

Water Framework Directive Workshop on the Economic Analysis

***Session 1: The Water Framework Directive and the role of economic studies***

Daniel Instone gave a rousing introduction, stressing the real progress in integrating economics analysis into the implementation of the WFD from the initial stages and the importance that the UK government places on the role of economics.

Pierre Strosser, gave a more detailed overview of how economic analysis fits into the WFD and stressed the importance of a coherent approach, the need to adhere to the principles, and the need to meet the Article 5 reporting requirements.

Rob Hitchen focussed on the key stages of work in implementing the Directive and the requirements for reporting. He highlighted the crowded timetable of activities required to the end of 2004 and beyond. He also noted the key drivers for undertaking economic analysis distinguishing between immediate reporting requirements and opportunities to introduce programmes of SMART measures.

***Session 2: Presentations of the Three Studies***

**Kram Sadiq outlined the objectives, challenges and progress on the Economic Importance and Dynamics of Use project.** He concluded that we do have the data to look at drivers of change, but the main issue is how links are made to the data on pressures and activities for other technical studies. How can future dynamics be accounted for? The key issue is now how we use the information to demonstrate not just the dynamics and economic importance of water use but also to feed into other studies (immediately) and processes such as CEA of programmes of measures in the medium term.

**Britt Groosman and Scott Reid outlined the tasks for the Cost Recovery and Incentive Pricing project** and progress to date. They identified a number of issues in defining water services/uses/self-services and in defining different elements of cost. Significant issues include:

- The need to finalise the water services definition both for immediate reporting and longer cost recovery analysis
- Redressing the balance in tasks 1 and 2 between what we know well (Ofwat regulated services) and what we don't (private services, self services).
- Issues about the allocation of "Water Service area" costs to RBD on the basis of population data and lack of data on which to allocate costs between industry/households/agriculture – and what is sufficient for Article 5 reporting?
- Difficulties in allocating environmental mitigation costs within existing water company capital and operating costs. Need to agree a specified year/approach to visibility of environmental costs.

Meg Postle outlined the tasks, progress and issues in the **Cost Effectiveness Analysis and Disproportionate Costs (CEA&DC)** project focussing on the critical issue of the definition of costs. There are still some terms (such as resource costs, opportunity costs, social costs), which need to be agreed. She highlighted practical questions associated with how costs are collated. Many issues remain on the definition of effectiveness since: ‘good ecological’ status has yet to be defined and will vary by water body; many pressures may affect one water body; and any one measure may act on a range of different pressures. Somehow all these factors need to be combined in a framework (quantitative) of effectiveness.

She highlighted the proposed process going from screening, through CEA to CBA for some specific measures or packages (probably only where these appeared to involve disproportionate costs). The question of whether a balance sheet (identifying initial and final incidence for those who incurs costs when) was required was raised.

A number of key issues to be addressed were highlighted for subsequent discussions:

- Definitions of costs
- Whether both financial and economic costs should be covered
- The role of stakeholders in providing cost data
- How to finalise the approach to defining effectiveness
- Whether a stepped approach (through screening to CEA to CBA) was appropriate.

## **Responses from the Panel of Peer reviewers:**

The panel of 6 peer reviewers made excellent and challenging contributions’

### **Pierre Strosser**

Raised several general questions:

- risk assessment needs to be clarified and what it means for the studies?
  - the information collected seems useful for reporting but how does it link into the RBD characterisation/pressures process?
  - How approaches/studies/methodologies will be reported and how can we get feedback on it?
- He thinks that the 80/20 rule (outputs: effort ratio) is often sited but not applied – ie there may be a need to be more pragmatic. In addition he made the following comments on specific studies:
- Use – clarify links with risk assessment and baseline
  - CRIP – defining water use/services so far confuses rather than clarifies the issues and we appear to be reporting only on what we know not what we don’t. Qualitative reporting on other aspects may be better than ignoring them entirely.
  - CEA – the approach appears to have a CBA bias while often CEA is sufficient to make the case.
  - A distinction between types of measures (basic and supplementary) is required.
  - The institutional analysis will be key in understanding other measures impacting on WFD objectives but outside CEA analysis because they are part of other policy processes.

### **David Pearce**

In general reported that both CEA and CR studies were on track. He highlighted that:

- Definitions do still matter (financial, economics, costs) and meaning comes from past uses so these studies should not be reinventing new definitions for commonly used cost categories (resource, social).
- WATECO outputs were good but some elements – such as resource costs – have added confusion. Real opportunity costs – misallocations of resources leading to a suboptimal economic performance – don't seem to be addressed by WFD.
- Costs of programmes of measures are disproportionate where costs benefit ratio is greater than 1, there should be no other rule.
- On the issue of Water Services it was suggested to focus on the supply and demand for water.

### **Ralph Turvey**

Generally conferred with many of Pearce's points and felt that 3 excellent studies were emerging. Specifically he:

- felt that the water services/uses definitions were OK.
- Queried what costs of resource depletion really are in practice in the UK and whether there are really instances where depletion is both important and irreversible. His major concern about the scope of costs covered were non-water externalities (CO<sub>2</sub>, sewage etc) and whether they should really be dealt with in CEA for WFD or whether they were picked up in other parallel processes. Should we in fact take these costs as complying with regulations, and then not look at effects.
- He felt that CRR was just about keeping Brussels happy and it is of no interest to show cost recovery as more or less than 100%.
- Disproportionate costs – problem with benefits transfers - need more spending on benefits valuation.

### **Philip Lund**

- Wondered what the purpose of the WFD was and why the concern with water pricing - is it really be addressed in this same level of detail in other member states?
- He questioned how the resulting definitions and methodologies would be applied in the field by non economists and highlighted a few errors in the reporting on data for agriculture.

### **Paul Herrington**

- Expressed sympathy with the tests to define water services/uses, but stressed the need to improve the narrative in the CRIP report to explain why this is needed (eg to exclude obviously non-sensical inclusions such as boating).
- Lets try alternative allocations (from water service boundaries to RBDs) particularly for non-households. Is there a GIS non household consumers – says one water company already a long way to doing this.
- IP – reporting requirement includes this, need to do this better – apply check list of incentive properties to identified charges.
- Resource allocation costs RPA have done this on scarcity – needs to be integrated – should be taken on board.

### **Peter Vass**

Stressed that WFD is a public interest directive – therefore apply good regulation – why not just apply the Green Book. He stressed the relevance of financial costs to distributional issues. He also highlighted the need not to divorce the periodic review from WFD. Regulators need to make decisions with a long term view. Adaptive management – is PR doing this.

### **General questions and comments**

1. **Jonathan Fisher** noted that the Agency was looking for clear guidance (clear guidance on what? From Defra/EU/stakeholders?). The 80/20 rule can complicate quickly, need to simplify. How use alongside. Questions about usefulness of the economic data.

2. **Jeanne Golay** noted that we should not confuse financial costs with private costs. The CR rate itself is not interesting, but incidence of costs and ERC is interesting. Its not as simple as adding financial and env costs. Talking about mitigation costs. Visibility – needs to be recognised. CR is the lever to doing this. **Ralph Turvey** responded that it comes down to whether spending future costs on cleaning water greater or less than the cost saving of doing it. It may be that its most cost-effective for them (water services) to do the cleaning. **Jeanne Golay** noted that it might be more cost-effective but who should bear the costs. **Peter Vass** noted that the issue comes back to cost reflectivity.

4. **James Hunt** provided a very useful perspective as he worked on the agreement of the Directive. **Britt Groosman** questioned whether the Commission intended CR of Water use (as opposed to Services). James Hunt noted that CR is in the Directive because UK wanted it to be (we do it why don't others) therefore CR reporting should be very minimal but is focussed on services and expressly not uses. Question about how define effectiveness.

5. **Joe Morris** noted that it is a real problem not having a definition of ecological definitions particularly ecosystem functions/resilience. Too early to define CEA before this. **Jonathan Fisher** noted that we can not afford to wait – we have to make a start.

6. **Pierre Strosser** commented on the usefulness of CR. Its also about checking if pricing is going to be an effective measure.

7. **Jan Brooke** felt the link between economics and pressures and impacts needed to be clearer. Some of the results seem critically sensitive to water body size. Need to be aware of other MS approaches o defining water bodies. As to whether navigation is a water service – if its just British Waterways then need to reclassify. Contrast with habitats, WFD is different, communication problems.

8. **Georgina Mills** noted that the possibility of a wider (RIA-like) analysis after CEA of the package of measures seems like a good idea.

9. **Ralph Turvey** stressed that opportunity cost is always the value of a sacrificed alternative. Peter Vass remarked that there are only economic costs - sometimes they are measured from a financial perspective, and sometimes wider.

### **Session 3: Breakout sessions**

During the afternoon session three breakout groups each considered one of the studies and provided feedback on what needs to be done most urgently in each of the following 4 areas:

#### **Definitions**

- ***For 2004 clarify definitions of economic terms.*** Immediate need to clarify definitions for economic terms (although the CEA group made a good deal of progress) and water services/uses (and treat water abstraction and discharges separately).
- ***After 2004 revisit definitions*** in the context of RB management on behalf of UK PLC as these may be different.

#### **Data**

- ***For 2004 need to further explore qualitative data*** which can be supplied by the Economic Importance and Dynamics project for the River Basin Characterisation.
- ***After 2004 need a wider vision of how economic information will feed in.*** EA has ongoing studies on agricultural uses, individual polluting industries which will feed into water bodies at risk but need to develop a wider vision of the links between dynamics of use and how this feeds in.
- ***Immediate need to finalise review of usefulness and audit of data.*** Immediate need to finalise Table 2.3 and links with Annex F (audit of data) in dynamics of use report – need to flesh out what is useful at what spatial level and at what stage in the process it will be needed. Should incorporate agricultural data from EA study.
- ***For 2004 Proformas for stakeholder involvement in data collection need to be developed.*** Group on CEA has worked on criteria but more detail is needed by end 2004 for roll out in 2005.

#### **Methodology**

- ***For 2004 try alternative ways of allocating costs etc. to RBDs.*** Need to move to more geographic approach to scaling population to RBDs in due course.
- ***For 2004 need to develop a good quality costing methodology*** (building on Ofwat experience) for transparent allocation of costs (by stakeholder and RBD) as the basis for future work in incentive pricing.
- ***For after 2004 CEA group agreed steps in the cost effectiveness process*** as screening, CEA and then CBA in some ( but not all) cases – applied to statutory through additional measures. Need to test process outside of the current study.
- ***For after 2004 need to develop a framework for numeric assessment of effectiveness.***

#### **Stakeholders**

- Need to establish the role for stakeholders in validating data with a parity of approach across different stakeholders.
- Need studies on incentive charging options and metering (post 2004)
- Need work on misallocation (or opportunity costs) as the basis for incentives/trading instruments.
- Need to consider how approaches/definitions etc will be communicated to practitioners and the general public and the need for transparency.

## ***Day 2, Session 1: Reflections on Day 1***

A panel of invited individuals each gave excellent 5 minute reflections on the outcomes of the previous day's discussions and what they felt were the key issues for taking the economics work forward. It was noted that the views expressed were not the official views of their organisations and were not for wider quotation.

- **Georgina Mills** stressed that what was required was 'good economics' underlying the analysis for the WFD but this needed to be communicated simply – this will be key in how well we engage stakeholders in providing information for the analysis. She raised the issue that (cost effectiveness) analysis needs to be put in a wider context (eg RIA) so that it is clear who is bearing the costs. She also raised the challenge of saying something of value based on qualitative analysis of self-services (ie non water industry water services). She raised a note of caution about the indiscriminate use of benefit transfer.
- **Giordano Colarullo** Noted that other 'candidate' water services were too easily discounted on the basis of lack of information, and that sub-regional information available through water companies & others might be worth pursuing. He noted that the incentives discussion has so far been very focused on supply issues rather than price elasticity of demand (ie how customers would respond to price signals). In relation to the CEA, he noted that while the overall framework and approach to quantifying effectiveness was interesting, it was far too early to get into the specifics. However, he stressed the need to develop decision scenarios which compare packages of measures, since taking a strict least cost planning path (ranking each measure by effectiveness ratios) could lead to odd choices which do not optimise synergies and linkages.
- **Aniol Esteban** made a plea to use qualitative data to assess environmental costs (for cost recovery) and non water environmental costs (for CEA) where these are otherwise difficult to measure or monetise. Failure to do this will risk environmental costs being overlooked in decision making. It will be up to DEFRA and others to ensure that qualitative data are made to count. He also stressed the importance of describing 'candidate' water services qualitatively.
- **Jeanne Golay**, reported that the workshop had made her feel optimistic about the extent that the UK appears to be getting to grips with the analysis needed. She stressed the need to think about 'alternatives' to traditional end-of-pipe measures (eg through educating the public that shampoos with zinc in are environmentally damaging and so to reduce demand and stimulate research into alternatives). She saw early CEA as a way of encouraging this more lateral approach. She reinforced earlier pleas for rigorous use of economics terms and simple communication with non-economists and suggested economics definitions could be presented visually in the same way as water services/uses had been defined (venn diagram). Finally she highlighted the need for some further work to unpick the sources (incidence) of pollution, where it can best be treated (ie often by the water companies) and who should pay for it (ie polluters). She felt this needed to be clearly conveyed to engage non sector specialists.

In response the peer reviewers made the following points:

**Paul Herrington** suggested that we should not lose momentum on looking at ‘non water industry water services’ and agreed that we need to start measuring the incentive powers (ie elasticity of demand and tariff structure effects) of volumetric charges and other measures.

**Peter Vass** agreed that in order to have full cost recovery based on PPP we need more robust definitions and better modelling of causality as a basis for incentivising the right actors (eg farmers).

**Ralph Turvey** agreed the dangers of using inappropriate benefit transfers and the need for more environmental economics benefit studies (possibly using ex-post studies on enhancements already made to the water environment).

**Pierre Strosser** agreed the benefits of ex-post studies – but warned that there would be few cases where the experience was directly transferable. He also stressed the need for river basin management to be strategic and stressed the pitfalls of doggedly applying cost benefit techniques better suited to individual projects at this strategic level.

**Philip Lund** noted that there are established techniques for assessing the relative cost benefits of a range of different measures.

## ***Day 2, Session 2: Breakout groups***

Four groups spent the rest of the morning tackling 7 areas which had been identified at the end of Day 1. They were tasked with identifying what else needed to be done, in what timeframe and by whom.

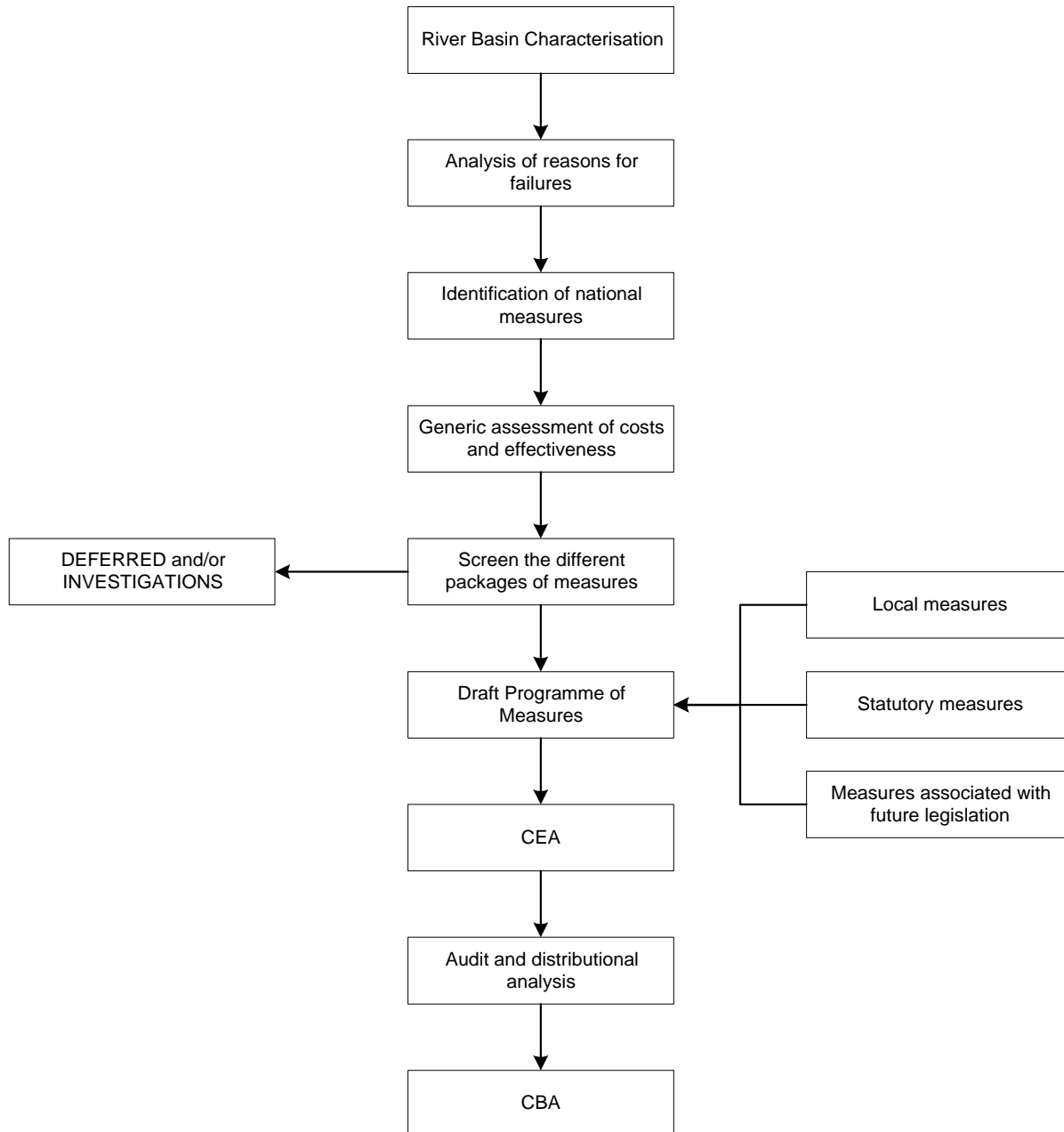
### **Group 1: Finalising the CEA Methodology and scoping out a numeric approach to assessing effectiveness**

The group led by Meg Postle (RPA) focused on finalising the proposed methodology for CEA and thinking further about a numeric approach to assessing effectiveness. Discussion focused on the following issues:

- need to link into the planning process for drawing up measures for each sector;
- the usefulness of having a menu of actions, including what each will deliver and timing – this could also be used to demonstrate even-handedness;
- for many water bodies, the most cost-effective solution will be easy to identify as it will be the only solution – however, there is a need to consider wider measures, including all types of instrument (regulations, fiscal); and
- national measures would form a ‘core’ set of measures that feed into the baseline, other measures would then be identified and added as needed.

The agreed process is summarised in the following figure. The process can be defined as:

- start with reasons for failure;
- define a programme of measures to deal with those reasons for failure;
- assess the cost and effectiveness of the programme of measures;
- decide which measures are ‘must do’, which are ‘could do’ and which are uncertain; and
- move onto CBA



## Group 2: Finalising Dynamics of water use and links to other processes data needs

A group led by Kram Sadiq and Camille Bann focused on identifying gaps and detailed requirements for completing key tables (Tables 2.3 and Annex F) in the dynamics report. The focus of discussion was on the application of the data, and what needs to be done within the current study to enable 2004 reporting by the UK on:

- Outlining the economic importance of water (need to tell a story at each RBD)
- Providing contextual information on drivers and activities

- Providing a description of dynamics. For the agricultural industry this is likely to be detailed assessment, but is likely to be more qualitative for other sectors.
- The most heavily polluting industries.

Table 2.3 is to be split into current information for the characterization (to be called ‘economic characterization’ and information for the analysis of dynamics ‘business as usual’). Data will be described further in terms of: recommended dataset(s) (including actual datasets where possible); identifying ‘brick walls’ – and suggesting solutions; identifying data confidence issues; providing background information; spatial level of information. It was also agreed that it would be useful to do more work on the Ribble template.

### **Group 3: Stakeholder involvement and reporting on non-Water Company water services**

This group led by Rob Hitchen and Georgina Mills summarised the urgent need to raise general awareness of the WFD both within the general public and amongst key sectors that were impacted by or impacted upon water quality. Too many stakeholders are not engaging in the process of providing data. This is because many see WFD as a ‘non issue’. Some may have been misinformed about the impact of WFD. The group made the following suggestions to tackle the issue:

1. Engaging early with key stakeholders to show some initial results from the characterisation work to make stakeholders aware of the potential impact of the Directive (before the EA’s September 2004 formal review of risk assessment of water bodies). The establishment of Defra’s EASG group should help this process.
2. Providing potential implications on impacts, costs and who will pay
3. Preparing two parallel reports for different audiences:
  - a. EU report with just 2 categories – ‘not at risk’ and ‘at risk’
  - b. A UK report with a range of 4 categories including ‘probably at risk’ and ‘probably not at risk’ plus a category of no data.
4. Email discussions with those not already engaged in the process
5. Communicating details of benefits to be derived from the WFD (for the UK) and of engaging in the process (ie time spent on providing data increases the chances of getting it right as opposed to spending time fighting decisions in the future if we get it wrong)
6. The need to communicate why a water course is at risk ie ‘who’ is polluting it and to what extent
7. Early and productive engagement with the media to reinforce the messages from direct engagement with stakeholders.

The group agreed that qualitative data gathering for all uses is very important. However, the question remains on what industries/sectors are services/uses. It was agreed that where uncertainty remains they should be classed as ‘candidates’ in the Article 5 Report but these are worth describing qualitatively.

### **Group 4: Future work on Incentives & Metering and making mitigation costs visible in capex and opex**

A group led by Paul Herrington and Ralph Turvey focussed on what further study would be needed on incentive charging and metering in relation to public water supply and public sewage supply and how far it would be worth trying to make historic and future costs of environmental

mitigation visible as a basis for reporting and decision making. The areas where further study would be worthwhile [ 😊 ] or not worthwhile [ ☹ ] during 2004/5 are summarised in the figures below.

***Worthwhile ness of investigating visibility of water services cost categories***

	Public water supply	Sewage treatment
Past costs	😊 Worth pursuing but without policy prescription or policy implications	☹ Not worth pursuing because impossible to separate private health, public health & environmental cost categories
Future Costs	😊 😊 😊 😊 Well worth pursuing	

It was agreed that **historic** public water supply costs were worth pursuing through a ‘micro’ study to describe 7 or 8 cost types in principle, based perhaps on detailed historical data for a ‘small’ area (eg town, LWU etc. **Future** public water supply costs are worth analysing in detail as follows: identify all sources, mitigated costs (two types) unmitigated damage (two types) and environmental enhancement costs; consider the potential of PPP to replace mitigation costs by Water Companies (this raises a wider range of policy issues (POMs etc) and also non-water infrastructure via CEA and CBA); and assess implications for policy.

***Scope for investigation of metering for charging and incentive properties of funding/charging***

Topic/issue	PWS + S&ST	Direct Abstractions	Direct Discharges
Meters as measures, sampling and indicators/surrogates for measured estimates	☹	😊	😊 😊 Especially surrogates; metering often very expensive)
Metering Technology – where are we?	?	😊	😊
Visibility of charges – incentives	😊 (as against taxation)	-	-
Charging structures – incentives?	* 😊 (Does knowledge re: disconnection for non-payment affect incentives?)	😊 (actual authorised abstractors) current consultation	😊
Charge/tariff levels – incentives – and elasticity estimates	😊 (Mogden and trade effluent charges)	😊 Administrative cost recovery only? Elasticity’s evidence	😊 Elasticity’s evidence
Alternatives to pricing	😊 Non priced management (eg flow	😊 Role of <b>fin</b> es in breaking of permit	😊 Command and control (ie regulation) and <b>fin</b> es

	restrictors, labelling schemes, water audits etc)	conditions? Role of water audits	
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\* Include here effects of more sophisticated tariffs eg IBT, seasonal; is there a 'green consciousness' effect quite distinct from the effect of tariff levels?

### ***Day 2, Session: Integrating work programmes***

The final sessions focused on understanding the complex and crowded timetable of reporting required by the WFD and the other water quality related policy processes which will be running in parallel, and the work programmes which have been developed by the EA and DEFRA to address these needs.

Claire Thornhill presented an overview of the legislative and policy making programme that DEFRA will be pursuing to 2018 and the linkages to WFD.

Peter Pollard gave a very clear explanation of the scientific and technical work that is being undertaken by UK TAG in order to characterise River Basin Districts and water bodies and to assess their status (no risk, probably no risk, probably at risk, at risk) for Article 5 reporting and beyond and how this needs to be integrated with the economics work programme.

Jonathan Fisher presented the detailed economics research programme, the funding situation and likely time frame for work being undertaken by the Environment Agency and partners and stressed the need for others to get involved in both funding and carrying out the work.

Finally Kevin Andrews presented a first attempt at an integrated timeline for all the different activities (WATECO critical path, Periodic Review and Programme of Measures work). The workshop participants discussed how the detailed work on Cost Effectiveness Analysis, early stakeholder involvement and need for wider communication and much closer working relationships between scientists and economists could be integrated into the ongoing work process. A revised integrated timeline was promised following the workshop discussions.