 in the Defra note. But need to present this positively as an appropriate way forward that makes the best use of the currently available information - and does not jettison it - while taking a measured approach to improving the information to aid decision-making. Moreover, need to agree how these valuations will be incorporated (alongside other remaining non-monetised impacts) in the overall appraisal and decision-making process so as to aid decisions on measures to be implemented. This measured above approach for WFD is consistent with that we are pursuing for FRM.

Need to be clearer on affordability and links with CEA as well as disproportionate costs.

- The reference to affordability needs clarifying. We agree with SEPA that there needs to be a separate study on affordability for the sectors concerned regarding their costs. The pCEA seems to be the obvious vehicle for examining this issue. It needs to identify and analyse carefully the particular segments affected by the affordability concerns. Moreover, it needs to examine alternative innovative policy instruments and processes that could achieve the desired environmental outcomes more efficiently.

UK Collaborative Research Programme on River Basin Management Planning Economics

Royal Society for the Protection of Birds (RSPB)

Important to recognise the needs for benefits information within the CEA

- Overall, the specification provides a good description of situation and current challenges. We think should mention the value of the benefits work to CEA as well as to DCA.

Long term approach is right but should not be about how much valuation should be done, - but where is it needed to answer specific questions about emerging policies/approaches

- While acknowledging the need to have some of this information as soon as possible, we can see the case for developing a longer term approach. But the debate should not be about how much valuation work we do, and focus more on how we practically address these issues when implementing the directive. By this, we mean that RBP1, should show the level of environmental benefits through the large pilot areas (ie. SCAMP). These pilot projects or examples should cover a representative set of situations in catchment areas (uplands, lowlands,...etc). Qualitative/quantitative descriptions of benefits, are also needed but on there own might be a bit abstract to understand.
- Finally, another approach to consider might be to identify the major benefits where additional research (perhaps scientific work to measure benefits) could prove fruitful.

Welsh Assembly Government (WAG)

Longer term approach is right need. Need to be able to link this approach the phased approach to the Directive.

- Given the two options presented in the summary, I would have a strong preference for the second approach. I agree that taking a longer term approach would yield greatest benefit from resources allocated for benefits valuation. As a consequence of this approach, presumably, we envisage a large number of cases where we defer decisions on DCA until later planning cycles, citing the emergence of new information as justification - I agree that point 8 is therefore of paramount importance.

Should still make best use of the existing available information

- Point 4; best use should be made of available monetary valuations where appropriate.

UK Collaborative Research Programme on River Basin Management Planning Economics

Will still need to work on valuation for the first plan. It's unclear whether this will be a small number.

- With regard point 5; won't many of these outcome-changing benefit valuations be of the tricky non-use kind? Furthermore, how would we expect this 'small number' of new studies to be driven in RBP1, i.e. how many and which?

Affordability issues should be picked up in this work.

- I am in agreement with point 10; that affordability should be picked up here too.

Natural England (formally English Nature)

Longer term approach is right but need to guard against non-monetised benefits being ignored in the first plan

- This note is a very clear exposition of the discussion and I am comfortable with the overall tone. As for the overall approach, I would tend towards the longer term approach - one of my worries is kicking of mass studies where it is then difficult for us to keep an overview of the overall quality; my one caveat about the longer term approach is that we would need to guard against the argument that because we have not monetised some benefits in phase 1, then they are assumed not to be present.

Will still need targeted valuation studies for the first plan

- I would perhaps add to para 5 the possibility that targetted studies may also be focussed on 'case study' evidence gaps to back up overall lines of argument being developed in the revised RIA.

Joint Environment Programme (JEP)

The long term approach is pragmatic but must ensure that uncertainty for first plan does not mean the wrong schemes are agreed.

- It seems realistic to me (as an economics non-expert) that quantified benefits will not be completely cracked for RBMP1. Thus seeking qualitative statements of benefits may be the only pragmatic thing to do. However, important that this be taken into account in PoM decision making eg where the benefits are not well-understood and the CEA/DC is contentious any decision of potentially major significance should be deferred to RBMP2

ANNEX 1.3 CHALLENGES FOR BENEFITS VALUATION FOR RBMP – A NOTE PREPARED BY THE ENVIRONMENT AGENCY FOR THE CRP

INTRODUCTION AND PURPOSE

This note sets out the challenges for valuing environmental benefits. Its purpose is to:

- identify criteria for assessing those impact categories for which we have sufficiently robust monetary valuations in RBMP1;
- and identify an agreed methodology for new valuation studies that adequately address these challenges within an agreed framework and coherent long term strategy for improving monetary valuation of the benefits of WFD measures to aid WFD decision-making in this and subsequent RBMP cycles.

ANALYTICAL FRAMEWORK

This is based on the normal sequential qualitative, quantitative and monetary valuation building blocks for monetary valuation. The qualitative description of the impacts is the fundamental first and foremost building block and we need to proceed as far down the sequential building blocks as is necessary to aid decisions on the measures – depending essentially on their contentiousness.

As a separate exercise, we need to clarify how this benefits assessment and valuation information will aid decision-making on schemes actually to be implemented and how we will utilise the qualitative and quantitative information for those impacts for which it is not feasible to obtain good monetary valuations.

CHALLENGES

Jacobs' recent report³ found that non-use benefits are valid and significant. But it highlighted the following challenges for valuing them.

Political

1. It is not clear how to deal with non-anthropocentric valuations of environmental benefits (eg intrinsic value of nature in its own right independent of human welfare) in monetary valuations in a CBA. This is a matter for policy makers (Defra/WAG/SE) to determine and give guidance on. It could be a separate policy issue distinct from the economic appraisal. It needs to be picked up and reflected in policy guidance on the role of the economic appraisal as one **input** to decision-making. It might be possible to take the

³ Jacobs (2006) Report on non-use benefits valuation. Report for the Environment Agency.

UK Collaborative Research Programme on River Basin Management Planning Economics

view that the intrinsic value of nature should be addressed by considering that the WFD's GES threshold relates to these natural rights. This then puts the onus on the polluters to prove that the costs of measures to achieve GES are disproportionately expensive.

Conceptual

2. That collective values (derived through collective discussions such as focus groups or citizens juries) are significantly different from the aggregation of individual values (eg through economic valuations such as stated preference surveys). I suggest we ask the experts on these mechanisms for deriving collective values to demonstrate that there are significant additional aspects of collective values (that are not adequately reflected in the aggregation of the individual valuations) and show how these can be taken into account. It could be worthwhile asking them to work with economic valuation experts (eg Nick Hanley or Ian Bateman) on this or vice versa.

Practical. The most important technical challenges are allowing for the effect of substitutes, scope effects, capturing marginal/incremental changes, embedding, part-whole effects, accounting for income constraints, aggregation issues and ensuring respondents fully understanding the environmental changes they are valuing. These are now sorted into specific groups and examined below:

3. **Sound scientific information.** We need sufficient scientific information to describe and quantify the impacts in question, especially for **marginal/incremental improvements** from measures and for **changes in the risks** of such impacts arising.
4. **Clear specification of the impacts.** This needs to cover all aspects, looking broadly and including social aspects (eg impacts of angling in reducing crime and help to disadvantaged groups). But we need to work hard to specify clearly just what are the additional benefits that specific additional aspects brings to the debate to avoid problems of a long list with overlaps and double counting. This could be best pursued concretely (rather than in abstract) in the working up of the qualitative descriptions of the benefits in RBMP1. It would need to address the issue highlighted in the Jacobs report as to how to treat option value (which should really be part of the use value for which they are an option value rather a non-use benefit per se). We also still need to find a new term for non-use benefits from the non-use components of the specification of the impacts.
5. **Adequate information and perception of such impacts** is essential for respondents to be able to derive good valuations of them. Best practice guidance for stated preference surveys (eg Bateman et al) requires that sound means are used to provide this information (eg use of visual aids etc). This aspect is particularly important for the intangible environmental benefits about which respondents are not well aware and do not have readily defined views and preferences. The significance of the lack of information can be particularly important if respondents are being asked to compare these intangible environmental benefits with more tangible benefits that they can more readily perceive and understand (eg availability of water in taps, sewer flooding etc).

Proposed Action: We also need multi-disciplinary research to understand

UK Collaborative Research Programme on River Basin Management Planning Economics

peoples' concerns about such impacts and their motivations behind their perceptions and valuations of such impacts. In particular, this needs to cover their perceptions and valuations of changes in risks of impacts, for which we may need to distinguish between risks of loss of an environmental asset (eg in no deterioration cases) as opposed to benefits of achieving greater environmental improvements since the valuations for these changes can differ.

6. **Sound assessment of the number of beneficiaries**, which can also be affected by the following practical issues regarding the valuations. This needs to allow appropriately for distance decay effects.
7. We need to **allow for availability of substitute sites** that beneficiaries could visit or enjoy.
8. **Scoping, embedding and part-whole effects** – ie it is important to value an individual scheme as part of an overall programme (as was done in the Mimram and Darent studies of benefits of low flow alleviation from water resource improvement programmes).
9. **Allowing for income constraints**. We need to allow for opportunity costs of a person's stated preference and willingness to pay in terms of the other activities or goods that they would be willing to forego to allocate some of their finite income to this environmental good as compared with other goods (eg visits to cinema etc).
10. **Size and representativeness of the sample of beneficiaries in the study**.
11. **Warm glow effects**. We need to ensure that individuals' responses reflect their real preferences and not just a good feeling (warm glow). However, it is difficult to separate out a warm glow response from a real WTP view. I suggest this is handled by addressing properly the income constraints (9), clarifying peoples' concerns (4) and ensuring that their values represent individuals' real preferences.
12. **Sequencing effects**. Sequencing will be largely be determined by environmental priorities and the best options for tackling them in each RBMP cycle. So suggest it is not worthwhile or feasible to worry about this.

Proposed Actions:

- I. **Need to secure obtain the views of the CRP 3 SG (and perhaps wider including views of other stakeholders such as HMT, CBI and WWF – ie extend to ESG and EASG?) on these points about valuations, especially these challenges above and their relative importance. We need to involve stakeholders and get their considered views. Accordingly we should determine which are the most important challenges to focus on for best *improving* the economic appraisals. I would suggest that challenges 3 – 9 are the important ones. Particularly significant are: the scientific assessment of the impacts (3), the specification of the impacts (4), the provision of adequate**

UK Collaborative Research Programme on River Basin Management Planning Economics

information on them so that people can perceive and understand them (5) and the embedding/part whole effects (8) and income constraints (9).

- II. Ask Jacobs to review the existing best available information on each impact category for WFD wrt the position on the current qualitative/quantitative/monetary building blocks and these challenges above. They should identify those categories (eg use benefits) for which we have sufficiently good monetary valuations to use in RBMP1 so that they can aid decisions in RBMP1. This assessment needs to take account of the scale of the impacts in question (ie need fuller assessment for big compared with small impacts). This assessment needs to be realistic in terms of extent that the monetary valuations can usefully aid decision-making (over and above the qualitative info that would otherwise have to be used). Any notion of 'perfect' valuations must not be the enemy of good or better monetary valuations.

ALTERNATIVE METHODS FOR TACKLING THE CHALLENGES

Action: We need to look carefully for valuation methods that tackle all of these challenges above. This might include the Jacob's report suggestions: eg:

- *focusing on the marginal changes in question;*
- *combining focus group in-depth elicitation, specification and clarification of the impacts in question followed up by stated preference surveys of a larger more representative sample of beneficiaries etc;*
- *doing valuation studies covering all schemes in a POM;*
- *do overall studies for national or regional component of non-use benefits values at national (eg as per the Willis and Garrod study for FWR) and/or regional level;*
- *Using ranges, esp for uncertain non-use benefits,*
- *highlighting the switching values for how large the uncertain or non-monetised benefits would have to be for a measure to be not disproportionately expensive.*
- *validation exercises.*

Then we need to see how we can make best use of the available budgets to do more new studies to overcome the challenges and improve the benefits valuations. This should be part of a coherent long term programme covering not only the first RBMP cycle but more significantly for use in the second and subsequent cycles. We need the information gathered to address challenges 3-5 (eg in RBMP1) to form a sound basis for addressing effectively the remaining challenges (6-10). This is in line with the qualitative, quantitative and monetary building blocks in our framework for assessment and monetary valuation of environmental benefits.

There are various options for tackling each challenge above. Each alternative has its respective advantages and disadvantages. So we need a CBA of the options.

UK Collaborative Research Programme on River Basin Management Planning Economics

A proposed 'solution' for one challenge might not handle another challenge or might exacerbate it. For example, a choice experiment survey addresses well trade offs, income constraints and embedding (challenges 8 + 9). But it could exacerbate the problem of respondents not being adequately informed about the impacts in question (challenge 5). Might also require greater sample sizes (10)? Likewise, deliberative processes such as focus groups can address challenges 3 and 4 of clarifying and specifying the impacts and providing good information to enable people to value them. But they fail challenges 9 and 10 since the small groups consulted are not representative and the process may not enable the respondents to take due account of income constraints and opportunity costs of their preferences.

Therefore there might not a simple single perfect solution to all the challenges above. Depending on the findings of the above innovative examination of alternative methods, It might therefore be necessary to seek an agreed method that tackles adequately all the challenges and can thereby provide useful valuations to aid decisions on measures that will actually be implemented.

For example, there are five alternative ways of tackling the challenge of how to address embedding, part-whole effects and income constraints (8 and 9 above):

- (i) Statement of opportunity cost in survey;*
- (ii) Reminder/emphasis in survey (e.g., references to foregone goods, current bills, past payments for improvements, extra bills to pay for additional improvements in question);*
- (iii) Deriving value for a total POM program and an individual scheme within it;*
- (iv) (iii) with (ii)*
- (v) Simultaneous valuation of total programme through choice experiment survey.*

Table 1 highlights the potential advantages and disadvantages of each approach.

Table 1: Means of Addressing Income Constraints and Part/Whole Problems

Method	Example	Advantages	Disadvantages
<i>(i) Statement</i>	<i>Willis and Garrod (1996)</i>	<i>Simple statement</i>	<i>Limited, not address embedding</i>
<i>(ii) Emphasis</i>	<i>Georgiou et al. (2000a) – River Tame Georgiou et al. (2000b) – bathing waters</i>	<i>Clear and with emphasis by illustration</i>	<i>Does not address embedding</i>
<i>(iii) ii in context of</i>	<i>Jacobs Gibb</i>	<i>Addresses</i>	<i>Complicated for</i>

UK Collaborative Research Programme on River Basin Management Planning Economics

<i>valuing benefits of all schemes in programme</i>	<i>(2002) – Mimam water resource study Willis and Garrod (1994) – Darent</i>	<i>embedding, emphasises costs</i>	<i>respondent to understand</i>
<i>(iv) (iii) + extra emphasis of opportunity costs in terms of goods foregone + check respondent is really WTP their stated sum in foregoing equivalent goods they could purchase with this sum</i>	<i>See US literature?</i>	<i>Addresses embedding, and allows for opportunity costs using £values as medium of exchange to represent goods foregone</i>	<i>Complicated</i>
<i>(v) ii + comparison with all improvements. Not clear how wide the scope should be, esp given range of WFD POMs. Green Book (with its even wider range of public expenditure options) uses monetary valuation as common measure..</i>	<i>ERM (1997) – 7 rivers study for EA Yorkshire Water (2002)</i>	<i>Addresses opportunity costs and embedding and simultaneous valuation and comparisons between service improvements</i>	<i>Study is costly and takes long time (Yorkshire Water survey cost £250k) Ltd categories and information that can be provided on them; esp on intangible env benefits (see challenge 5 above). CE surveys cannot check in the original survey that people are really WTP the sums in terms of goods foregone since the WTP sums are calculated after the survey by analysing the CE findings. So need follow up validation survey</i>

Moreover, we need to identify and analyse variants of the options that achieve the advantages while overcoming or not incurring the disadvantages. As an example of a possible way forward in this search, it would be worthwhile examining combining focus group in-depth elicitation, specification and clarification of the impacts in question followed up by contingent valuation survey of a larger more representative sample of beneficiaries. This contingent valuation survey could be of a whole POM (and its individual schemes within it) with extra emphasis of opportunity costs in terms of goods foregone and checking that respondent is really WTP their stated sums in foregoing the equivalent goods they could purchase with this sum. This would effectively use the £values given as a medium of exchange to represent goods foregone etc.

ANNEX 1.4 – CRP OBJECTIVES AND APPROACH

Overall objective

- To steer the work on developing and applying a methodology and process to assess costs and benefits of options in River Basin Management. The purpose of this work is to assess cost-effectiveness of measures and to aid determination of whether or not they are disproportionately expensive.

Steering Group Membership and Leadership

- The PSG is made up of organisations from within and outside government who are making financial (or non-financial) contributions to the projects. Organisations not contributing to the projects will be able to participate in the meetings as observers.
- Decisions of the steering group are consensus based.
- Intellectual Property Rights (IPR) is jointly owned by the funders. All outputs will be clearly labelled as their outputs.

Quality of work

- Accountability for accuracy and thoroughness of the research lie with the PSG.
- Consideration is given at the outset of each stage in the work, of the need for peer review and quality assurance, for example, by academic experts.
- Care is taken to ensure that lessons learned from previous work are taken into account.

Compliance with existing government guidance

- The steering group ensures that all work will comply with the guidance set out in the HMT Green Book and other guidance on economic appraisal. This will include:
 1. Adherence to the guidance for assessing and quantifying costs and benefits.
 2. Taking a risk-based approach to the appraisal of costs and benefits.
 3. Ensuring appraisals are proportionate to the measures being considered and take due consideration of resource implications for carrying them out.

Approach

- A multi-method approach has been developed that is not biased towards one approach or another, but selecting the best approach given the specific circumstances, on its merits.
- The approaches are fit-for-purpose for the (number and type of) decisions that will need to be made for RBMPs for the WFD.
- The approaches fit in closely with the critical path for analysis to support decision-making needed for RBMPs for the WFD. Setting out a decision-making process for RBMPs and the WFD and the critical path for carrying out and completing economic analysis to support it, will be the essential first step in the foundation work for the research programme.

UK Collaborative Research Programme on River Basin Management Planning Economics

- The approaches are deliverable within the time and resources available to the various parties involved in the work and demonstrate value for money.
- The work needs to be prioritised and scheduled accordingly.
- The approach recognises the paramount need for an even-handed cross-sectoral approach and the need to avoid possible biases in the selection of measures.
- The approach aims to strike an appropriate and agreed balance between the need for new valuation versus the use of benefits transfer – following best practice in this area (the PSG will need to identify what it considers to be best practice in this area).

Transparency

- The PSG ensures that presentations and reports will be clear, logical, well founded, and geared towards helping the decisions at hand.
- Reports aim to provide sufficient evidence to support their conclusions and recommendations. They will provide an easy audit trail for the reader to check calculations, supporting evidence and assumptions.
- Consideration is given at the outset as to how and when the findings are to be disseminated.
- Consideration is given to the full range of users (users outside or within the research community) of the eventual information and will involve users and practitioners in the definition of outputs, ensuring transparency where possible.
- There are periodic (approximately annual) workshops with stakeholders and experts to review the draft outputs from the research and discuss the next steps.

**UK Collaborative Research Programme on River Basin Management Planning
Economics**

ANNEX 1.5 – PROJECT DETAILS

Project 1a and d	1a Economic analysis and decision making for Programme of Measures under the Water Framework Directive – Initial identification of processes and issues 1d) Catchment Sensitive Farming, Non Agricultural Diffuse Pollution and the Spending Review in the context of the WFD		
Start Date	Aug 04	End Date	Feb 05
Project Exec /Project Manager	Kevin Andrews (Defra)/Camille Bann (EA)(1a), Daphne Von Buxhoeveden (Defra) (1d)		
Summary deliverable			
A report providing a summary description of the decision-making processes in England and Wales for the following key sectors: water quality, water resources, flood risk management, conservation, land use, agriculture and coastal and marine.			
Key deliverables			
The objective of Project 1a was to assist in ensuring that the focus of the economic and technical assessments is such as to yield value-added information, which will aid appraisal and decision making for River Basin Management Planning. Project 1b complemented this with specific missing information on a number of sectors.			
Key inputs			
Steering group guidance on the Terms of Reference. Consultancy input. Peer review. Feedback from stakeholder group. Project manager input.			
Short summary			
The plans examined in the context of this project were:- Water Quality, particularly Water Industry -Periodic Review, Water Resources - Water Company Water Resource Plans, Catchment Abstraction Management Strategies Flood Risk Management - Shoreline Management Plans, Catchment Flood Management Plans, Water Level Management Plans Conservation (and Biodiversity) - Biodiversity Action Plans Habitats Site Management Plans - Coastal Habitat Management Plans Land Use - Regional Spatial Strategies, Local Development Frameworks Agriculture - CAP Reform, Rural Development Programmes Coastal and Marine For each of these summary information is provided relevant to how programmes of measures may be undertaken in the context of the plan.			
Methodology			
Literature review with expert interviews and workshops.			
Benefits from collaboration			
Collaboration will ensure no duplication of effort, and a balanced and well informed approach.			
Dependencies			
All further projects depend on the output of this project.			
Resources			
25K consultancy contract was complemented with in house resources in kind – Defra and EA.			
Outputs			
Report on CD-Rom, executive summary available at			

UK Collaborative Research Programme on River Basin Management Planning Economics

<http://www.defra.gov.uk/environment/water/wfd/economics/pdf/project1a.pdf>

Project 1a WFD Economics Measures – Decision Making Project Final Summary.doc
Background Sources List.xls

Project 1d Paper 1 – Non Agricultural Diffuse Pollution
Project 1d Paper 2 – Spending Review
Project 1d Paper 3 – Catchment Sensitive Farming

Quality Assurance

The outputs have been reviewed by the experts consulted and the PSG.

UK Collaborative Research Programme on River Basin Management Planning Economics

Project 1b	Consistent Economic Appraisal Approaches with respect to the Water Framework Directive River Basin Management Plans		
Start Date	June 05	End Date	June 06
Project Executive/Project Manager	Alice Baverstock (Defra)/Tom Griffiths (WAG)		
Summary deliverable			
<p>An independent assessment of the main economic appraisal approaches (and noting where no such approach exists) for plans which may deliver measures within the first and subsequent River Basin Management Plan Programme of Measures. A Terms of Reference for the Study is available at: http://www.defra.gov.uk/environment/water/wfd/economics/pdf/project1b.pdf</p>			
Key deliverables			
<p>A report and appraisal summary framework for comparing the assessment approaches taken in key plans (30+) which may be used to implement the WFD. The project was extended to incorporate outputs of Project 1a so that a stand alone assessment could be provided.</p>			
Key inputs			
<p>Steering group guidance on the Terms of Reference. Consultancy input. Peer review. Feedback from stakeholder group. Project manager input.</p>			
Short summary			
<p>The main aims of this study were to:</p> <ul style="list-style-type: none"> • Identify the main appraisal approaches used in England and Wales likely to help deliver PoMs; • Review the consistency of appraisal approaches; • Identify key gaps; where no plan/process exists and where no appraisal is used; • Gather information on the context, process, purpose and structure/content of the most relevant appraisal processes; and • Make recommendations for appropriate adaptations of the approaches for use within the wider WFD PoM process. 			
Methodology			
<p>A high level of consultation was carried out within this project, allowing for the views of many experts to be considered. It also served to highlight the work of the CRP and the importance of it and the cross-sectoral impact of the WFD implementation in the UK to the wide variety of respondents.</p> <p>A series of stages were undertaken:</p> <ul style="list-style-type: none"> • In Phase 1, an Appraisal Summary Framework (ASF) was developed to assist in gathering information on all the plans and decision-making processes that need consideration. • A simple prioritisation scheme identified 49 priority plans/processes from an original list of 79. These were categorised according to WFD “working groups”. • Key contacts in organisations such as the Environment Agency (EA), 			

UK Collaborative Research Programme on River Basin Management Planning Economics

Defra and the Welsh Assembly Government completed 33 appraisal templates relating to 32 of these priority plans and processes.

- All respondents were given an opportunity to review the outputs.
- In Phase 2, an 'Appropriate Coverage' assessment was carried out by the project team and Defra to ensure that all aspects of the regulations were considered. This resulted in two additional processes being identified.
- A summary pro-forma was designed to capture the context, process, purpose and structure/content of these appraisal processes. Pro-formas were then completed by the consultants corresponding to the 33 templates and the two additional processes.
- External consultation with key Defra, EA and CCW staff was then carried out, to fill remaining gaps and to allow the consultees to confirm details within the pro-formas.
- Finally, the project team analysed the results and drew up a series of conclusions and recommendations.

Benefits from collaboration

Collaboration ensured no duplication of effort, and a balanced and well informed approach.

Dependencies

This project depended on the outputs of Project 1a, which were in some cases limited. The project was conscious of the limitations of the analysis undertaken in project 1a.

Resources

The initial estimate was that this project could be procured for around £40K. However this was based on the assumption that the project could be organised so that much of the key value added technical assessment was available from the experts as opposed to the consultants. This meant significant input from economists in the collaborating organisations and third parties. The final cost was £50.8K, inclusive of an extension.

Outputs

The main output was a synthesis report together with short summaries of the information on each of the options appraisal approaches, in a consistent format. The synthesis report provided suggestions on adaptations which included who should be responsible for the changes, when they need to be applied. Etc.

Project 1b Final report - <http://wfdcrp.co.uk/pdf%5CCRP%20Project%201b.pdf>

Project 1b Final – Appendix A.xls -
<http://wfdcrp.co.uk/pdf%5CCRP%20Project%201b%20Appendix%20A%20-%20Completed%20Appraisal%20Summary%20Framework.xls>

Quality Assurance

The outputs were peer reviewed and PSG reviewed prior to PSG signoff

UK Collaborative Research Programme on River Basin Management Planning Economics

Project 1c	Screening of water pricing policies, cost recovery mechanisms and economic instruments for inclusion in Programme of Measures and in relation to Article 9 of the WFD		
Start Date	June 05	End Date	June 06
Project Executive/Project Manager	Kevin Andrews (Defra)/Anita Payne (Defra)		
Summary deliverable			
An initial screening of candidate water pricing policies, cost recovery mechanisms and economic instruments which may need to be considered in the first and subsequent Programme of Measures for the Water Framework Directive and in relation to meeting the requirements of Article 9. A Terms of Reference for the study is available at: http://www.defra.gov.uk/environment/water/wfd/economics/pdf/project1c.pdf			
Key deliverables			
This project provided: <ol style="list-style-type: none"> 1. A review of the risk assessment results in the context of new economic instruments 2. A set of criteria for comparing instruments. 3. A list of candidate water pricing policies, cost-recovery mechanisms and economic instruments 4. A short list of mechanisms for further analysis. 5. Synthesis of results and recommendations for further assessment. 			
Key inputs			
Steering group guidance on the Terms of Reference. Consultancy input. Peer review. Feedback from stakeholder group. Project manager input.			
Short summary			
Effective and efficient implementation of measures in RBMPs required consideration of the potential role played by water pricing policies, cost-recovery mechanisms and economic instruments in delivering the Directives objectives. An initial screening of candidate measures was conducted in order to identify the requirements for future analysis. As pricing policies, cost-recovery mechanisms and economic instruments are largely decided upon at a national level, the assessment of cost-effectiveness was undertaken through the national level assessment of costs. Annex 9 of the WFD requires this by 2010: <p>- that water-pricing policies provide adequate incentives for users to use water resources efficiently, and thereby contribute to the environmental objectives of this Directive,</p> <p>- an adequate contribution of the different water uses, disaggregated into at least industry, households and agriculture, to the recovery of the costs of water services, based on the economic analysis conducted according to Annex III and taking account of the polluter pays principle.</p>			
Methodology			
Project 1c took place largely through a high level screening of instruments against a series of developed criteria and in the context of the results of the risk assessment exercise. Candidate instruments needed to be identified and their status summarised. This involved some literature review type activities. However there was no design of new instruments as the purpose of this initial screening was to synthesise existing information. Where candidate new measures were identified suggestions were made for further analysis outside of this project.			
The literature review was based on assembling the key information needed to make a			

UK Collaborative Research Programme on River Basin Management Planning Economics

<p>judgement about the potential role of the instruments. This included a review of work in progress on related policy measures. For example in relation to affordability and water prices, or in relation to catchments sensitive farming or funding of flood defence activities. The research was careful not to prejudice the longer term policy development processes associated with these areas as this would not be in keeping with a screening exercise such as this.</p>
Benefits from collaboration
<p>Collaboration will ensure no duplication of effort, and a balanced and well informed approach.</p>
Dependencies
<p>This project had a dependency on the outputs of Project 1a, which were in some cases limited. There was also input from Project 2a (in terms of how effectiveness was defined (for the criteria) and 2b in terms of which costs to consider.</p>
Resources
<p>The initial estimate was that this project could be procured for around £75K. The final cost was £78.8K.</p>
Outputs
<p>The main output is a synthesis report together with summaries of the information on each of the instruments, and more detail on those proposed for further analysis. However where instruments were discounted at this stage, a full rationale for this was provided in order to provide a justification in terms of complying with article 9. The synthesis report includes suggestions on further work.</p> <p>Defra Screening of Economic Mechanisms For WFD Final.doc - http://wfdcrp.co.uk/pdf%5Cproject1c-mainreport.pdf</p> <p>Defra Screening of Economic Mechanisms For WFD Annexes Final.doc - http://wfdcrp.co.uk/pdf%5Cproject1c-annexes.pdf</p>
Quality Assurance
<p>The outputs were peer reviewed by Nick Hanley – University of Strathclyde and Robert Weeden – independent regulatory economist and the PSG.</p>

UK Collaborative Research Programme on River Basin Management Planning Economics

Project 2a/2b	2a) Development of a Methodology to Determine the Effectiveness of Combinations of Measures for the WFD 2b) Developing a methodology to assess and compare the cost effectiveness of the main pollution control measures across sector		
Start Date	August 2004	End Date	July 2005
Project Executive/Project Manager	Peter Pollard (SEPA)/Dominic O'Neil (EA)		
Summary deliverable			
A methodology for assessing the effectiveness of measures, estimating their costs and assessing cost-effectiveness of measures and combinations of measures. The Terms of Reference for this project are available at: http://www.defra.gov.uk/environment/water/wfd/economics/project2a.pdf http://www.defra.gov.uk/environment/water/wfd/economics/project2b.pdf			
Key deliverables			
The project has provided a rigorous method for assessing effectiveness of measures, their costs and cost-effectiveness. It has provided a framework for assessing effectiveness based on a list of effectiveness attributes, including magnitude of effect, characteristics of effect, practicability, and side effects. It has defined the problem into different problem types (e.g. those requiring a simple application of the method versus those requiring repeated application). It has provided a method for identifying financial and economic costs of measures at different levels of application: simple, detailed and in-depth. It has specified the types of costs relevant for cost-effectiveness analysis, including recurring and non-recurring costs, cost savings, transfers, non-water environment costs and benefits and wider economic effects. It has identified a series of generic measure and mechanism types. It has provided a means of comparing cost-effectiveness using qualitative and quantitative information.			
Key inputs			
Steering group guidance on the Terms of Reference and the development and testing of the methodologies. Consultancy input to scope out sectoral cost functions and developing a methodology for estimating costs. Peer review. Consultancy input for collating costs. Feedback from stakeholder group. Project manager input.			
Short summary			
Effective and efficient implementation of measures in RBMPs requires an even-handed assessment of the effectiveness, costs and economic impacts for all the sectors affected by the control measures. This has been a particularly important and urgent challenge for the WFD since the sectors concerned were distinctly different, with differing abilities to pass through the costs of RBMP measures into price increases. Therefore there could be significantly different distribution of the economic impacts of options for these different sectors.			
Project 2a focussed on the technical aspects of the identification and selection of programmes of measures. It was designed to be used in conjunction with the outputs of project 2b to provide an overall appraisal framework for cost-effectiveness analysis. Flowchart methodologies were provided focussing on the following steps:			
<ul style="list-style-type: none"> • Effectiveness – problem definition, identification of measures, prediction of effectiveness, development of combinations of measures and comparing combinations. • Costs and cost-effectiveness – identify scale of problem, define reference information, estimate costs, characterise uncertainty, assess cost-effectiveness and determine the most cost-effective combination. 			

UK Collaborative Research Programme on River Basin Management Planning Economics

Methodology
The methodology was based on investigation by researchers together with interviews with experts. The method was pilot tested in three trial catchments. Pilot testing used a learning process.
Benefits from collaboration
Collaboration will ensure no duplication of effort, and a balanced and well informed approach. In particular, collaboration from stakeholders will be key in establishing the correct cost functions for sectors.
Dependencies
This project is dependant upon project 1. There are interrelationships between project 2a/2b and project 3. Projects 2c and 2d are dependant on this project.
Resources
The cost of this project was estimated at £140K. The final cost was £126K (including peer review)
Outputs
The executive summary can be found at:- http://wfdcrp.co.uk/pdf%5Cp2a-2b-exsumm.pdf The main report (four sections) can be found at:- http://wfdcrp.co.uk/pdf%5Cmethod-pollution-parta.pdf http://wfdcrp.co.uk/pdf%5Cmethod-pollution-partb.pdf http://wfdcrp.co.uk/pdf%5Cmethod-pollution-partc.pdf http://wfdcrp.co.uk/pdf%5Cmethod-pollution-partd.pdf The annexes to the main report(s) can be found at:- http://wfdcrp.co.uk/pdf%5Cp2a-2b-annex1.pdf
Quality Assurance
The outputs were peer reviewed by a suitable member(s) of the peer review pool. Kerry Turner UEA Willie Halcrow – Independent regulatory expert Bob Breach – Independent regulatory expert And the PSG.

UK Collaborative Research Programme on River Basin Management Planning Economics

Project 2c + 2c extension/pCEA update	Estimating Approximate Benchmark Costs of the Main Measures Across the Main Sectors		
Start Date	August 2005	End Date	June 2006
Project Executive/Project Manager	Peter Pollard (SEPA) /Dominic O'Neill (EA)		
Summary deliverable			
<p>To provide benchmark cost data on the main measure options available for delivering environmental improvements; and to provide clear, concise and easy-to-use practical guidance for non-economists on how to undertake and audit assessments of the cost-effectiveness of different options for delivering environmental improvements.</p> <p>A Terms of Reference for the work is available at: http://www.defra.gov.uk/environment/water/wfd/economics/pdf/project2c.pdf</p>			
Key deliverables			
<p>This project will provide:</p> <p>(a) Estimates of approximate benchmark costs of the main measures (c100) for reducing the pressures on the water environment from the main sectors; and</p> <p>(b) Practical guidance on undertaking and auditing cost-effectiveness analyses</p>			
Key inputs			
Steering group guidance on the Terms of Reference. Consultancy input. Peer review. Feedback from stakeholder group. Project manager input.			
Short summary			
<p>The project followed on from the methodologies that have been developed in Project 2a (Development of a Methodology to Determine the Effectiveness of Combinations of Measures for the Water Framework Directive) and in Project 2b (Developing Methodologies to Assess Costs and Economic Impacts Even Handedly for the Main Types of Measures). The project provided a short summary guidance together with principles on the use of cost-effectiveness analysis for the WFD. A cost database in excel was provided for the main measures. These measures were prioritised to cover the most important measures for which national, generic cost information was useful.</p> <p>An extension of the project was undertaken to aggregate some of the measure costs, particularly for agriculture to permit more high level, strategic analysis.</p> <p>The database was updated following the completion of the preliminary Cost-Effectiveness Analysis</p>			
Methodology			
<p>The project used existing literature sources, previous cost databases and expert information to produce a database of benchmark cost estimates for each of the main measure options for mitigating significant adverse impacts on the water environment. Around 100 measure options were originally examined. This database was developed on the basis of the methodology recommended made by Project 2b, which examined the potential availability and usefulness of cost data for different sectors and measures. Expert experience, modelling and literature sources were used to produce guidance on the extent to which the actual cost of a particular measure could differ from the corresponding benchmark cost because of the effects on costs of local factors or because of other sources of error in the benchmark cost estimates.</p>			

UK Collaborative Research Programme on River Basin Management Planning Economics

The method uses the 2a/b methodology together with discussions with users and experts to produce clear, concise and easy-to-use guidance on how to undertake and audit a cost-effectiveness analysis, that can be understood and applied by water users and by non-economists in the regulatory agencies. Case studies and worked examples were developed to help in the preparation of the guidance materials and training. Pilot applications of the guidance were undertaken in three areas, with the guidance refined to reflect experiences in these case studies.

Benefits from collaboration

Collaboration will ensure no duplication of effort, and a balanced and well informed approach. In particular, collaboration from stakeholders will be key in establishing the correct cost functions for sectors.

Dependencies

This project was dependant upon project 1, 2a and 2b. There was an interrelationship between project 2c and project 2d. Project 2e was dependant on this project.

Resources

The estimated cost for this project was circa £120K. The final cost was £179.9K, inclusive of peer review.

Outputs

The outputs include a guidance document, updated guidance to include pCEA results together with a cost database and cost calculation tool can be found at:

<http://wfdcrp.co.uk/pdf%5Cproject2c-finalreport.pdf>

http://wfdcrp.co.uk/pdf%5CFinal%20-%20Project%202c%20update%20-%202016_05_08%20-%20updated.pdf

http://wfdcrp.co.uk/pdf%5CProject_2e_Annex_B_CEA_Tool.xls

Quality Assurance

The outputs will be peer reviewed by a suitable member(s) of the peer review pool.

Bob Breach – Independent regulatory expert

Andrew Skinner - Independent regulatory expert

UK Collaborative Research Programme on River Basin Management Planning Economics

Project 2d	Development of Peer Reviewed Tailored Proformas for Deriving Cost Estimates for Individual Sectors		
Start Date	August 05	End Date	August 06
Project Executive/Project Manager	Peter Pollard (SEPA)/Rebecca Badger (SEPA)/Dominic O'Neill (England and Wales Element)		
Summary deliverable			
Proformas for collecting in a systematic way local cost information that can be used by regulatory agencies to gather cost information and to facilitate discussions with regulated activities.			
A terms of reference for the project is available at: http://www.defra.gov.uk/environment/water/wfd/economics/pdf/project2-guide.pdf			
Key deliverables			
This project delivered: <ol style="list-style-type: none"> 1. Excel based proformas for recording site specific cost information, 2. Guidance on the completion of the proformas 			
Key inputs			
Steering group guidance on the Terms of Reference. Consultancy input. Peer review. Feedback from stakeholder group. Project manager input.			
Short summary			
This project developed proforma(s) to gather information about the costs of measures in a way that ensured that cost assessments across different sectors, different water users and different regulatory scenarios are sound and directly comparable. It piloted the proformas with the key sectors and in relation to the main measures and regulatory scenarios that are likely to be encountered during WFD implementation. It delivered a workshop to discuss and review the proformas with the user groups. It developed an approach to presenting the collected information in a manner that best facilitates decision making as to the most cost effective combination of measures and which accords with guidance and databases that were developed in projects 2a, 2b, 2c and 3 of the CRP.			
Methodology			
This project was being carried out in house by SEPA economists. The consultants appointed to undertake project 2c were responsible for advising on the compatibility of the outputs with those from other CRP projects. No England and Wales testing was necessary.			
Benefits from collaboration			
Collaboration ensured no duplication of effort, and a balanced and well informed approach. It avoided the development of inconsistent data capture approaches across the regulated agencies, which would hamper the even-handed treatment of sectors.			
Dependencies			
The project depended on project 2a/2b, for cost categories etc. and had interrelationships with project 2c (costs) and Project 3 (criteria for more detailed, disproportionate cost assessment).			
Resources			
The initial estimate is that this project can be procured for around £30K. The final cost as £15K.			
Outputs			
Cost proformas and guidance.			
Quality Assurance			
The outputs were peer reviewed by the stakeholders represented in the England and Scotland Economic Advisory Stakeholder Groups.			

UK Collaborative Research Programme on River Basin Management Planning Economics

Project 2e	Deriving the costs and effectiveness of delivery mechanisms		
Start Date	May 06	End Date	Aug 06
Project Executive/Project Manager	Gemma O'Reilly (DEFRA)/ Dominic O'Neill (EA)		
Summary deliverable			
Information on the cost and effectiveness of alternative delivery mechanisms for use in the guidance on cost-effectiveness analysis. A Terms of Reference for the work is available at: http://www.defra.gov.uk/environment/water/wfd/economics/research.htm			
Key deliverables			
This project will identify 30 key delivery mechanisms that have the potential to deliver the measures costed in project 2c. It collected readily available information on the generic costs of the delivery mechanisms and identified gaps. It collected information on the effectiveness of these delivery mechanisms. It reviewed how the CEA methodology (project 2a/2b) and guidance (project 2c) dealt with the assessment of the cost and effectiveness of delivery mechanisms and recommend any change if appropriate.			
Key inputs			
Steering group guidance on the Terms of Reference. Consultancy input. Peer review. Feedback from stakeholder group. Project manager input.			
Short summary			
Project 2c was only collecting the costs of measures. There was a need to collect the costs of delivery mechanisms. The term delivery mechanism refers to a wide spectrum of policy instruments including: grants/subsidies/compensation payments to incentivise the measures; product control standards (statutory); limit values or quality standards (statutory); technology/technique based statutory requirements; licensing regimes including tradable permits; management plans; zoning initiatives; spatial planning, incentive taxes or charges; liability regimes; codes of practice; negative and positive labelling; voluntary agreements; education and awareness, including training etc. There may be more than one mechanism able to deliver a particular measure or a mechanism may be able to deliver multiple measures. There may also be synergies/antagonisms between mechanisms. For example one mechanism may enhance the effectiveness of another. Information of the relative cost-effectiveness of alternative mechanisms was needed to complete the cost-effectiveness analysis.			
Methodology			
Literature review and expert analysis drawing together a number of completed, and ongoing work areas on the development of possible delivery mechanisms. Criteria for comparing the cost-effectiveness of delivery mechanisms was developed. Procedures for combining cost-effectiveness data for measures and mechanisms were produced.			
Benefits from collaboration			
Collaboration ensured no duplication of effort, and a balanced and well informed approach.			
Dependencies			
This project was dependant on projects 2a/2b, 2c, 2d and 3.			
Resources			
The initial estimate is that this project could be procured for around £75K. The final cost was £34.5K			
Outputs			
A list of delivery mechanisms, costs and effectiveness information. A revised methodology for assessing cost-effectiveness incorporating relative cost and effectiveness information on alternative measure. The main report can be found at:-			

UK Collaborative Research Programme on River Basin Management Planning Economics

<http://wfdcrp.co.uk/pdf%5Ccosteffect-mechreport.pdf>

Quality Assurance

The outputs were peer reviewed by a suitable member(s) of the peer review pool.

Bob Breach – Independent regulatory expert

Andrew Skinner - Independent regulatory expert

Nick Hanley – University of Strathclyde

UK Collaborative Research Programme on River Basin Management Planning Economics

Project 3	Guidance on the evidence required to justify disproportionate cost decisions under the Water Framework Directive		
Start Date	September 05	End Date	April 08
Programme Executive/Project Manager	Tom Griffiths (WAG)/Rebecca Badger (SEPA)		
Summary deliverable			
<p>The aim of this project was to produce practical guidance on the evidence needed to justify why taking further measures to improve the status of a water body would be disproportionately expensive.</p> <p>A Terms of Reference for the study is available at: http://www.defra.gov.uk/environment/water/wfd/economics/pdf/project3.pdf</p>			
Key deliverables			
<p>The principal outputs required from the project were:</p> <p>(A) A list of the different benefits associated with improvements in the status of surface waters and groundwater, and an indication and explanation of their likely relative significance.</p> <p>(B) Guidance on the range, type, format and quality of evidence appropriate to inform disproportionate cost decisions of varying difficulty.</p> <p>(C) Guidance on a common structure for collating the evidence to inform decisions on whether making further improvements in the status of the water environment would be disproportionately expensive; and (ii) The most appropriate means of presenting that evidence for the purpose of informing decisions and to take account of the contextual information likely to be relevant to the different decision makers and interested parties involved</p> <p>(D) An assessment of the number and types of cases in which the decision on whether or not an improvement in the status of the water environment would be disproportionately expensive is likely to be; straightforward; of intermediate difficulty; or complex, controversial and of national interest (and hence potentially requiring detailed information on costs and benefits).</p> <p>(E) Taking account of the guidance under point (B) on how benefits should be described qualitatively and quantitatively and on what methods are appropriate if benefits are to be monetised, a database of relevant values (monetary and non-monetary) that are available for those benefits identified under point (A).</p> <p>(F) Taking account of the conclusions of points (B), (D) and (E), a list of benefit values (e.g. amenity value; etc) for which additional information is required. This shall include a description of any relevant qualitative, quantitative, or monetised information about the benefits that could play a significant role in informing decisions on whether measures would be disproportionately expensive.</p> <p>The final deliverables included a summary guidance document, a benefits database (including qualitative, quantitative and monetary information on benefits) a series of annexes and appendices, a set of blank workbooks, a set of Appraisal Summary Tables (ASTs) and a project report.</p>			
Key inputs			
Steering group guidance on the Terms of Reference. Input from findings of CRP project 1 and Sniffer study RN120 on the Case for Valuation Studies (C4V, Project 3a). Consultancy input for all deliverables. Peer review. Feedback from stakeholder group. Project manager input.			
Short summary			
This project produced practical guidance on the evidence needed to justify why taking further measures to improve the status of a water body would be disproportionately expensive. The guidance identifies the evidence needed in different situations, ranging from those where the			

UK Collaborative Research Programme on River Basin Management Planning Economics

decision is likely to be clear cut, uncontroversial and of only local interest to those where the decision will be complex, controversial and of national interest. The study identifies the most useful forms for presenting the evidence to the range of different decision-makers, water users and other stakeholders involved in river basin management planning.

Methodology

This project needed to scope and characterise the types of potentially disproportionately costly cases likely to be encountered in RBMPs building on the RBC assessments. On the basis of this it needed to develop clear guidance on what evidence was necessary to make a decision on whether improvements are disproportionately costly or not. The project needed to review availability of valuations for the environmental benefits in an appropriate form that could be applied for RBMP appraisals. The project needed to develop a large number of case studies (c.50) illustrating the different situations in which disproportionate cost might be considered to arise. These case studies were used for the development of the method. It was intended that these case studies would also be used for illustrative purposes within the guidance but this did not prove possible. In addition to the case studies testing of the guidance occurred in three catchments.

Benefits from collaboration

Collaboration ensured no duplication of effort, and a balanced and well informed approach. It was essential that this task was carried out thoroughly as it forms the basis for subsequent tasks. Increased resources from collaboration will help ensure this.

Dependencies

The project depended on project 1a, 1b and 2. It had interrelationships with Project 2c.

Resources

The initial estimate is that this project can be procured for around £140K. The Final cost was £140K

Outputs

Guidance on the evidence needed to make a decision on whether an improvement is disproportionately costly.

Proformas for recording information on disproportionate costs

Benefits database, explaining how benefits can be best described in qualitative, quantitative and monetised terms.

The outputs are available at:-

<http://wfdcrp.co.uk/pdf%5CP3%20revised%20final%20guidance.pdf>

Quality Assurance

The outputs were peer reviewed by the stakeholders represented in the England and Scotland Economic Advisory Stakeholder Groups. Peer review was provided by Nick Hanley (Environmental Economist), Bob Breach and Andrew Skinner (Independent Regulatory Experts).

UK Collaborative Research Programme on River Basin Management Planning Economics

Project 4	Analyses to specify environmental benefits		
Start Date	July 2006	End Date	March 2008
Project Executive/Project Manager	Kevin Andrews/John Joyce		
Summary deliverable			
<p>This project aimed to provide rigorous benefits information needed for the long term assessment of disproportionate costs, while enabling a proportionate and well prioritised programme of measures for the first plan. The minimum objectives & outputs were as follows:-</p> <ul style="list-style-type: none"> • A peer reviewed clear and comprehensive specification of the environmental benefit items of concern to parties affected by options for RBMP. • Identification of extent these impacts could be covered by existing studies and major gaps needing to be covered under new studies <p>The original specification for this work was revised following the Benefits Workshop and the Strategic Approach to Benefits which can be found at:- http://wfdcrp.co.uk/pdf%5CBenefits%20Workshop%20Report%20Phase%202.pdf</p>			
Key deliverables			
<p>This project delivered:</p> <ul style="list-style-type: none"> • A mechanism for checking the overall scale of benefits for the first POM and prioritising effort within this. • Improved information on the basic science associated with the benefits of WFD • Improvements in information on the use and access of affected water bodies. • Improved information on the direct benefits of WFD improvements (e.g. cost savings) • Improved information on non-use element of benefits 			
Key inputs			
Steering group guidance on the Terms of Reference. Participation from stakeholders. Consultancy input for all deliverables. Peer review. Feedback from stakeholder group. Project manager input.			
Short summary			
<p>This project comprised of the following components:-</p> <p>Project 4a Expert workshop - precursor to any further work. The objective of the workshop was to peer review and develop the workplan for benefits. The workshop report can be found at:- http://wfdcrp.co.uk/pdf%5CBenefits%20Workshop%20Report%20Phase%202.pdf and Annex 1.4 in the Business Case v1.6 (the Annex 1.4 in this document)</p> <p>Project 4b Benefits Context study for WFD - what factors influence people's enjoyment of the environment and therefore WTP for improvements i.e. is access to a river a deciding factor, facilities at a beach affecting beach use, physical limitations on water sports enjoyment compared to the quality of the water as a limiting factor. This was a precursor to any further benefits work. It helped obtain stakeholder preferences and buy-in and help develop survey questionnaire (4c).</p> <p>Project 4c Overall benefits survey - Benefits survey to look at values of improvement and no deterioration scenarios – applied to whole POMs. Survey with additional questions. Done at a national level but take account of differences in each RBD. Used as a check on the overall scale of the first POM. Include all categories of benefit and does not attempt to disaggregate.</p>			

UK Collaborative Research Programme on River Basin Management Planning Economics

Project 4d Public preferences for WFD outcomes (Prioritisation) - Obtain preferences for different levels of risk of the outcomes of the improvements/no deterioration happening/not happening. Used for prioritisation within the first POM and help identify poor and good value for money projects. Terms of Reference available at <http://wfdcrp.co.uk/pdf%5C4d%20TOR.pdf>

Project 4e - Direct market benefits study - study of the financial cost savings and other direct benefits arising from improvements in WQ (for example for drinking water protected areas). Terms of Reference available at <http://wfdcrp.co.uk/pdf%5C4e%20TOR.pdf>

Project 4f – Use and access of water bodies in England and Wales - study of water body use (and access) data to deal with substitutability, marginal impacts, distance decay etc. distributional issues etc. Look at factors affecting use of water body. Project has two components – a scoping study completed within the life of the CRP and a longer term study taken forward outside the CRP. A Terms of Reference for the short term study is available at <http://wfdcrp.co.uk/pdf%5C4f%20TOR.pdf>

Project 4g - Basic science support - ensure that any further work on cause and effect of measures takes into account the human welfare end-points which would need to be valued. This will need to take an ecosystem services approach and account for the incremental changes of measures given expected status. It will identify good qualitative descriptions of benefits arising in different circumstances and definition of the indicators needed to describe these benefits quantitatively. To be taken forward by Defra as a non CRP work area.

4h - Non-use benefit work - Focused work to derive non-use estimates for RBMP building on the scoping study undertaken by the EA (2005). The short term work would include developing a better understanding of what non-use values are and why people are concerned about them, defining areas where non-use values are required for the WFD and defining new studies that can address current challenges to non-use valuation in the medium to long term. To be taken forward by Defra as a non CRP work area.

Methodology

Various methodologies depending on the specific project – see individual terms of reference.

Benefits from collaboration

Collaboration ensured no duplication of effort, and a balanced and well informed approach.

Dependencies

This project depended on the output of project 3.

Resources

An indicative budget for this series of projects is £660K to 2008 and £1.8m to 2013. The estimated final cost to 2008 is £781.9K.

Outputs

The main outputs are:

4a Report on CRP Strategic Approach to Benefits:-

<http://wfdcrp.co.uk/pdf%5CBenefits%20Workshop%20Report%20Phase%202.pdf>

4bc Survey Report

<http://wfdcrp.co.uk/pdf%5CCRPSG%204bcd%20Final.pdf>

UK Collaborative Research Programme on River Basin Management Planning Economics

4bc Survey Report Appendices A-K

<http://wfdcrp.co.uk/pdf%5CCRPSG%204bcd%20Final%20Appendices%20A-K.pdf>

4bc Survey Report Appendix L

<http://wfdcrp.co.uk/pdf%5CCRPSG%204bcd%20Final%20Appendix%20L.pdf>

4bc Survey Report Appendices M-O

<http://wfdcrp.co.uk/pdf%5CCRPSG%204bcd%20Final%20Appendices%20M-O.pdf>

4bc Survey Results Aggregation Report and Tool v2 and v3

http://wfdcrp.co.uk/pdf%5CCRPSG%2032.8%20080321%20NERA%20WFD%20Further%20Research%20-%20Declining%20Discount%20Rate%20_with%20cover.pdf

4bc Survey Results Aggregation Tool v2

http://wfdcrp.co.uk/pdf%5CCRPSG%2032.12%20080321%20NERA%20WFD%20Benefits%20Aggregation%20Workbook%20_v2.xls

4bc Survey Results Aggregation Tool v3

http://wfdcrp.co.uk/pdf%5CCRPSG%2032.13%20080321%20NERA%20WFD%20Benefits%20Aggregation%20Workbook%20_v3.xls

4d Prioritisation Main Report

<http://wfdcrp.co.uk/pdf%5CProject%204d%20-%20Prioritisation%20Final%20Report.pdf>

4d Prioritisation Main Report Appendices

<http://wfdcrp.co.uk/pdf%5CProject%204d%20-%20Prioritisation%20Final%20Report%20Apx.pdf>

4e Direct Market Benefits Main Report

<http://wfdcrp.co.uk/pdf%5CProject%204e%20-%20Direct%20Market%20Benefits%20-%20Final%20Report%20V6%20-%20with%20cover.pdf>

4f Use and Access of Water Bodies in England & Wales Main Report

<http://wfdcrp.co.uk/pdf%5CProject%204f%20-%20CRP%20Use%20And%20Access%20Final%20Report.pdf>

Quality Assurance

Peer review input was obtained from Ian Bateman, George Hutchinson and Brett Day. A range of other peer reviewers inputted or attended various workshops.