

**UK Collaborative Research Programme on River Basin Management Planning**  
**Economics**  
**Project 1a - Economic Analysis and Decision Making for Programme of Measures under**  
**the Water Framework Directive – Initial Identification of Processes and Issues**

**Foreword**

This report provides 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<sup>1</sup>. For each of these sectors the report provides a systematic way of reporting information. This information can subsequently be updated to inform the development of the Collaborative Research Programme (CRP) so that it can best aid decision-making on these plans and processes.

The report reflects the findings of a scoping exercise to set out how the plans and processes for the selected sectors work in theory. It does not reflect how these plans and processes work in practice, or how they might be amended so as to support implementation of the Water Framework Directive (WFD). The report does not dictate any particular policy stance.

A number of sectors are **not** covered at all in the report, or are **not** covered in detail. These are listed below:

- Water Quality
  - Consenting of non water-industry discharges is not considered
  - Sustainable Urban Drainage Systems (SUDS) are not considered
- Water Resources
  - Water Demand Management outside the context of Water Company water resource plans is not considered.
- Agriculture
  - Measures outside the context of Common Agricultural Policy and the Rural Development Regulation implementation are not considered. The Catchment Sensitive Farming initiative is mentioned, but not analysed in any detail.
- Morphological
  - The measures in this category have not been considered.
- Direct use of water bodies (e.g. fishing, navigation)
  - Some consideration has been given to the Regulation of these matters in Marine and Coastal waters, but no detailed decision making analysis has been undertaken
- Non agricultural land use
  - This is covered to a small degree by the Land Use sector summary, but excludes detailed consideration of crucial issues such as the implementation of Sustainable Urban Drainage Systems.
- Major Industries
  - Control through the PPC regime of major industries (either by the Environment Agency or Local Authorities) is not considered.

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<sup>1</sup> The Water Framework Directive is concerned with transitional and coastal waters. Coastal and marine are the related policy areas..

The report also does **not** cover a review of the consistency of **economic appraisal** processes for existing plans, detailed information on the **timelines** for the various plans, and a review of processes for determining **economic instruments**.

The ways in which the areas of work not covered in Project 1a are being addressed through the CRP programme is summarised in the Table below.

<b>Area of Work</b>	<b>Agreed Work Plan</b>
Review of economic appraisal approaches / Timelines	To be covered by CRP <b>Project 1b</b> , which will assess the main economic appraisal approaches (noting where no such approaches exist) for plans that may deliver measures in River Basin Management Plan (RBMP) Programme of Measures. This will include a review of timelines.
Assessment of the role of economic instruments in RBMP	To be covered by CRP <b>Project 1c</b> , which will undertake an initial screening of candidate water pricing policies, cost recovery mechanism and economic instruments that may need to be considered in RBMP Programme of Measures.
Analysis of additional important planning area: The Spending Review process Catchment Sensitive Farming Non-agricultural diffuse pollution Strategy	To be covered by CRP <b>Project 1d</b>
Analysis of additional important planning areas: Transitional and Coastal Water Bodies	Defra have commissioned a study to address the gaps in relation to plan (and non-plan) processes in Transitional and Coastal Waters. This study is not part of the CRP.

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## **Summary Report**

### **Background**

The Water Framework Directive (WFD) River Basin Management-Economics Collaborative Research Programme (CRP)<sup>2</sup> consists of six sequential projects focussed on assessing the cost and benefits of measures in River Basin Management (RBM)<sup>3</sup>. The objective of Project 1 under the CRP, as set out in the project specification, is to aim 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.’

### **Introduction**

The Water Framework Directive requires Member States to put in place Programmes of Measures (PoMs) to achieve environmental objectives. Programmes of measures are devised and made operational through the implementation of three iterations of River Basin Management Plans starting in 2009 and ending in 2027. The Directive requires Member States to select measures on the basis of environmental, economic and social criteria, with the aim of achieving the most cost-effective combination of measures and assessing their costs and benefits to determine and justify exemptions.

Economic analysis will support this selection of measures. To facilitate this economic analysis, research is currently being undertaken under the auspices of the Collaborative Research Programme to collect information on:

1. The decision making processes applicable to potential measures, in particular the role of cost and effectiveness considerations within these processes (Project 1)
2. Assessing the costs associated with potential measures (Project 2b)
3. Assessing the effectiveness of potential measures in achieving environmental objectives (Project 2a)

As the details of how River Basin Management Planning will be undertaken are still subject to some uncertainty, it has been assumed for the purposes of this work that in the first iteration of River Basin Management Planning, the PoMs will largely be developed and implemented through the existing and emerging plans and processes. Overlying this will be a process of cross-plan co-ordination whereby decisions taken within one planning framework can be (at least partially) considered alongside those of another.

The first stage in understanding how this approach can operate, is to understand the way in which current planning processes are undertaken, and how relevant decisions are made, particularly in terms of the economic assessments which are (or are not) undertaken in respect of these decisions. The main outputs of this project are a series of summary analyses of existing planning processes and associated decisions, based largely on a review of published documents. The planning processes which have been

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<sup>2</sup> The CRP is chaired by the Department of Environment, Food and Rural Affairs (Defra). The collaborating parties are: The Environment Agency, English Nature, The Scottish Executive, The Scottish Environment Protection Agency, The Royal Society for the Protection of Birds, Welsh Assembly Government, UK Water Industry Research Ltd, The Department of Trade and Industry, National Farmers Union, Country Land and Business Association, Department of Environment Northern Ireland, UK Major Ports Group / The British Ports Association, and, the Association of Electricity Producers.

<sup>3</sup> Information on the CRP can be found at <http://www.defra.gov.uk/environment/water/wfd/economics/index.htm>

examined are a selection of all the potentially relevant processes. As such a number of other processes may need to be considered or examined.

This work has not examined the potential for amendment of these processes to support implementation of the Directive. The current project presents a snapshot description of the current processes. This snapshot will need to be refined and in some cases augmented. The further stages of determining “where we wish to be” and “how to get there from where we are now” are outside the remit of this project.

In this context, it is crucial to recognise that not all decisions which are of relevance to the Water Framework Directive implementation are incorporated into existing planning type processes as examined here.

In view of this, the project has produced a “list of measures” which identifies a wide range of possible measures that could be taken in the course of implementing the programmes of measures required by the Directive. These measures have been classified in two ways. Firstly the measures have been considered in relation to sectors, i.e. Water Industry, Agriculture etc. Secondly the measures have been considered in relation to pressures. A brief explanation of this approach is provided in [Annex C](#). In neither instance is the catalogue of measures definitive or exhaustive, but serves as a “quarry” from which possibilities can be extracted for consideration.

### **The Scope of the Analysis Undertaken**

The plans examined in the context of this project are listed here. For ease of reference they have been collected into seven “subjects” or “sectors”. Links<sup>4</sup> are provided to the summaries for each sector and to the summaries for each planning process.

- [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](#)

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<sup>4</sup> This report, and its associated documents, makes use of numerous “hyperlinks” within Microsoft Word. Use of these links should automatically activate the “web” toolbar in Word, which allows for navigation between pages similar to that for an internet web browser. In the event that this navigation toolbar does not appear automatically, users may need to enable the toolbar. To do so, please use the drop down menu “View” – “Toolbars” and ensure that the Web item is ticked.

The sectors are examined both by environmental themes under WFD (e.g. water resources, flooding (CFMP), conservation,) and by sector (e.g., water industry, agriculture). Some (coasts, land use) may involve both themes and sectors.

For each sector considered here, we have produced a summary of the planning processes in the sector. In a number of instances this summary considers issues outside the plans referred to above, particularly the development of national strategies and decisions which are outside the plans but within the sector as a whole. For example, in the case of Flood Risk Management, the allocation of funds at a national level is considered within the sector summary, but is not subject to a more detailed plan analysis.

More detailed plan analyses have been produced for the most relevant planning processes in each sector, as listed above. These are summaries of the key information about each plan and the processes whereby the plans are produced. In most cases links are provided to more detailed information concerning the plans or to specific guidance documents and source references.

For each of the planning processes, key decisions are identified, usually one for each process. These decision making processes have then been considered in a little more detail, and summaries produced of the key processes, information, economic considerations and criteria which are used in the decision.

In considering the scope and output of the current work, three key points are of note here:

- This work has not reproduced the detailed guidance used in the appraisal processes. This would be duplication. It has endeavoured to summarise the information and to provide links to more detailed information (usually published) which can be referred to if appropriate.
- An initial review has been undertaken by the Environment Agency of its current economic appraisal processes within each of the water related planning sectors (See [Annex A](#)). Details of this work are available from Dr. Camille Bann of the Environment Agency (Senior WFD Economist). This work will be developed under Project 1b of the CRP.

The Environment Agency is publishing draft River Basin Planning Strategy. In preparing this strategy, considerable work has been undertaken to analyse a number of planning processes. In addition the Agency has undertaken work to examine the potential for convergence of planning processes. Further work is due to commence in the near future under the Agency “streamlining project”. Information arising from these activities has, where relevant, been used in the current work. A number of relevant studies have been included in the CD version of the current work and are referred to in the list below.

- [Conservation Planning and RBMP](#) (Atkins)
- [Rural Land Use Planning and RBMP](#) (Land Use Consultants) plus [Annex](#)
- Use of Planning Conditions in RBMP measures (Land Use Consultants)
- [The relationship between Land Use Planning and RBMP](#) (Baker Associates)
- Registers of existing strategic management plans and future stakeholders in River Basin Management Plans to support the implementation of the Water Framework Directive Prepared for The Environment Agency by Land Use Consultants and Conlan Consulting (October 2001)
  - [Final Report](#)
  - [Draft Register](#) (Microsoft Access Database<sup>5</sup>)
- Work undertaken in the context of the pilot study in the Ribble basin – Environment Agency, including:

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<sup>5</sup> This database was prepared in Microsoft Access '97. As such it may be viewed in later versions of MS Access, but cannot be amended with prior conversion. The database contains “forms” for viewing and amending data in respect of both stakeholders and planning processes. These can be accessed through the “forms” section in Access.

- Streamlining Stakeholder Engagement - Database and Strategy for Management of Key Stakeholder Relationships for WFD related Catchment Planning – Prepared for the Environment Agency by Halcrow Group Limited - April 2004 (obtainable from the Environment Agency)

For each of the planning processes and the associated decisions, comments have been made as to how the related measures are classed under Article 11 of the Water Framework Directive. An explanatory note is provided in [Annex B](#).

### **Planning Processes outside the scope of the current work**

As noted above, not all the potentially relevant planning processes have been considered in this work. Exhaustive listings of planning processes have been produced in two contexts:

- Register of Strategies and Plans relevant to the Water Framework Directive (Land Use Consultants) as referred to above
- The River Ribble Basin Pilot Project led by the Environment Agency and undertaken under the auspices of the EU Common Implementation Strategy pilot basin network particularly in respect of stakeholder participation

In both instances a large number of plans were identified, of the order of 100 or more. Examination of the detailed decision making processes within each of these has not been possible within the context of this current project.

The degree of technical overlap between these plans was considered from an Environment Agency perspective in the context of the Ribble basin study, and more generally in the Register study. The output of the Ribble study considered those plans led by the Environment Agency and those lead by other main parties. .

The main Agency plans identified were:

- Flood defence
  - Catchment Flood Management Plan
  - Flood Defence Asset Management Plan
  - Flood Defence Medium and Long Term Plans
  - Flood Risk Management Catchment Strategy Plan
  - (Preliminary) Strategy Report (Flood Defence)
  - Regional Flood Defence Business Plan
- Water resources
  - Catchment Abstraction Management Strategy
  - Drought Contingency Plans (Agency)
  - Low Flow Alleviation Projects
  - Regional Water Resources Strategy
  - Restoring Sustainable Abstraction Programme
- Water quality
  - Eutrophication Control Action Plan
  - Local Contributions (Local Environment Agency Plans)
  - Nitrate Vulnerable Zones
  - River Quality Objectives
- Conservation, ecology or fisheries
  - Coastal Habitat Management Plan
  - Water Level Management Plan
  - River Habitat Objectives
  - Fisheries Action Plan

- Freshwater Fish Directive Designations
- Salmon Action Plan
- National Trout and Grayling Strategy

The key plans by other main parties were classed as

- Plans with significant technical overlap with River Basin Management Planning (15)
- Plans with potentially significant technical overlap with River Basin Management Planning (19)
- Plans with only peripheral technical overlap with River Basin Management Planning (35)
- Plans with no apparent technical overlap with River Basin Management Planning (24)

Details of the plan listings are provided in the relevant reports and their annexes, which are appended to the CD version of this report.

Consideration of this data indicates that there are a number of significant and relevant plans that are undertaken across the national territory which have not been included in this analysis, for example Fisheries Action Plans. Moreover, consideration of the Ribble pilot study indicates that there are both regional and local specific plans which are also not included in the current analysis such as the Improving Coastal and Recreational Waters initiative which is undertaken by the Environment Agency and the Mersey Basin Campaign.

### **Coverage of Analysis in relation to Potential Measures**

As stated above, the list of measures provides a “quarry” of potential measures. Considering the contents of the current analysis, such large number of measures could not be covered in this study due to the constraints of available resources. In order to identify those measures which have not been examined, a cross reference table has been prepared for each sector, indicating the measures which are covered by the planning and decision making processes which have been examined, and those which have not. These tables are appended to this report.

Examples of key items which have not been examined, considered in relation to the listings contained in the catalogue of measures include:

- Water Quality
  - Consenting of non water-industry discharges
  - Sustainable Urban Drainage Systems (SUDS)
- Water Resources
  - Water Demand Management outside the context of Water Company water resource plans
- Agriculture
  - Measures outside the context of Common Agricultural Policy and the Rural Development Regulation implementation. The Catchment Sensitive Farming initiative is mentioned. But we could not analyse this important initiative in any depth at this stage since it is currently being developed.
- Morphological
  - The measures in this category have not been considered in this project.
- Direct use of water bodies (e.g. fishing, navigation)
  - Some consideration has been given to the Regulation of these matters in Marine and Coastal waters, but no detailed decision making analysis has been undertaken
- Non agricultural land use
  - This is covered to a small degree by the Land Use sector summary, but excludes detailed consideration of crucial issues such as the implementation of Sustainable Urban Drainage Systems.

- Major Industries
  - No consideration has been given here to the control through the PPC regime of major industries (by either the Environment Agency or Local Authorities). Reference has been made to the IPPC regime in the Water Quality sector summary and references to more detailed information can be found there.

In general terms, the degree to which “novel” or supplementary measures are considered within the context of existing planning processes is variable and dependent on the nature of the measure. For example, a specific measure such as a desalination project is listed in Annex VI Part B of the Directive (supplementary measures). For planning purposes such projects would be included within the Periodic Review process. Economic instruments are listed in Part B of Annex VI of the Water Framework Directive, but have not been covered in this report.

### **The Decision Making Processes**

The approach taken in this project has demonstrated that the decision making processes in the different sectors display some distinct similarities and a number of key differences.

#### Water Industry Planning for Water Quality

The process of Water Industry Planning, both for water quality and for water resources, has been in use in its present form, since the privatisation of the water industry in 1989. Planning in this sector is characterised by rigorous and well ordered processes of appraisal which are well codified and generally transparent. The process of determining costs is scrutinised in detail by OFWAT and the Environment Agency assesses the environmental benefits of measures (for those schemes that are not a statutory obligation). The valuation of environmental benefit has been undertaken using benefit transfer methodologies. Social impacts are considered both through the assessment of customer opinion (using customer surveys) and through consideration of financial impacts on bills in relation to household income.

The decision making processes for Water Industry Planning are undertaken by national government bodies, DEFRA, OFWAT, the Environment Agency and English Nature. However, the decisions are informed by locally derived information, which entails “decisions” or assessments being made as to the need for a particular scheme in relation to defined objectives.

Almost all measures which could be taken by a water company are included in the planning process. However there are some measures for water quality improvement that are outside the scope of this planning process, particularly those referred to generically as “SUDS” or Sustainable Urban Drainage Systems.

#### Water Resources

The appraisals undertaken in this sector in the context of water company plans show a similar well ordered and rigorous pattern to that for water quality planning under the Periodic Review. A quantitative assessment of costs and benefits is undertaken and the efficacy of measures is compared e.g. cost of leakage reduction versus increased abstraction.

Within the context of Water Industry Planning, decisions are taken at a national level, as with water quality issues for the water industry.

Appraisal for planning processes and decision making outside the context of Water Industry Planning is generally undertaken through the use of semi-quantitative and qualitative techniques, as is the case with the current Catchment Abstraction Management Strategies (CAMS) appraisal process.

Decision making outside the Water Industry Planning context is perceived to be a balance of local and national considerations. The CAMS process is clearly local, as is the process of abstraction licensing itself, but this is overlain by both regional water resources strategies and by the national Restoring Sustainable Abstraction Programme.

Whilst water demand management measures are increasingly being included in the list of considerations within the Water Industry Planning process, there are a number of such measures which are outside the planning process, including the development of low water use devices.

### Flood Risk Management

The appraisal processes within this sector are now well harmonised across and between the different planning processes. A cost-benefit analysis system is used, as set out in the Flood and Coastal Defence Project Appraisal Guidance (FCDPAG) and this is embodied in the Modelling Decision Support Framework which it is envisaged will become the core appraisal method for the sector as a whole.

It should be noted that comparison of the economic appraisal methodology used in this sector and that in other sectors has not been undertaken here, but this will be done under project 1b of the CRP.

It is also of note that the prioritisation system used in this sector is a scoring system which uses the Benefit to Cost ratio as one of the criteria in determining a score. It is on the basis of this score that the priority of a measure is decided.

The decision making in this sector is undertaken at both a national and local level, and has some similarities to the Water Industry Planning process for selection of schemes. Schemes or projects are identified at a local level on the basis of catchment (and shoreline) scale assessments. These schemes and projects are then prioritised at a national level.

All measures identified for this sector are considered within the planning processes.

### Conservation (and Biodiversity)

In general the processes of designating areas for nature or biodiversity conservation cannot be the subject of economic appraisal, as was clearly stated in the report to the European Commission on the implementation of the Habitats Directive.

The process of determining the measures to be taken in order to protect designated sites also does not appear to be subject to economic appraisal. Only in cases of “over-riding public interest” is the implementation of a measure determined on the basis of something approaching an appraisal.

The valuation of costs and benefits is also not well addressed within the context of biodiversity planning at a local level. However, as the implementation of these plans is largely reliant on measures taken in the context of other planning and decision making processes, it should not be presumed that measures taken in the interests of biodiversity are not subject to appraisal as such.

### Land Use

Within the context of this sector, both land use planning, and to a lesser extent, sustainable development planning have been referred to. The system of land use planning in the UK has been in place for many years. However, it has recently been subject to considerable change as a result of the Planning and Compulsory Purchase Act 2004. This analysis has endeavoured to take account of these changes.

Under the new system of planning, the conceptual structure for site specific decision making will remain:

- Permission for development is required in most instances
- Permission is obtained from local authorities
- Local authorities must make decisions on applications for permission on the basis of the contents of the relevant “development plan”

However, the “development plan” to which the competent authority must refer will consist of:

- Regional Spatial Strategy
- Local Development Framework, comprising:
  - core strategy
  - site specific allocations of land
  - area action plans (where needed)
  - proposals maps

Regional Spatial Strategies, will in the first instance be based on existing Regional Planning Guidance, but will be updated over time. Local Development Frameworks are to be developed over the next 3 years and will replace other forms of local planning documents. Whilst Local Authorities will have the power to adopt the Local Development Frameworks, the production of the frameworks will be subject to public scrutiny and inspection and ultimately may be subject to intervention from central government.

Whilst guidance has been issued on the production of these new plan types, many of the processes remain untried in practice. In particular both levels of plan will be subject to sustainability appraisal. Sustainability appraisal techniques have been applied in the last few years to a number of land use plans. Particular examples can be found in respect of the Spatial Plan for Wales and the Guidance on the application of sustainability appraisal to the Unitary Development Plans in Wales. It is anticipated that this practice will be updated and augmented with the introduction of the new planning system. Given the extremely wide range of objectives and issues which may arise in respect of land use plans, the use of quantitative analysis is expected to be limited. Consultation guidance on sustainability appraisal states:

*Hard data may enable planning authorities or expert advisers to make detailed quantitative predictions, and this can be particularly useful where a plan’s effects are uncertain, close to a threshold, or cumulative. But quantification is not always practicable, and broad-based and qualitative predictions can be equally valid and appropriate. As in current practice, these may be expressed in easily understood terms such as “getting better or worse” or a scale from ++ (very positive) to -- (very negative). It can be useful to link predictions to specific objectives, e.g. “will the plan promote change in a desired direction?”*

This approach is intended to be consistent with the requirements for Strategic Environmental Impact Assessment, and is similar to the Appraisal Summary Table approach that is used in other sectors, such as Multi Modal Transport Studies.

### Agriculture

Decision making in the agricultural sector as examined here, is characterised by a predominance of national and international level decisions. Some flexibility is afforded at the regional and local level, but this is very small in comparison.

High level decisions made in this sector are undoubtedly subject to economic appraisal and regulatory impact assessment, including the assessment of environmental impacts: such as was the case with the recent CAP Reform. However, this type of appraisal is markedly different in scale and process from that referred to in respect of the Periodic Review and Flood Risk Management above. Whilst an

environmental impact assessment of CAP Reform as a whole was undertaken, this was largely qualitative, or semi-quantitative. Subsequent analyses of more detailed aspects of CAP Reform used this environmental impact study as the basis for their consideration of environmental impacts.

We have not been able to examine whether the more locally based decisions concerning the allocation of funds under the schemes contained in the England Rural Development Programme are subject to rigorous appraisal in order to determine priorities. This may need to be considered in more detail.

### Coastal and Marine

In general terms, the planning in the Coastal and Marine sector is characterised by a large number of plans, covering a wide range of specific issues. A number of the plans considered for other sectors are of relevance here, in particular

- Water Quality – Aspects relating to coastal discharges and to riverine loads to estuaries
- Flood Management - Shoreline Management Plans
- Land Use - Regional Spatial Strategies and Local Development Frameworks of coastal local authorities
- Conservation – Coastal Habitat Management Plans

Comments applicable to the planning and decision-making processes in respect of these plans are of relevance here.

In addition to the activities which are subject to planning systems in the coastal and marine zones, there are a wide range of activities which are subject to regulatory control, but which are not subject to any planning system as such – such as controls over aggregate dredging. In recognition of this situation, initiatives are underway to examine the potential for Integrated Coastal Zone Management Plans and for Marine Spatial Plans, whereby the wide array of different activities and control systems can be better coordinated and integrated. Both are in the early stages of consideration.

The appraisal techniques used in determining decisions made outside planning frameworks have not been considered in detail here.

## **Concluding Remarks**

The range of potential measures which could be included in a programme of measures is vast. The analysis presented here has not been able to cover all of these. However, a large number of these measures are already included in existing planning provisions. Therefore this project has focussed on determining the decision making processes for the key existing planning processes and their associated measures. It has revealed that the appraisal utilised in these planning processes ranges from:

- the wholly technical, such as designation of Natura 2000 sites,
- qualitative or semi-quantitative as in sustainability appraisal of local development frameworks
- rigorous cost benefit analysis as used in flood defence and water industry planning

The products of the project provide a high level summary and a more detailed summary, but also contain references to the detailed procedures which are set out for the planning and decision making processes. As such the products provide both an overview and a source of specific detailed information.

However, it is crucial to recognise:

- Not all planning processes which incorporate decisions concerning relevant measures have been examined, for example fisheries plans
- Not all key decisions concerning relevant measures are incorporated into planning processes as they have been defined here, such as is the case for IPPC and for coastal and marine
- Consideration has not been given to future decision making processes which may accompany the introduction of new measures, such as economic instruments for example
- Consideration has not been given to how existing planning and decision making processes could be amended to support the implementation of the Water Framework Directive

These issues will clearly need to be addressed in completing the framework for programmes of measures development in general and cost-effectiveness analysis in particular.

## **Annex A: Environment Agency Economic Appraisal & the Water Framework Directive (WFD)**

**Background:** The WFD covers all water bodies (rivers, lakes, estuaries, coastal, groundwater). Economics, and in particular economic appraisal, plays a significant role in the Directive. Options (i.e. the different measures available to improve water status) are to be assessed for their **cost effectiveness** such that the most cost effective combination (programme) of measures can be selected. Where it is considered ‘disproportionately expensive’ or technically infeasible to reach the Directive’s objectives by 2015 an exemption may be granted. Exemptions must be supported by an **assessment of the costs and benefits** of the options. The WFD considers all possible pressures including point sources of pollution, diffuse sources of pollution, abstractions and morphological distortions. These pressures relate to a broad range of activities and sectors including the water industry, manufacturing industries, chemicals production, energy generation, agriculture and transport. As such the economic appraisal process developed for River Basin Management Plans under the WFD needs to be comprehensive in its application and even handed in its approach.

**Objective:** To review existing economic appraisal systems in order to understand their adequacy to appraise measures and options for the WFD. The review process will determine how consistent current appraisal processes are, and identify weaknesses and gaps that may need to be addressed to meet the requirements of River Basin Planning under the WFD.

### **Process:**

**Table 1** lists existing Agency economic appraisal processes being considered

**Table 2** is a list of the relevant information which is being summarised for each appraisal process. This information will provide a basis for comparison and analysis of existing appraisal processes.

For ease of reference, a list of economic appraisal guidance documents which are included on this CD is provided beneath Table 2 (including hyperlinks).

**Table 1. Economic Appraisal Processes**

<b>Appraisal Process</b>
River Basin Management Plans (RBMP)
Asset Management Plans: Water Quality (AMP4 WQ)
Asset Management Plans: Water Resources (AMP4 WR)
Water Resource Plans (WRP)
Catchment Abstraction Management Strategies (CAMS)
Flood Risk Management Projects (FRM projects)
Catchment Flood Management Plans (CFMP)
Chemical Strategy Pollution Reduction Plans (PRP)
Groundwater Protection Policy
Fisheries Action Plans (FAPs)

**Table 2: Summary Table of Appraisal Process**

Appraisal process (name)
What is being appraised / Objectives
Types of water bodies covered (e.g., rivers, lakes, estuaries, coastal, groundwater)
Description of decision making process & roll of economic appraisal within the process.
Types of economic appraisal included: (e.g., CBA/MCA/CEA)
Description of appraisal process (e.g., stages/ options used)
Baseline: BAU or other
Discount rate
NPV/Equivalent annual value
Appraisal period: specific or linked to asset life
<b><u>Impacts assessed</u></b>
<i>Please List</i>
Qualitative/Quantitative balance
Monetary assessment of impacts a/ Criteria for monetary assessment b/ types of costs (e.g., financial /economic?)
Valuation methods (e.g., BT, new studies)
Consideration of distributional impacts
How are Risk and Uncertainty taken into account
External stakeholder involvement
Internal stakeholder involvement
Proportionality/resource use (i.e., level of appraisal and implications for resource use)
Links to other processes
Spatial boundary (geographical area / management unit)
Temporal considerations (e.g., planning cycle) – Key milestones
Who does the appraisal?
Who signs off?
Who is responsible for appraisal Policy?
Weaknesses (e.g., inconsistencies / what's missing?)
Other comments
Guidance Documents / references

## List of Economic Appraisal Guidance Documents included within the CD version of this report

### Flood Defence

- Flood and Coastal Defence Project Appraisal Guidance
  - [FCDPAG 1 Overview \(including general guidance\)](#)
  - [FCDPAG 2 Strategic planning and appraisal](#)
  - [FCDPAG 3 Contents](#)
  - [FCDPAG 3 Supplement v3](#)
    - [FCDPAG 3 Section 1](#) Introduction
    - [FCDPAG 3 Section 2](#) The Appraisal Context
    - [FCDPAG 3 Section 3](#) Stages in a Benefit-Cost analysis
    - [FCDPAG 3 Section 4](#) Assessing the Benefits
    - [FCDPAG 3 Section 5](#) Comparing the Costs and the Benefits
    - [FCDPAG 3 Section 6](#) Choosing the Option
  - [FCDPAG 4 Approaches to risk](#)
  - [FCDPAG 5 Environmental appraisal](#)
  
- [Modelling Decision and Support Framework](#)

### Water Industry Periodic Review

- [Environment Agency Benefits Assessment Guidance](#)

### Land Use

- [Sustainability Appraisal](#)

## **Annex B – Article 11 of the Water Framework Directive and Types of Measures**

Article 11 of the Water Framework Directive describes the requirements for a programme of measures to be included into each river basin district management plan. The Article distinguishes between “basic” measures and “supplementary” measures. Basic measures are listed in Article 11.3. In addition Part A of Annex VI lists those existing Community measures which are relevant to the implementation of the WFD, whilst Part B provides a non-exhaustive list of supplementary measures. It should be noted that the list of basic measures in Article 11.3 and the list of supplementary measures are not mutually exclusive. This can be seen in particular in respect of demand management measures, which could be considered in respect of Article 11.3.c and are explicitly listed in Annex VI Part B. This apparent duplication need not necessarily present a practical implementation problem for reasons discussed below.

Basic measures are stated in the Article to be the “minimum requirements”, whilst supplementary measures are to be adopted where the basic measures are insufficient to achieve the environmental objectives. This terminology is such as to imply that the basic measures are prescriptive and mandatory. However, the term “measure” is used within the Directive and within Article 11 in particular, with varying degrees of precision and prescription. The degree to which a basic measure should be considered mandatory is dependent on the specific measure.

Measures listed in Article 11.3 which cross-refer to other provisions should generally be considered fully mandatory. In respect of instruments outside the WFD, Article 11.3.a (Community Measures), describe measures which should be considered both basic and mandatory. For example compliance with the requirements of the Urban Wastewater Treatment Directive (91/271/EEC) is mandated by both the WFD and the UWWTD itself. The discretion afforded to Member States in complying with the Community instruments listed in Annex VI Part A remains as specified in the original individual instrument (e.g. UWWTD). It could be argued that the inclusion of compliance with existing Community measures within the measures of the WFD is duplicating existing requirements of Community law. Nevertheless, the listing in Part A of Annex VI does provide a set of known requirements.

Other measures listed in Article 11.3 include:

- 11.3.b – cross reference to Article 9
- 11.3.d – cross reference to Article 7
- 11.3.k – cross refers to Community instruments which will be published pursuant to Article 16 of the Directive

They can also be considered as mandatory in so far as the provisions of the Articles to which they refer are mandatory.

Of the remaining elements of Article 11, Article 11.3.h (Ban on direct discharge to groundwater) is the only other measure which is prescriptive and mandatory.

Other elements of Article 11.3 describe minimum systems of regulation and control which the Member State should have in place. In particular 11.3.e, f, and g describe a requirement for Member States to have in place systems of prior authorisation or similar. The operation of such systems of control is left within the hands of the Member States. Were this not to be the case, it would limit or erode the ability of the Member State to choose the most cost-effective combination of measures. In summary, these Articles require Member States to have, for example, an abstraction licensing system, but do not prescribe the way in which the Member State might use it to achieve the objectives of the Directive.

The remaining elements of Article 11 h, i and l, give quite general descriptions of measures which may be taken to address particular pressures. They are not prescriptive, and Article 11.3.i is a “catch all” provision.

In summary, Article 11 contains a small number of prescriptive mandatory specific measures, most of which are contained elsewhere in the Directive or in other Directives or instruments. In addition it requires Member States to institute systems of control over a number of activities, but leaves the operation of these control systems to the discretion of the Member State.

In the context of this project and the Collaborative Research Programme for the Water Framework Directive, there are a number of issues to be considered.

- Cost effectiveness analysis in respect of the prescriptive mandatory provisions may be used to contribute to the overall cost effectiveness analysis for the Directive, and is advisable in any event. However, cost-benefit analysis would not generally be appropriate in such instances, unless it were able to contribute to a case for derogation on the grounds of disproportionate expense.
- Whilst not explicitly stated in the Articles of the Directive, it can be concluded that in preparing options to be considered in the context of the programme of measures, Member States must consider, as a minimum, the potential application of all the measures listed in Article 11.3 as a means of achieving the objectives. As such the consideration of such measures in the context of cost effectiveness would be mandatory.
- The requirement to consider supplementary measures in this context is less clear. However, if the overarching aim of achieving the most cost-effective combination of measures is to be honoured then the consideration of all possible measures, both basic and supplementary, would be most appropriate. Such broader consideration of possible measures would also seem to be required in respect of the derogation provisions, since it would seem unlikely that the European Commission would accept the application of a derogation provision when only the basic measures have been considered.

## **Annex C – Classification of Measures**

The catalogue of measures has been produced in two forms. One is classified with respect to the sectors for which the measure is applicable. The second considers the measures in terms of the pressures which they might address.

This latter instance of the catalogue is intended to assist in consideration of possible measures in response to the results of the risk assessments performed by the Environment Agency for England and Wales as part of the River Basin Characterisation process.

The environmental objectives in Article 4 are described in terms of a number of quality elements. The quality elements for each water body category and the relationship to the risk assessment methods has been summarised elsewhere.

Practical considerations including the absence of a full definition of good status for some quality elements, and the absence of monitoring data in respect of some of these, means that the output of the risk assessment is presented partly in respect of pressures rather than quality elements. Moreover, it should be recognised that measures to achieve biological objectives will largely consist of measures to improve physico-chemical, hydrological and morphological conditions. The link between these conditions and the pressures which give rise to changes in these conditions is far better understood than is the equivalent relationship to biological elements. Moreover, the processes of modelling and permitting to achieve desired physico-chemical and hydrological conditions are well developed. As such it is anticipated that in practice, the environmental objectives of the Directive will be expressed in operational terms as parametric physico-chemical and hydrological parameters.

In view of these considerations the catalogue of measures classified with respect to pressures considers measures in terms of quality element categories and as responses to specific pressures.

Measures are listed in four sheets:

1. Physico-chemical
  - Nutrients
  - Organic enrichment
  - Specific pollutants
2. Hydrological
3. Morphological
4. Direct Pressures - This refers to direct pressures on biological quality elements - which is largely restricted to fishing

Within each sheet parameters are considered in groups. A number of general objectives, usually relating to industry sectors, are then listed

For each of the objectives, a number of existing measures are then listed. In some instances potential measures which have been identified as possible actions under the Directive have also been listed. In these cases an applicable planning process may be assumed, but this information should not be considered as definitive.

If applicable, the planning process under which the measure is ordinarily addressed is then identified. This information can then be used to obtain information on the planning process and the decision making processes which relate to this measure within the context of the applicable planning system.

Consideration has also been given to what are termed here as "horizontal measures". The term "horizontal" is used here to mean "across a range of quality element or pressure" groups. It should be noted that many of these measures could also be considered as supportive to other measures listed

within the pressure specific worksheets. In this context, the horizontal measures are identified as "stand alone" activities which are undertaken with regard to, but not solely as support to specific measures. For example, if a new Regulation is introduced it will normally be accompanied by publicity measures, some degree of information support and often the provision of "training" and "educational" activities. These implementation support processes are assumed to be included within the specific measure as identified in the pressure specific measures. The adoption of a horizontal measure in the context of this listing is intended to refer to their use as a more independent initiative. These measures can be grouped together by type (e.g. all publicity campaigns), however in this context they have been grouped by target audience or sector.

**Annex D: List of Consultees for Outputs from CRP Project 1 Planning Processes Analysis**

<b>Planning Sector</b>	<b>Environment Agency</b>	<b>Other Main Parties</b>
Periodic Review of the Water Industry in respect of Water Quality	David Burgess Stewart Mounsey	Recommendation from Giordano Collarullo OFWAT Recommendation from CRP Representatives UKWIR
Water Resources	David Burgess	Recommendation from Giordano Collarullo OFWAT Recommendation from CRP Representatives UKWIR Mike Walker - DEFRA
Flood Risk Management	Jane Rawson	Linda Aucott -DEFRA
Conservation (and Biodiversity)	Mark Diamond Paul Raven Ann Skinner	Aniol Esteban - RSPB Chris Mainstone and Stefan Gabrynowicz - English Nature Louise Vall – DEFRA
Land Use	Hugh Howes Mark Southgate Doug Mills	Penny Bramwell and John Bainton - Government Office Richard Wood - ODPM Local Government Association
Agriculture	Alun Atwood Jane Morris Helen Richardson	John Osmond - DEFRA Richard Findon - DEFRA
Coastal and Marine	Roger Proudfoot	Richard Moxon, Beth Greenaway – DEFRA Aidan Duffy – British Ports Association

Other Consultees:

Members of Collaborative Research Programme Board and participants at two seminars.