

# **Department for Environment, Food and Rural Affairs May 2008**

## **Executive Summary of Post-conciliatory Partial Regulatory Impact Assessment**

### **1. INTRODUCTION**

The Water Framework Directive 2000/60/EC, adopted on 22 December 2000, establishes a framework for the protection of surface waters and groundwater, including measures to ensure the progressive reduction of groundwater and surface water pollution. Article 17 also requires the European Commission to submit further proposals for specific measures to prevent and control groundwater pollution, with the aim of achieving the objective of good chemical status of groundwater. The Proposal for a Directive on the protection of groundwater against pollution is designed to fulfil this requirement.

The measures proposed include criteria for the assessment of good chemical status, criteria for identifying and reversing upward trends in groundwater pollution and measures to prevent or limit discharges to groundwater. This is intended to protect uses of groundwater from all sources of pollution, and the potential for damage to associated terrestrial ecosystems and surface waters.

### **2. THE OPTIONS**

In terms of preparing an RIA, three main options are considered here in relation to the Proposal. These are:

- Option 1: refuse to accept the Proposal, and work on the assumption of implementing the measures relating to groundwater set out in the WFD, thereby providing a baseline;
- Option 2: accept the Proposal as currently drafted; or
- Option 3: accept the Proposal but seek to negotiate amendments to reduce the costs whilst maintaining the benefits.

Option 1 is not realistic, as the WFD mandates the Commission to introduce a Daughter Directive relating to groundwater. However, this Option forms the baseline situation for comparison with the other two options. The risk associated with Option 2 is that the Proposal as currently drafted may pose excessive costs for the UK, or reduced benefits, compared to the baseline. Part of the risk arises

because lack of clarity in the drafting of the Proposal gives rise to substantial uncertainties over the implications of some requirements. The risk associated with Option 3 is that the UK may not obtain the amendments it seeks and, by opening up the debate, other Member States could introduce amendments that increase the costs of the measure (or reduce its benefits) for the UK. In particular, certain other Member States favour the introduction of common EU-wide quality standards for groundwater that could impose significantly increased costs and, potentially, reduced benefits for the UK.

### **3. THE BENEFITS**

There is considerable uncertainty regarding both the benefits and costs arising from Option 1 and, hence, the baseline from which the benefits and costs of Options 2 and 3 are assessed. The characterisation of groundwater bodies will identify the risk of failure to achieve good chemical status, and the causes of such failures. Measures will then be determined to address these causes; only once these measures are known can the benefits and costs be assessed with any certainty. Draft River Basin Management Plans, including a summary programme of measures, will not be available for consultation until December 2008 and the measures will be finalised in December 2009. Assumptions have had to be made regarding both the type of measures required and the extent to which these measures will have to be implemented.

There is significant uncertainty over the current condition of groundwater bodies. The additional monitoring required under the WFD may identify environmental issues that were not previously known. Conversely, the environmental benefits of recent measures (for example, under the Nitrates Directive or implementation of Part IIA of the Environmental Protection Act) may not have yet fed through into improved quality. If the characterisation process indicates that most groundwater bodies are not “at risk” and monitoring data subsequently classifies and confirms these bodies as being of good chemical status, the benefits and costs of each option will be low. However, if characterisation indicates most groundwater bodies are “at risk” and then they are subsequently confirmed as being of poor chemical status by monitoring data, the potential benefits and costs will be much higher.

The main benefits arise from the potential for improved control of groundwater pollution compared to the current situation. This could generate benefits in terms of:

- reduced costs in either treating groundwater abstracted for drinking (or other purposes) or seeking alternative sources; and
- enhanced ecological or amenity value of associated/dependent surface waters.

There is some overlap between this RIA and the WFD RIA in the calculation of benefits related to associated/dependent surface waters. The WFD RIA calculates the total benefits of achieving good status in rivers, regardless of the current reasons for current non-achievement. Benefits associated with ending non-achievement due to groundwater are therefore included.

The benefits are likely to accrue to a wide range of users of groundwater, including the water industry and its customers as well as other direct abstractors of groundwater. There are also likely to be potential longer term benefits to ecosystems and habitats (as a result of reduced pollution risk) and thus to the public at large. The scale of benefits is difficult to assess with any accuracy, as the gap between the current condition of groundwater and the requirements of the options is not yet clear. In addition, the potential under the WFD for derogation from the requirement to meet good chemical status by 2015, where this would be technically unfeasible or disproportionately expensive, could reduce or delay benefits (and costs).

#### 4. THE COSTS

Each of the Options will generate compliance costs to meet the requirements to protect, enhance and restore all groundwater bodies and to reverse significant and upward trends of pollutants. The costs under Option 1 are for action required by the WFD that is in addition to that required under the existing Groundwater Directive. The existing Groundwater Directive is restricted to dealing with discharges to groundwater of listed substances. The obligations of the WFD for groundwater are much wider and cover all pollutants (including nitrates, for example). The assumptions underlying these costs are set out in the Partial RIA (see, for example, Table 5.6).

These costs will be borne by sectors that currently give rise to diffuse or point source pollution of groundwater. The main sectors facing such compliance costs are:

- **Agriculture:** through measures to reduce nitrate and pesticide pollution;
- **Water:** through measures to reduce leakage from sewers;
- **Transport:** through measures to reduce pollution from runoff; and
- **Industry and waste disposal:** through measures to control point sources of pollution, including historic sources.

There will also be costs to the environment agencies from initial characterisation of the quality of groundwater bodies, followed by establishment of monitoring programmes in all water bodies, particularly in those identified as being 'at risk'.

Due to the range of sectors potentially affected by the Proposal, it is difficult to specify what a “typical business” might be. In addition, businesses in different locations with different environmental sensitivity may be required to take different measures, hence the costs to different businesses within the same sector will vary considerably. For example, the costs for farmers of complying with the Proposal will depend upon whether they currently apply measures in the Codes of Good Agricultural Practice and if they are in an area that is particularly sensitive to agricultural pollution.

## **5. FINDINGS AND RECOMMENDATION**

The main findings of the RIA are summarised in Tables 1 and 2, which give costs and benefits in Present Value and Annualised terms respectively. In broad terms, Options 1 and 2 are expected to be approximately cost neutral (based only on the quantified costs and benefits) while those for Option 3 are more expensive mainly due to the potential for re-introducing EU-wide standards.

In the event that Option 2 is selected as likely to have the best balance between costs and benefits, clarification of the wording of the Proposal should be sought, to address the uncertainties both as they affect the effectiveness of groundwater protection and the costs attributable.

<b>Option</b>	<b>Total PV Cost (£ billion)</b>	<b>Total PV Benefit<sup>1</sup> (£ billion)</b>		<b>Key Risks</b>
		<b>WFD RIA methodology</b>	<b>Willis &amp; Garrod methodology</b>	
1. Current situation (WFD)	5.32	1.54 to 2.01	2.56 to 4.63	Represents the baseline situation
2. Accept Proposal	4.67 to 4.69 (Incremental cost: -0.63 to -0.65)	1.28 to 1.75 (Incremental benefit: -0.26)	2.30 to 4.38 (Incremental benefit: -0.25 to -0.26)	Uncertainties over the implications of some requirements due to lack of clarity in drafting
3. Seek amendments to Proposal	6.11 to 7.85 (Incremental cost: 0.79 to 2.53)	1.54 to 2.01 (Incremental benefit: 0)	2.56 to 4.63 (Incremental benefit: 0)	Seeking amendments may result in re-introduction of EU-wide standards

Costs and benefits are given as present values based on a time horizon of 100 years and a discount factor of 3.5%; year 0 is taken as 2004

<sup>1</sup>Ranges given reflect different assumptions and/or base cost/benefit data. Two approaches are taken to estimating the benefits of improving groundwater quality such that river water quality/ecosystem quality is also improved, based on the methodology used in the WFD RIA and the methodology used by Willis and Garrod. The difference between these two estimates is a result of the different economic values (willingness to pay) used for improvements in water/ecosystem quality.

<b>Table 2: Summary of Findings (Annualised)</b>				
<b>Option</b>	<b>Total Annualised Cost (£ million)</b>	<b>Total Annualised Benefit<sup>1</sup> (£ million)</b>		<b>Key Risks</b>
		<b>WFD RIA methodology</b>	<b>Willis &amp; Garrod methodology</b>	
1. Current situation (WFD)	192	56 - 73	93 - 168	Represents the baseline situation
2. Accept Proposal	169 - 170 (Incremental cost: -23 to -24)	46 - 63 (Incremental benefit: -9.4)	83 - 159 (Incremental benefit: -9.1 to -9.4)	Uncertainties over the implications of some requirements due to lack of clarity in drafting
3. Seek amendments to Proposal	221 - 284 (Incremental cost: 29 to 92)	56 - 73 (Incremental benefit: 0)	93 - 168 (Incremental benefit: 0)	Seeking amendments may result in re-introduction of EU-wide standards
<p>Costs and benefits are given as annualised values based on a time horizon of 100 years and a discount factor of 3.5%; year 0 is taken as 2004</p> <p><sup>1</sup>Ranges given reflect different assumptions and/or base cost/benefit data. Two approaches are taken to estimating the benefits of improving groundwater quality such that river water quality/ecosystem quality is also improved, based on the methodology used in the WFD RIA and the methodology used by Willis and Garrod. The difference between these two estimates is a result of the different economic values (willingness to pay) used for improvements in water/ecosystem quality.</p>				