

Consultation on River Basin Planning Guidance Volume 2

Water UK welcomes the opportunity to contribute to Defra and WAG's consultation on Volume 2 of the River Basin Planning Guidance for England and Wales.

Water UK represents water and waste water service providers at UK and European level. Our members provide the UK with safe, clean water and contribute to the protection and enhancement of public health and the environment. We are pleased that Defra and WAG have taken steps to provide clarity and direction to the Environment Agency and other co-deliverers as well as to other regulators that are involved in implementation of the Directive. We support the principles of polluter pays, cost recovery, sustainability and control of pollution at source to ensure better outcomes for the environment and consumers.

We are pleased the Defra Future Water Strategy considers the Water Framework Directive as a means to achieve the Government's vision of improving water quality. We hope the corresponding priorities and initiatives identified in the strategy will be reflected in the implementation of the Water Framework Directive.

In responding to this consultation we have provided general comments and responded to the specific consultation questions. We have also provided further comments on the consultation document itself.

General comments

- The water industry is keen and willing to continue to play its part in the implementation of the Water Framework Directive.
- Over the last 20 years the water industry and its customers have invested massively in long overdue improvements to the country's water infrastructure. This has resulted in much higher levels of service and also major improvements in river and coastal water quality.
- However the consequence of the improvement to date has been much higher bills for water customers and this is having a growing impact on low income families particularly in certain parts of the country.
- In this context, we do not think that the guidance and the WFD Regulatory Impact Assessment face up openly to the issue. The

apportionment, pressures and costs associated with the water industry appear overly biased in the RIA. We do not believe that the cost (EAV) assigned to other industry is high enough at £54.4 million in Option 1 and £24.3million in Option 2 as, in general, industry is responsible for almost all chemicals produced. We also question the relatively low cost apportioned to agriculture which is expected to be the highest contributor to diffuse pollution. For example we know that the costs of protecting drinking water abstraction sources have not been assessed and captured in the RIA.

- The growing reality of climate change will create the need for further major investment in water infrastructure to deal with the threats of flooding and drought.
- In addition, it is widely acknowledged that the major causes of water not meeting WFD requirements are from factors such as diffuse pollution and hydro-morphological change, neither of which are the responsibility of the water industry and its customers.
- Thus the water sector should only bear the right proportion of costs to implement the Directive, and we do not believe this is currently reflected in the RIA.
- It is our view that if the cost of the WFD cannot be met by those other sectors which are the main contributors to WFD non-compliance then the only alternative is for the UK to use its powers to seek considerable exemptions to delay measures and/or set alternative less stringent objectives, as reflected in the current consultation document.
- Where Defra and the EA deviate from implementing the polluter pays principles, we will seek justification and transparency in order to explain to our customers the reasons for the deviation.

Other general comments of the RIA

- The potential cost estimates of implementing the WFD would appear to have escalated and are now presented as EAV (over 43 years) to reduce the impact of the investment now being envisaged.
- Based on these figures DEFRA and WAG are now estimating the implementation cost of WFD to be in the order of £103 billion for Option 1 and £38 billion for Option 2 over 43 years, with an average total cost to the water industry of £28.6billion.
- In some cases where comparisons between our own review and the Defra figures can be made there is a reasonable match. However our study has

identified very significant potential costs that do not seem to have been adequately dealt with in the Defra cost estimates (drainage issues).

- Defra and WAG appear to have identified over £6bn of “off setting” to be deducted from the water industry position due to investment in daughter directives.
- There are no clearly stated benefits and the willingness to pay assessment does not match the potential costs of the higher cost estimates.
- Diffuse pollution has not been fully integrated as a risk across all sectors and the cost of control of diffuse pollution which is already in the environment (such as DEHP plastic pipes) is not apparent.
- Carbon has not been effectively considered and published studies on the potential impact of additional treatment processes at WwTW (Wastewater Treatment Works) have not been included.
- The cost impacts of other wastes (sludges and slurries) are not considered in the risks and RIA.
- The options identified are not clearly defined and there appear to be few significant cost impact differences identified between the options with the exception of profiling?
- The practicalities of delivering a back-loaded programme have not been considered with the exception of profiling?
- In the RIA there is also a risk/ possibility that technologies that may be considered technically infeasible today may, in time, be improved and appropriate. This would require additional investment to apply them.

Response to the questions in the consultation document.

We respond to the specific questions in the consultation document as follows.

Question 1 Do you agree that the Secretary of State and Welsh Ministers should adopt all the new standards and environmental conditions limits recommended by UKTAG?

No. Water UK does not agree that the Secretary of State and Welsh Minister should adopt all UKTAG standards because some of these standards, although derived from available data by the UKTAG members, are still inadequately understood or justified.

It would be better to recognise that where there are doubts, further research and robust data should be obtained as part of the WFD measures e.g. where the link between cause and effect is not proven. Our recent work through UKWIR has shown that phosphorus standards in the EU vary considerably, indicating the uncertainty about the cause and effect of the various proposed standards. In the UK the standards proposed for phosphorus are so tight as to suggest that many of our waters will never make good status and yet they will have, as they do today, thriving fisheries. It would be counter productive to adopt such standards without supportive evidence of the impact on the biology and being able to demonstrate the benefit that will be achieved by the major cost (in both environmental and financial terms) involved. After all, one of the key objectives of the Directive is to achieve good ecological status. We would recommend the approach adopted in paragraph 20 for further evidence and investigation to improve the doubtful standards.

The methodologies used for deriving some of the standards are unsuitable as they were originally designed for carrying out risk assessments with the expectation that if there were gaps, further improvement and suitable field data will be collected to assess and improve the standards. These should be factored in to the programmes of measures and accommodated in subsequent cycles.

We therefore consider that a blanket adoption of all the UKTAG standards by the SoS and Welsh Minister is inappropriate.

Question 2 Do you agree with the approach to the use of standards in classification and within the regulatory regime?

In general we agree with the approach. However, standards for protecting surface water and groundwater abstraction sources and in safeguard zones is a key omission and should be addressed. Water UK has been working with EA, Defra, DWI and WAG on drinking water protected areas but much of this has not been reflected in the guidance document or the RIA to date. Current provisions and guidance for this very important 'Protected Area' provision are inadequate.

We are also concerned about the inconsistencies in the approach to the question of protecting the water industry sources. The guidance does not

adequately address the responsibility for scarcity in water resources, implying the water industry is responsible for the problem as well as the solution. However, if quality issues were addressed properly, some of the quantity issues would disappear too.

Question 3 Is the UKTAG classification guidance on how to report water body status (including the confidence in our classifications) adequate?

The accuracy of the proposed classification is based on having the right size of waterbody, representative monitoring points and the proposed averaging that reflects the true status and class of the waterbody. The consultation document recognises that the UKTAG proposal is not perfect and therefore suggests some form of confidence level assessment. The current proposal although not perfect, could be workable as long as the EA does not adopt the view that it is an accurate system that has to be strictly adhered to. We consider this to be a real danger which could push unnecessary investment.

Question 4 Do the proposals in the UKTAG classification guidance adequately explain why a classification will not necessarily lead to a programme of measures?

Yes. The guidance and evidence to date indicate that classification will not automatically generate programmes of measures.

Question 5 Are the consequences of the standards proposed by the UK Technical Advisory Group adequately reflected in the measures that have been identified in the Impact Assessment (as a result of the preliminary Cost-Effectiveness Analysis)?

No. See our detailed response to question 21 for where we consider gaps exist.

Objectives

Question 6 Should the guidance advise the Environment Agency to indicate levels of certainty with objectives?

Yes, in addition we suggest that the guidance should include a record of cause and reasons for the uncertainty.

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We also believe that a low confidence level should not be a disincentive to deliver the appropriate level of objective. For instance, if less certain measures are associated with an objective to change a status class it will be obvious that the objective of meeting, for example, good status will be less certain. This may provide little incentive for some co-deliverers to do any better as a result of inappropriate planning.

Question 7 Should the guidance advise the Environment Agency that its preference should be to extend deadlines rather than setting less stringent objectives, where there is a choice between the two.

Objectives depend on classifications which are also influenced by the proposed standard and, as we've already mentioned, many of the standards are open to question as the data and their interpretation are doubtful. We agree that there should be a presumption that it is preferable to extend a deadline than to lower an objective but only if the guidance contains firm advice that the EA should apply a 'no regret' policy. There may therefore be instances when an objective may be lowered because planning to reach it in the long term causes expenditure to be incurred which may turn out to be unnecessary or in vain.

The guidance must ensure that further investigation and monitoring are carried out to improve the evidence base which will lead to putting in place "no-regret" measures within the extended deadline. We believe the EA should be guided to consider and accept when justified, proposals from co-deliverers where there are doubts about the risk, pressures and measures.

Policy Trends

Question 8 Do you agree with this summary, from the WRC report, of policy trends that should be considered in river basin planning? If not, what changes would you suggest?

We agree with the trends identified in the table on p20 but think that the table should refer explicitly to trends in population shifts, particularly in population shifts towards the South East and East Anglia. We do not think that this trend is adequately covered by reference to the urbanisation trend.

We suggest that further consideration should be given to trends relating to Climate Change and related water scarcity and drought.

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Question 9 What, if any, further work should be done for England and Wales to improve confidence in the trends in urbanisation, industry and transport?

Trends relating to chemical policies such as REACH should be considered. We believe these affect industry, transport and urbanisation. The policy impact of increased transport and urbanisation on the sewerage system and related issues such as the 'right to connect', reducing headroom, increased frequency of overflows and the impact of faecal pollution on bathing waters and shellfish waters all need further work.

Welsh Questions

Question 10 Should the Welsh Ministers include further high level messages in this guidance to the Agency? If so, what do you suggest that it should say?

We support the proposal in paragraph 93 for Welsh Ministers to provide a separate guidance to the Environment Agency in relation to Wales. This approach will be in line with the broader objectives of Article 14 of the Directive that seeks public involvement which should lead to sustainable solutions.

Question 11 Should the Welsh Ministers guide the Environment Agency to consider specific scenarios in Wales? What are your views on the scenarios that should be explored?

Yes. We consider that Welsh Ministers must provide guidance to the Environment Agency to consider specific scenarios in Wales. The approach outlined in Chapter 7 of Volume 1 paragraphs 7.13 to 7.20 under "Developing river basin district scenarios" should be a good guide. In particular, the guidance should include considerations for economic efficiency, cost-effectiveness, sustainability, even-handedness and 'polluter pays' aspects.

The guidance must also include targeted scenarios for meeting protected area objectives such as Drinking Water and Habitats.

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Question 12 Are these the right grounds for justifying an alternative objective or defence on the grounds of technical infeasibility?

Yes; however, given that part of the justification relates to a draft EU paper on Article 4.4-4.6, Defra and WAG's position must be revisited when the EU guidance is finalised.

We believe that there will be cases where co-deliverers, instead of the Environment Agency, will put forward cases they consider are technically infeasible. It would therefore be helpful for further guidance to be provided to the EA on how to assess such cases.

Question 13 How should we interpret the term "infeasible" when compared with "technically infeasible"? Can you give examples of cases where it is not "technically infeasible" to reach an objective, but it is "infeasible" to do so.

We agree with the guidance provided in paragraphs 118 to 120 that "infeasible" should have a wider meaning than "technically infeasible".

The differentiation between "infeasible" and "technically infeasible" would relate to 'natural conditions'. There are examples of surface water sources where the underlying groundwater has become contaminated with nutrients from many years of intensive agriculture. Other examples may relate to terrestrial ecosystems. These surface water sources therefore do not comply with WFD and Habitats standards for phosphorus at source. It could be argued that while it might be "technically feasible" to put in place technology to purify the whole watercourse, the effort in doing so, the lack of a "polluter to pay" and the risk of failure of such a venture make the option "infeasible". The groundwater bromate plume in the Three Valley is an equally good example.

Question 14 Does the national evidence of technical infeasibility highlight the right list of problems – or should something be added or removed?

In addition to the evidence listed in paragraphs 121 to 127, there would be scenarios where the technically feasible solution will have to include a combination of measures. For example, it has been demonstrated in some catchments that the objective cannot be achieved through an end-of-pipe

solution alone. Therefore, until other combinations of measures are found and implemented the single solution will not be technically feasible to deliver the objective, in which case the only other viable option could be setting less stringent objectives.

Question 15 What further data and research is needed to overcome technical infeasibility in these cases?

Further research and evidence should be gathered concerning links between the chemistry and biology responses for phosphorus, low ammonia and BOD.

Further research and evidence are needed for products and substances that require source controls (e.g. DEHP, Cadmium, PentaBDE).

The ongoing EU negotiations for priority substances may include an additional list of substances, some of which are currently not routinely monitored and for which control measures are unknown.

Recent cases of metaldehyde found in the water environment need further research and solutions.

Further evidence and research is required for objectives, standards and measures required to deliver the requirement for heavily modified and artificial water bodies.

The EC's completed work on intercalibration for various types of water bodies requires further data evidence and research.

We strongly support the proposal for target investigative monitoring and research that may be needed to obtain more detailed understanding of the risks, pressures and measures, particularly for complex situations.

Disproportionate cost

Question 16 Is it relevant to take account of distributional issues when justifying use of an alternative objective or defence on the grounds of disproportionate cost?

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Yes, it is relevant to take distributional issues into consideration when applying the disproportionate cost exemption.

Question 17 If so, do the four distributional arguments cover all the relevant issues? Are they double counting some issues?

We consider that the four distributional arguments cover all the relevant issues. However, it is important to recognize that the second argument (deviation from Polluter Pays Principle) is fundamentally different from the other three. In the other three cases, our understanding is that the sectors and categories affected by distributional issues are responsible for the environmental problem which they should therefore pay to remedy. A disproportionate cost exemption therefore works in a way which is contrary to the incentive principles which the WFD is also encouraging. In the argument concerning deviation from Polluter Pays Principle, the exemption is in line with the WFD incentive principle, and the exemption is allowed because this WFD incentive principle cannot be enforced. i.e the non-polluter would be paying without the exemption.)

Question 18 Do we have the right checks and balances on the use of distributional arguments to avoid them being applied incorrectly? (for example should we require an analysis of the benefits of avoiding distributional consequences given the benefits of meeting the default objective)

We think that, at this stage, the analysis is sufficient.

Question 19 Are there alternative funding approaches or mechanisms which would help reduce or avoid adverse distributional consequences?

Cross Compliance, Rural Development Regulations (Article 38, 39 and 50) should be targeted to include WFD measures to improve the agricultural sector's contribution to dealing with their pollution.

The EA budget allowed for their input into the Catchment Sensitive Farming Initiative in England should be increased particularly since the Competent Authority is to have a major role in tackling diffuse pollution from agriculture.

Finally, funding from general taxation could also be used to reduce adverse distributional consequences. Care in using such funding should ensure that, while addressing distributional matters, it preserves as much of the incentive objective of the WFD as possible. With the three distributional arguments other than that concerned with a deviation from the Polluter Pays Principle, an exemption allows parties responsible for an environmental problem to avoid paying for the consequences of their actions, namely to remedy or prevent the damage they create. An exemption on those grounds therefore creates no positive incentive effect to address the cause of the problem. If funding from general taxation is simply used to remedy the environmental problem, incentives would not be improved. If the parties who are deemed to suffer an unacceptable distributional impact received funds from general taxation and were then required to pay for environmental improvements, a careful design of the conditions attached to the funds received by these parties might create a positive effect on incentives. Such an approach would therefore be preferable; it also might be cheaper since the incentive effect will reduce the environmental problem

With deviation from the Polluter Pays Principle the use of general taxation does not reduce incentives, since they were not present in any case.

Impact Assessment (separate document)

Question 20 Does the Impact Assessment represent a fair picture of the expected costs and benefits and other consequences of the options?

No. We do not consider the Impact Assessment represents a fair picture of the expected costs and benefits. We would like to see the total costs quoted in a transparent matter as well as the EAV to provide a better picture of the overall cost involve. It is important that Ministers and stakeholder have clarity on the change in the revised estimate particularly from previous estimates such as the transposition stage.

We are concerned that although diffuse pollution from both agricultural and non-agricultural sources are recognised as the major risks to meeting the WFD objectives, the RIA suggests that about two thirds of the implementation costs will fall on the water industry. We question the cost effectiveness and even-handedness of these estimates and would welcome a

review and justification. We would like to see the RIA reflect the true cost of control of pollution at source where it is most cost effective to do so. We have serious concerns over the persistent use of end-of-pipe treatment as a key delivery mechanism irrespective of the continuing adverse impact on climate change. We see such an approach as a contravention of Government policy on climate change mitigation and adaptation.

Question 21 - Are there costs or benefits which have not adequately been accounted for or estimates which could be improved given readily available information.

Yes.

There is insufficient clarity on how the two options develop into costs and for the water industry there appears to be little or no material differences in important drivers. We present in the Table in Appendix 1 the two options and highlight the issues where the differences are not considered sufficient to drive the apparent lower costs.

The cost relating to “chemicals” for the water industry equates to £130.7m per annum for 43 years or a total of £5.6 billion. This shows strong agreement with the median figure for priority (hazardous) substances identified in our recent study. However, the RIA cost allocated to the water industry for phosphates is £5.6bn which is over 100% higher than our estimate of £2.5bn. For sanitary determinands the RIA estimates some £13.9bn compared to the ammonia and total nitrogen of £9.4bn. These examples are not totally comparable with our estimates but we would like to review these figures with Defra/WAG and to seek clarification and improvement.

We note that RIA includes a consideration for off-setting costs that have been included in other directives, on the grounds that these should be deducted from the total WFD costs. These are:

- Freshwater Fish Directive £ 13.6m
- Habitats Directive £ 6.2m
- Nitrates Directive £ 52.8-105.5m
- Urban Wastewater Treatment Directive £ 52m

- TOTAL £ 125-177 m (Total Average EAV £151m) or £6.493bn Offset from the water industry.

We would like these offsets and relevant apportionment to the water industry re-considered.

When considering other sectors it is notable that the solution to chemical issues would apparently be driven by industry, the water industry and navigation and ports. The issues associated with highways and diffuse pollution do not appear to have been recognised.

Total WFD Implementation Costs and Willingness to pay

From the figures reported in the RIA it appears the revised estimated cost of implementing the WFD, over 43 years, is in the order of:

- £38billion for Option 1; and
- £103 billion for Option 2.

The consultation indicates that the average willingness to pay for good status water environment in 50% of sites by 2015, followed by a further 30% by 2021, and 20% more by 2027. A benefits estimate is given of between £950 million and £1,700 million EAV for England and Wales, to move from the reference case status to the status achieved by Option 1. The midpoint of this range being £1,300 million which represents £55.900 billion. There is no willingness to pay £103 billion as represented by Option 1.

We note your reference on page 37 of the RIA that Ofwat has estimated an annual average median bill increase of:

- £12 for additional P treatment.
- £18.50 for additional ammonia removal in all sites at risk to a 3 mg/l consent level.
- £36.50 for water resources measures.

We also note that the above include no provision for removing chemicals, other sanitary determinands (low BOD) or the management of surface water run off and drainage issues.

Carbon

We note the statement in the RIA (page 43) that "Operating costs for tertiary treatment for chemicals are not available, so it has not been possible to

estimate a carbon cost for additional tertiary treatment, although this is likely to be high given its energy intensive nature. These costs are additional to the total costs for sectors given above. (See pCEA water industry supporting document).” This statement ignores the very significant risk to the water industry and what has been the subject of substantial research by UKWIR. We would like this important issue addressed.

The RIA states that “Greenhouse gas emissions will rise under Option 1 due to energy intensive treatment processes at STWs and new water source development. However, these will be partly offset in terms of UK emissions by carbon reductions from the agricultural sector (although it should be noted that at the global level these emissions will be displaced to countries from which agricultural products are imported to the UK)”. However, there is no actual estimate of the GHG generated by the water industry, neither is there a measure of the mechanism of offsetting by agriculture.

Backloading the WFD

There appears to be no recognition of the need to plan and develop programmes of measures which will need long lead times of years. Technical infeasibility is discussed but appears to miss the point that technology may become feasible (i.e. proven) but will then have carbon or financial cost to implement.

There appears to be no time difference for Option 1 and Option 2. The 43-year period would appear to be based on the assumption that all assets are built in 2027 (+25 years). There appears to be no indication of how the two options have accommodated the necessary renewal and maintenance of assets. For example if plant was installed in 2009 then it may require renewal, based on 25 year asset life, in 2036 and 2061. It is unclear how this has been accommodated.

We are also concerned about the indication that the water industry is conducting investigations into the technology to remove ammonia, yet does not feature in the investigations to treat PHS/PS and Endocrine Disrupting Chemicals. We do not believe that the timing and consequential risks of backloading the WFD have been considered.

Other Specific comments on the consultation document

Section 4 – Range of measures and mechanisms available – This section contains the list of a number of measures and mechanisms that may – or may not – be implemented by the time river basin plans become effective. We think that this section should recognize that some of these measures may not apply, in fact, for a variety of reasons, or may be ineffective. The section should contain a discussion of how the river basin plans need to include contingency plans for such instances. Otherwise, some of the proposals which depend on the effective implementation first of certain other measures may be carried forward even if they are rendered ineffective by a situation that is different from that originally assumed.

Section 5 – Relationship, etc – We are very glad that the guidance should define the terms it uses. We think this is useful and helpful. We agree with the logical order expressed in paragraph 107 in which various factors should be considered.

Section 8 – Cost Effectiveness of Measures – Paragraph 135 notes that some WFD measures could help deliver other environmental, social or economic benefits, outside those which result from achieving the WFD objectives. The guidance invites the EA to take these benefits into account when determining programmes of measures, even if it runs counter to important principles in the WFD such as the principle that the measures should be cost-effective. We think that such guidance is fundamentally flawed and this paragraph should be withdrawn.

The EA is the competent authority to implement the WFD provisions and it should not be encouraged to depart from the WFD objectives. Any departure runs counter to the principles of good regulation; in particular: it reduces the clarity and the transparency of the way in which the EA implements the WFD; it also obscures the cost and benefit of pursuing objectives other than the WFD's. The EA's decisions taken in such a way are also unlikely to be consistent, targeted and accountable. What's more, it would be very difficult to ascertain whether they are proportionate. When Government pursues objectives other than the WFD's, it should do so under the powers specifically provided for those objectives.

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We support the principles included in the box shown in paragraph 148. However, under A, these principles appear to be limited to the option of lowering a WFD objective only, not to the option of extending the deadline. The box needs to be modified to make it more general.

We support the discussion in paragraph 166-168. We think that it is important to recognize that deviations from the Polluter Pays Principle can justify a disproportionate cost exemption. We believe that water industry customers already pay for the pollution caused by other sectors and we are pleased to see that an increase in the burden they bear on behalf of other sectors may be avoidable by making use of the exemption provisions.

We support the recognition in paragraph 168 of the impact of historical costs.

We are somewhat surprised by the statement in paragraph 183 that, generally, deviations from the Polluter Pays Principle are unlikely to happen on the basis of existing evidence. It is clear that water industry customers already pay for other sectors' pollution or pollution due to past activities and we have evidence to that effect.

Section 9, item E of the box relating to paragraph 148 – We support this principle, but we think that it should not be left open ended. We therefore call for regular reviews of benefits that are not monetised in order to reach consensus whether they need to be monetised or not.

Appendix 1

Summary of Measures Included in Options 1 and 2 and Water UK Comment

Pressure	Option 1	Option 2	Water UK Comments
Phosphates	P removal at STWs Implementation of the CSF Programme through Water Protection Zones Controls on P in domestic laundry cleaning products	Phased introduction of P removal in sites at risk over 3 river basin planning cycles -Implementation of the CSF Programme through Water Protection Zones to achieve a reduction in P from Agriculture of 30% in the first RBP cycle and 50% in the second and subsequent cycles; Controls on P in domestic laundry cleaning products.	No mention of differences to treatment at STWs so what justifies the big cost difference?
Sanitary determinands (Ammonia and BOD)	Ammonia removal at STWs in at risk sites	Additional ammonia removal at 50% of STWs in at risk sites to meet a 3 mg/l standard in RBMP1. For the other 50% of at risk sites, investigations are conducted during RBMP1 to determine suitable ammonia measures to apply. In RBMP2, 50% of the remaining sites (25% of the original at risk sites) require a 1 mg/l standard while the other half of the remaining sites requires a 5 mg/l standard. Investigations to determine the suitable standard for RBMP2 carried out in RBMP1.	There are currently no indications on how these investigations are to be developed or funded. There is no mention of how the very low ammonia and BOD standards will be achieved; hence it avoids the technical feasibility issues.
Chemicals	Source control and end-of-pipe treatment to address pressures from Anthracene, Cadmium, Chromium, Cypermethrin, DEHP, Lead, Mercury, Nickel, Tributyltin, Trichloromethane and PentaBDE Remedial action on abandoned mines	End-of-pipe controls on direct industrial discharges End-of-pipe treatment at STWs Changes in dredging practices to avoid sediment release Source control for anthracene and PAHs Substance-specific monitoring and investigation Remedial action on abandoned mines	How will source control be achieved? There is no mention in option 2 of reduced need for STW treatment, so the DEHP costs will be 5.6bn as per report and accepted by Defra; this appears to contradict the quoted cost position. No mention of investigations.
Water resources	New source development Leakage reduction Demand management	A phased programme of new source development, leakage reduction and demand management lasting through three RBP cycles.	No quantification of demand management. Shortfalls?
Morphology	Modify, remove or replace Flood Risk Management assets and procedures where cost effective Modify, remove or replace Inland and Marine	A programme of improvements as per Option 1, however phased through three cycles	

Pressure	Option 1	Option 2	Water UK Comments
	Navigation assets and procedures where cost effective Restore, modify or replace all other relevant assets where necessary Provision of new in-stream assets (e.g. fish passes) where required Adjust agricultural management practices and modification of assets		
Alien Species	Ban on sale of known non-native species affecting WFD objectives using legislative mechanisms Management forums to coordinate efforts to monitor and control problem species Prevention & monitoring measures Research and development	Measures to be implemented as per Option 1, however with less emphasis on implementation in the first cycle.	
<p>Note there are no means defined to determine how the off setting (cross funding of daughter directives may be assessed) see below</p>			