Public Dialogue on Significant Water Management Issues

Final report

An Environment Agency project delivered by 3KQ in partnership with Ipsos MORI

Funded by Sciencewise Expert Resource Centre (Sciencewise-ERC)

The UK's national centre for public dialogue in policy making involving science and technology issues.

Contents

Executive summary

This public dialogue on Significant Water Management Issues (SWMI) was undertaken within the context of the Environment Agency's Challenges and Choices consultation. The Sciencewise[1] supported dialogue was designed to enable public views, ideas and concerns to be fed into final decisions and priorities for the Environment Agency's updated River Basin Management Plans and inform the approach to meeting other Water Framework Directive commitments. There will be a public consultation carried out by the Environment Agency on updated river basin management plans in September 2014. The final plans will be published by December 2015.

Seven public dialogue workshops involving 119 members of the public in total took place between September and November 2013 in each of the English river basins districts across the country (with Humber and Northumbria combined); a final eighth re-convened workshop with 16 participants took place in London, bringing together a range of participants from the previous workshops. Participants were recruited by Ipsos MORI to be broadly reflective of the national population in terms of gender, age and socio-economic status. Independent consultants 3KQ facilitated the workshops. During the workshops participants were asked to reflect on the benefits offered by good water management and the challenges facing the water environment.

In addition to the dialogue workshops, a quantitative survey was carried out (via the online Ipsos Mori i:Omnibus) with 867 people constituting a representative sample of the public in England. This survey was designed to add context to, and aid interpretation of, the qualitative findings from the dialogue workshops.

> I think it has been an eye-opener – I wondered how we'd talk about water for six hours but we have.

In the initial series of workshops members of the public were asked to consider what they valued about, and how society benefited from, the water environment. They then discussed the significant water management issues as identified by the Environment Agency, including what they would prioritise and how society should consider paying for needed improvements. These issues – referred to as 'challenges' in the dialogue – included:

- Chemicals
- Faecal indicator organisms and sanitary pollutants
- Phosphates and nitrates
- Physical modifications
- Abstraction and flow
- Invasive species
- Sediment

Participants responded enthusiastically to the information provided during the workshops and were keen to express their views. Having learned more, many were surprised at their previous lack of awareness and felt that the wider public could benefit from greater knowledge about the issues under consideration.

1. Sciencewise is funded by the Department for Business, Innovation and Skills (BIS). Sciencewise aims to improve policy making involving science and technology across Government by increasing the effectiveness with which public dialogue is used, and encouraging its wider use where appropriate to ensure public views are considered as part of the evidence base. www.sciencewise-erc.org.uk

> Until I came here today I hadn't made that connection at all [environmental issues being integral to other issues] – I think every member of the electorate should come on something like this. I'll never look at water the same way again.

> If people knew more they might make more changes. It all comes down to information – the more you tell them the more incentive you give them to change.

Participants frequently commented on the complexity of the issues, with common observations on the complexity of the cause and effect of the issues, as well as consequences and possible remedies being raised in different locations. The input of Environment Agency staff at the workshops was highly valued in informing and supporting the dialogue, and confidence was expressed in the technical expertise and experience of the Environment Agency in tackling the challenges.

At the start of the project, it was felt to be most valuable to enable the public to deliberate on a widest possible range of issues. When planning and piloting the workshops it became clear that the number and complexity of significant water management issues meant that it would not be possible to cover them all in the depth required. However, covering a wide range of issues in seven different regions of England offered a chance for valuable insights into any regional variations and the opportunity for a broadly representative group of members of the public to deliberate, discuss with experts and express a view on the issues, priorities, values and benefits that could inform policy and on-going management of the significant water management issues at a national, river basin and catchment level. In the end, significant regional variations did not come through in the public dialogue; this may support a national approach in engaging and addressing these issues, supported by river basin and catchment specific application/information.

Participants identified some issues as being of greater interest than others, notably chemicals, faecal indicator organisms and sanitary pollutants, but also phosphates and nitrates. When giving these issues comparatively more 'weight' of significance participants acknowledged that this reflected personal fears or interests rather than any great understanding of the issues.

The personal connection to certain issues, and indications of a willingness to act and take responsibility, was also explored further in the quantitative survey which asked questions of the general public who had not been involved in the dialogue workshops. Seven 'household measures' were considered by respondents and the responses indicated a high level of willingness to consider taking action. Just over four in ten people said they already were careful about water usage, correct connection of pipes in the home and disposing of certain liquids carefully, and a further four in ten said they 'would definitely' or 'might' consider these measures. Over six in ten people said they would consider purchasing products that do not contain certain chemicals, with less than two in ten saying that they did this already. A detailed analysis of the results of the survey can be found in Appendix 7.

When considering the fairest way to pay for the cost of addressing the issues participants considered general taxation, water bills or increased cost of food/goods as the essential choices we face as a society. Discussion typically ended with an acknowledgement that it doesn't really matter, the general public all have to pay in the end, somehow. More important was the commonly expressed logic that members of the public should be more aware of the issues and consequently more likely to support action, including taking action or making choices themselves (e.g. buying products with lower chemical impact).

In the final eighth ('reconvened') workshop, a selection of participants from the previous seven events came together to consider some typical dilemmas that the Environment Agency, and other environmental regulators, face in managing the issues at a catchment level. They worked with three simple, realistic scenarios and grappled with choices and trade-offs about which challenges to prioritise, with which improvements (measures) to make resources were constrained. As in previous workshops, a significant number of participants spoke of a willingness to pay more – seeking to increase resources for managing the significant water management issues (whether in terms of the price of food and household products or higher water bills etc) and this may be an area worth exploring further in order to test wider validity. When looking across all three scenarios (which simply reflected high upland/rural, middle/urban and lower/coastal catchments) they were asked whether they would favour one or other of the areas for attention (for example the more urban area in order to maximise public awareness and make visible progress, or the higher parts of the catchment to minimise sources of problems having their effect further downstream). Generally, participants favoured spreading resource across the three areas, in recognition of the need for action everywhere, whilst understandably seeking the most benefit for the resource they had to allocate. It was also observed that participants were very averse to those measures which presented any threat to employment, perhaps reflecting the current economic context.

Prior to the final question in the quantitative survey, it was explained to respondents that it will not be possible to protect the water quality in all the water environments across England to the highest level. Respondents were told that difficult decisions would have to be made about where to protect and to what level of quality. They were given a number of principles on which this decision could be based and were asked to select the one they most agreed with. One third (33%) said their preferred option was to give 'the same level of protection to all water environments, even if this means each water environment can only be protected to a certain level'. This mirrored the discussions of participants in the reconvened dialogue workshop. Just under one in five (19%) survey respondents felt that protection 'should focus on the lowest quality water environments to bring them up to a moderate standard', while slightly over one in ten (13%) said that it "should focus on the highest quality water environments to maintain them for the future'. Around one in ten (9%) felt 'protection should focus on the moderate quality water environments to bring them up to the highest standards'.

During the dialogue some participants expressed the view that having learned more about the issues from taking part in the workshop they were more inclined to support the need for resources to address the issues discussed. The omnibus survey showed that even amongst those who had not participated in the dialogue, a great majority consider protecting the environment to be important. Over eight in ten (84%) consider protecting the environment to be important, compared to just seven per cent who consider it either not very important or not at all important.

This report is a synthesis of the main themes discussed during the dialogue workshops, including our observations and suggestions. Individual reports from each of the public workshops can be found in Appendix 3.

3KQ
March 2014

Suggestions

From the outset the dialogue planning process faced a dilemma - how to strike the right balance between **breadth** (i.e work with more issues in reduced detail) and **depth** (i.e. work with fewer issues in more detail). The key consideration concerned enabling participants to build their understanding of the issues, so that useful dialogue and deliberation could take place. Having considered the options and practicalities it was decided that it would be most useful to gain a broad understanding of public perceptions of the wider range of issues, while accepting that this might not result in detailed, considered responses on specific policy options, it should usefully inform policy decisions and provide other useful insights for management of the significant water management issues.

In all the workshops participants most commonly expressed genuine surprise at their individual and collective lack of awareness about the issues under discussion, especially since many touched on such every day issues such as waste disposal or water use in the home. Consequently, the overwhelming messages from the discussions were about communication and awareness raising being central to addressing the issues at all levels.

During the dialogue workshops, using the stimulus materials and with the valued input of the Environment Agency experts, participants came to understand the complexity of the issues. Perhaps not surprisingly, they expressed confidence in the knowledge and expertise of the staff of the Environment Agency and other bodies to make decisions about what actions were best suited to different situations. Despite the overall complexity, participants supported the idea of people taking more responsibility in order to reduce some of the problems. The quantitative survey also supported the feeling conveyed by workshop participants about being willing to act on certain issues.

Suggestions regarding approaches and decision-making

The findings of the public dialogue, together with the results from the quantitative survey, have dictated the focus of our suggestions. These are directed at opportunities for the Environment Agency and others to make progress on addressing the significant water management issues by engaging the public and encouraging them to take action alongside the efforts of the Environment Agency and partners (including other regulators).

One: Review current approaches and plans on communication and promotion of (i) significant water management issues (ii) societal benefits derived from the water environment and (iii) the Environment Agency's work in these areas.

Two: Consider expanding communication and promotion of the significant water management issues as a cost effective way of addressing them – i.e. through social change leading to individual, family and community efforts/change in behaviour. Research the relative costs and benefits of awareness-raising to promote consumer choice which is positive for the environment vs. a regulation approach to reduce damaging impacts.

Three: Ensure future communication and engagement with the public is mindful of the need for inclusivity and particularly the need to build ownership by 'starting from where they are' in terms of individual and household interests, attitudes, concerns and preferences.

Four: Consider a householder approach i.e. develop an information guide for householders, perhaps with water companies or other partners, that links the natural water environment (and SWMI), with drinking water and gives guidance on priority actions for households that would make a difference.

Five: Work with the farming, food and drink and household chemicals industries to develop clear labelling schemes that could guide consumer choice with regard to impacts of products on the water environment.

Six: Initiate or support community projects (or extension of existing schemes) which could harness a willingness to make a difference through generating collective action to address SWMIs, particularly those having a direct, tangible/visible impact locally.

Seven: Work with water industry to promote best practice and to communicate examples of effective action on the relevant significant water management issues.

Eight: Use the key findings and suggestions in this report to influence the priorities for River Basin Management Plans.

1. Background and purpose

1.1 Project context

The purpose of this project was to carry out public dialogue on water management issues to ensure public views and decisions are fed into final plans and priorities for River Basin Management Plans and other Water Framework Directive commitments.

The Water Framework Directive (WFD) requires that the water environment is protected from deterioration and improved where possible so that biodiversity, habitat, water quantity and quality are all classed as 'good'. The WFD emphasises that citizen participation is a vital component of the approach: 'In getting our waters clean, the role of citizens and citizens' groups will be crucial'.

Significant Water Management Issues (SWMI) are the most nationally significant issues affecting the water environment, as determined by evidence gathered by the Environment Agency. These issues affect the benefits we get from the water environment such as clean water, availability of water, amenity benefits, economic benefits, fishing, recreation and biodiversity. The issues addressed during the public dialogue were referred to as 'challenges' and included:

- Abstraction and flow
- Chemicals
- Faecal indicator organisms and sanitary pollutants
- Invasive species
- Phosphates and nitrates
- Physical modifications
- Sediment

In 2012, the Environment Agency initiated a series of national (England-wide), workshops with key stakeholders organisations (as opposed to members of the public) such as water companies, local authority representatives and environmental non-governmental organisations (NGOs) to help prepare for planning on Significant Water Management Issues. The outputs from these conversations informed drafting of the formal consultation document 'Challenges and Choices' and the subsequent consultation process ran from June to December 2013. This public dialogue process was designed to complement the formal consultation and, by focusing on the public, add a further dimension to the information the Environment Agency and others can use when drafting the River Basin Management Plans for consultation in 2014.

River Basin Management Plans are a key element of the WFD and set out how the Environment Agency and its partners will deliver against a shared ambition for the water environment in England. Following consultation, the updated plans will be published in 2015.

1.2 Objectives

The key objectives of this project as set out in the project specification were:

- To allow a sample of the public to engage on, deliberate and, alongside other evidence (such as environmental, technical, economic), and feed into key decisions within plans for the water environment.
- To demonstrate an open and objective approach to river basin planning which can help create greater commitment to actions from business and other stakeholders.
- To encourage frank and evidence-based dialogue with the public on the cost and benefits provided by our water environment and how best to manage this environment into the future.
- To link across various water planning cycles to ensure we have a customer focus.

1.3 Method and structure of the dialogue

This dialogue process was funded jointly by the Environment Agency and Sciencewise[2], guided by the Sciencewise principles. For Sciencewise, public dialogue is:

- Opening up discussion with public and different perspectives to help explore issues, aspirations and concerns when shaping policy
- Talking with the public about ethical and societal issues related to public policy
- Requiring the instigators of the dialogue to be potentially willing and able to change their minds
- Ensuring that public insights can inform policy involving science and technology issues

Our approach is to enrich decision-making by working with the public to understand the aspirations and concerns of the UK population in the development of policies involving science and technology and their governance. Such public dialogue will inform, rather than determine, policy and decision-making by those empowered to do so.

1.3.1 Planning and project oversight

3KQ were recruited through competitive tender to deliver the project, working in partnership with Ipsos MORI because of their complementary experience of public dialogue and deliberative research, including recruitment.

A project group was formed and included:

2. The Sciencewise programme is funded by the Department for Business, Innovation and Skills (BIS). Sciencewise aims to improve policy making involving science and technology across Government by increasing the effectiveness with which public dialogue is used, and encouraging its wider use where appropriate to ensure public views are considered as part of the evidence base. It provides a wide range of information, advice, guidance and support services aimed at policy makers and all the different stakeholders involved in science and technology policy making, including the public. Sciencewise also provides co-funding to Government departments and agencies to develop and commission public dialogue activities. www.sciencewise-erc.org.uk

Environment Agency
- Dave Baxter – Project Sponsor
- Anne Dacey – Project Executive
- Emma Collyer – Project Manager
- Caroline Scott – River Basin Management Planning
- Caroline Knight – Representing pressure leads
- Dave Whiles – River Basin Management Planning
- Cath Beaver – Stakeholder Relations
- Kieron Stanley – Economics & Social Science
- Jeremy Bailey – Representing River Basin Programme Managers

Sciencewise
- Daniel Start

3KQ / Ipsos MORI
- Richard Harris (3KQ)
- Sarah Castell (Ipsos MORI)
- Antonia Dickman (Ipsos MORI)

The planning group met four times. Initially they identified the issues which could most usefully be discussed and the most useful outputs for the development of the Environment Agency's work. They then focussed on guiding overall process design and scheduling, informing workshop design, reporting and finally dissemination.

In addition, a reference group, which acted in an independent advisory capacity, was set up (see Appendix 1 for details of membership). The reference group came together at the end of the initial planning period, but before the first 'pilot' workshop, to review and feedback on the emerging workshop plans and proposed stimulus materials. The input was especially valuable in enabling the facilitation team to more accurately assess likely public responses to (i) the quantity of information being proposed for deliberation and (ii) the form and presentation of the material. A number of changes were made to both workshop design and stimulus materials as a result. Due to the fact that, although significant, the topics under discussion were not in themselves contentious, the reference group was not asked for further input until the end of the project when the questions for the Ipsos MORI online omnibus survey were circulated for comment.

Having incorporated feedback from the reference group, the materials and facilitation plan were finalised and the public dialogue workshops were held in seven districts as follows:

Workshop	River basin district	Date
1. Brighton	South East	Saturday 14 September
2. London	Thames	Saturday 28 September
3. Peterborough	Anglian	Saturday 28 September
4. Worcester	Severn	Saturday 5 October
5. Manchester	North West	Saturday 12 October
6. Exeter	South West	Saturday 19 October
7. Leeds	Humber and Northumbria combined	Saturday 26 October

1.3.2 Recruitment

Twenty members of the public were recruited as participants for each workshop. Participants were recruited 'on-street' by fully trained Ipsos MORI fieldwork staff. Each recruiter was local to the area where the dialogue event was being held. Participants were approached in the local area around the location of each dialogue workshop. However, when it was deemed relevant for a particular workshop location, recruiters used their local knowledge to try and gain a suitable mix of participants from rural and urban areas. To recruit a range of participants for these workshops, quotas were set for each workshop by:

- **Gender:** minimum of eight female and eight male participants.
- **Age:** minimum of three participants in each of the following age groups, 18–24, 25–34, 35–54, 55–64, 65–74 and 75+.
- **Social Grade:** minimum of three participants from social grades AB, C1, C2, D and E.

A total of 119 people participated across the seven workshops. For more details on recruitment please see Appendix 5. Although this project aimed to look at national issues, the project team felt that by holding the workshops in different river basin districts, the results could have the potential to provide useful local insights, in addition to national ones.

Each workshop ran from 10am to 4pm. The morning session was designed to help people think about the water environment, what they valued about it and what benefits they individually and collectively derived from it. After first reflecting independently about benefits, participants were shown the range of benefits identified by the Environment Agency which were as follows:

- **Drinking, cooking, washing, cleaning:** maintaining water supply to our homes and for public health
- **Farming:** maintaining water supply for crops and animals
- **Industry, business and civic use:** maintaining water supply for manufacturing, producing energy, public buildings, mining, recreation
- **Waste disposal and treatment of waste:** sewage and industrial effluent
- **Transport:** people and goods
- **Commercial fishing:** trawling, fish farms, shellfish
- **Active leisure:** boating, canoeing, fishing, surfing, swimming
- **Wellbeing:** enjoying landscapes and wildlife: knowing it's there for future generations
- **Wildlife:** diversity of plants and animals, improving habitats
- **Reducing the impact of floods and droughts:** helps the public, farmers, business, insurance

The significant water management issues were introduced and participants were given a chance to read through the stimulus materials and ask questions of the Environment Agency staff as appropriate. After lunch participants reconvened in two groups where each issue was discussed in turn, with time for reflection and additional input from the Environment Agency staff. A 'prioritisation exercise' followed where people indicated their level of interest in the different issues following the discussion. The results of this can be seen in Section 4. The workshops concluded with four small group discussions to cover reflections on the discussion, to elicit initial thoughts from participants about ways to pay for necessary measures to address the water management issues, and think about willingness or otherwise to consider 'lifestyle choices' in the light of the issues considered.

The outline plan of the workshops, along with stimulus materials is included as Appendix 2. Individual reports of each workshop are included in Appendix 3. The initial workshop in Brighton was held as a pilot event and nine separate issues were considered. The volume of information had been debated from the outset of the dialogue design and the Brighton workshop showed clearly that nine issues were too much to cover in a one day session. It was agreed to amalgamate some issues and re-write the stimulus materials so that the following six workshops had seven issues for deliberation rather than nine.

Following the seven initial workshops there was a final re-convened workshop with a subset of public participants held on 9 November 2013. This was designed to enable participants to build on their thinking and knowledge from the first workshop session in order to deliberate further about:

- what they considered to be priorities in terms of water management
- the trade-offs and complexities involved in decision-making
- possible measures to address different water management issues and their comparative costs
- what drives local and national priorities

Twenty people were invited from those who had attended one of the initial seven workshops and indicated that they were interested in taking part in this re-convened session. The recruitment criteria above were used again for the reconvened workshop, with the additional quota that there should be at least two participants from each of the initial workshops. A total of 16 participants attended.

An outline facilitation plan and workshop report is included as Appendix 4.

The project was independently evaluated, along Sciencewise principles, from the start. The evaluation was carried out by Icarus, and their report will be available for reference.

1.4 Use of the findings

The main purpose of the dialogue was to feed into River Basin Management Plans being drafted in the light of current knowledge and evidence, including that gleaned from the Challenges and Choices consultation. Information from the public dialogue will be incorporated by disseminating the findings within the Environment Agency and to its partners including:

- Face to face presentations to selected groups involved in drafting the river basin management plans to help enrich their decision-making.
- Making the report freely available to those writing the River Basin Management Plans and working on SWMI.
- Discussing the recommendations and outputs with Executive team to influence current decision-making.
- Working with the national and district river basin liaison panels, and catchment co-ordinators to enable dissemination and embedding of recommendations. Web based presentations to wider groups in order to help support ongoing conversations with the

public and stakeholders on these 'challenges'.
- Further workshops/presentations with groups across the organisation to help explain and support the river basin planning process and the difficulties this presents.
- Sharing the outputs of the qualitative and quantitative findings with Defra to help shape future decision-making.

We feel that the findings are best taken on board (by those writing plans and working on the significant water management issues) by becoming familiar with the report, taking proper notice and having some reflection on the recommendations in this report. We expect the influence and benefit will be possible at both (i) a general, overarching level (e.g. the importance of starting from 'where the public are' with regard to communications and engagement) and (ii) more specific levels (e.g. considering research into the relative costs and benefits of public awareness raising).

2. Key points of discussion

At each of the seven river basin district workshops there were specific discussions on the significant water management issues under consideration. These are reflected in the individual workshop reports included in the appendices. They are also considered further in section four below. The points highlighted in this section are those which came out of general discussion at the workshops which could be of significance to the Environment Agency and others when considering how to respond to the findings of this public dialogue.

2.1 Levels of awareness and willingness to learn

A finding which was strikingly similar at each of the seven river basin district workshops was that dialogue participants were very interested and keen to learn about the issues under discussion and surprised and shocked at their previous lack of awareness. A lot of work took place in the preparatory phases of the project to produce information that would be accessible to participants in a relatively short space of time. This was well received as these participants in Manchester commented:

> The booklet of different issues was most helpful as it was clear and concise, not too much reading.

> The handout was very useful and gave me a clear understanding of the issues.

The level of participation in the workshops was excellent, even by those who didn't anticipate being particularly interested:

> I came here today because of the money, but it's flown by, it's been fascinating. I'm thinking totally differently now! (Brighton participant)

The key message was that people felt the reason the public may appear indifferent is because of ignorance. Participants in each of the workshops felt that in order for people to be able to take action and engage with the issues more knowledge and awareness was required as the following comments reflect:

> The biggest thing about this is knowledge. We don't know enough, we need to know more. (Manchester participant)

> Until I came here today I hadn't made that connection at all [environmental issues being integral to other issues] – I think every member of the electorate should come on something like this. I'll never look at water the same way again. (Brighton participant)

> There should be more education. All the stuff we're talking about now should be taught to kids in schools. (Brighton participant)

> Education is so important. If you had asked me about any of this before ten this morning I wouldn't have known, but I think it's just that block – people don't know so they don't care.

> I came here open-minded, no clue about the problems we face. Surely all households should have a copy of this information. (Leeds participant)

The importance attached to knowledge and awareness was also demonstrated in the workshop evaluations completed by participants. When asked 'From your discussions today is there an idea or a suggestion that you feel should be explored further or put into practice through plans for managing water in England?', 48% of the 87 comments related to education and awareness raising. No single other issue came close to this number of mentions, the nearest being increase in taxes/use of fines to pay for improvements in relation to significant water management issues, but this suggestion was only mentioned in around 6% of comments.

The potential benefits of greater awareness were discussed and are examined in the following sections.

2.2 Effects of greater awareness in the home

Participants discussed the effects of greater awareness about water issues and the following areas emerged:

> If you understand the issues and appreciate water more, you're more likely to do things to protect it.

2.2.1 Volume of water used in the home

> We take it for granted. We are all sitting in this room breathing and not really thinking about it. It's the same with water, when we want water we just turn the tap on. We don't really think about it. (London participant)

When workshop participants discussed water usage in the home there was a consensus that water metering was very effective in getting people to think about how much water they used. One person in Manchester had experience of living both with and without a water meter:

> I was very cautious when I was on the meter with the kids, how much I put in the bath and so on. But now [no longer on a meter] I just turn it on. I realise I am more frivolous now I don't have a meter.

In Peterborough the following comments were made which were typical of participants in other regions:

> I don't have a meter so I don't think about it too much.

> We are all responsible for our water supplies. If everyone had a water meter we wouldn't waste as much water.

However there were some participants who represented those who already think about water usage whether or not they have a meter:

> I don't like to waste water because it is a limited resource and it costs money to make it drinkable. (Peterborough participant)

> I have three children – instead of three separate baths they all go in one after the other to save water. It's not just my view, it's the children's as well –they say one day we might live on a planet where there isn't any water. (Exeter participant)

It is worth noting that, although not prominent, sceptical views about the need for care about water usage were also voiced:

> Is there a shortage though? We are talking about water like it is oil, it rains, there is loads of water in Wales; there is no shortage. The point should be if they keep developing the southern part of England they need to make sure the water can get from Wales and the Lake District to the southern part of England. Turning your tap off when you brush your teeth isn't going to make any difference to all this. (Peterborough participant)

42% of respondents to quantitative survey indicated that they already used a lot less water at home and in the garden, with a further 46% saying they would 'definitely' or 'might' consider this.

2.2.2 Other home water management issues

Misconnections:
There was a very low level of awareness about the problems related to misconnections. This echoed the experience of working with stakeholders earlier on in the year where misconnections, although identified by the Environment Agency as a significant problem, were not well recognised within different sectors. This is despite the fact that efforts have been made to publicise the issue for some time such as by Water UK and water companies. In the quantitative survey, 41% of respondents said they already checked their pipes were correctly connected. 28% said they would 'definitely' consider and a further 18% said they 'might' consider doing this

Disposal of waste into drains:
At the end of the workshop in London, a group of participants were discussing what they would do differently as a result of taking part in the dialogue session. One said that they intended in future to chill waste fat in the kitchen and put it in the bin instead of 'tipping it down the drain then pouring bleach after it!' Another said she would no longer put leftover paint down her sink. This type of reaction was experienced in other workshops too. A participant in Manchester reflected on his practices at work as a garden contractor:

> When I'm cleaning out the [weedkiller] sprayer at work I used to just put it down the drain – now I would think about that.

The quantitative survey asked people about disposing of certain liquids carefully rather than pouring them down the drain. 41% said they did this already and a further 48% said they would 'definitely' or 'might' consider doing this. Only 4% said they would not consider it.

2.3 Effects of greater awareness on consumer choices

In most workshop groups there were at least a few people who bought or had heard of 'environmentally friendly' household cleaning and laundry products, however this was not always the case. In the quantitative survey 22% of people said they would 'definitely' consider purchasing products that didn't contain certain chemicals and a further 45% said they 'might' consider it. Only 15% said they already did this. Cost was discussed as a barrier to buying these products, even when awareness was there. Some people felt that having learnt more they would be more likely to be willing to pay more, if they felt that it would benefit the water environment. Others felt that manufacturers producing goods containing more pollutants should be taxed more, or less polluting products subsidised to even up price differentials. When discussing the relatively small market share of 'environmental' products one person asked:

> Is it because environmentally friendly products are too expensive? If so they should subsidise it. People will always go for what it affordable.

Most products I pick up I'm not necessarily looking at what's in them, but now I know this I'm going to have a good look.

Several suggestions were made for the use of a clear labelling system to illustrate what impact a product e.g. laundry detergent would have on the environment, such as the A–F labels for energy efficiency on fridges and freezers. This would enable more informed consumer choice on everyday items. However, a participant in Worcester highlighted the fact that was less easy to check labels when shopping online, so any system would need to consider this.

One participant in London talked about skin creams and make up and how some brands which advertised as avoiding particular additives had become mainstream. She hoped the same could happen for other household products:

> You shouldn't have to be vegan to buy the right washing powder!

Participants said there were a number of things they would do as a result of taking part in the workshop including looking at product information, as illustrated by the quote above from a participant in Manchester. A group in Leeds also thought it would be useful if they could see how much water everyday appliances used such as dishwashers and washing machines.

Why should the consumer have a choice if it's damaging to the environment? Education is too difficult. We don't have a choice about everything; this is a good area where we shouldn't have a choice.

Other shopping choices were considered, including food. Another Manchester participant commented:

> We can influence them [industry and farmers] through what we buy.

2.4 Is choice a good thing?

Although people were generally very positive about the public becoming more aware of the issues raised and taking action based on that information, there was a caution expressed by some about how far this could go (and how much it would cost). However, given the issues raised most people felt that doing nothing was not an option, and that if faced with doubt

about consumer action steps should be taken to limit damage by regulating what was on the market in the first place. These comments from participants in Peterborough illustrate this view:

> Can the government and the Environment Agency regulate the products so that we can't pollute the environment – if we can't buy it we won't do it!

> It is down to government to put the pressure/regulation on the industry and farmers, because people won't make those personal choices.

> People will never make those decisions themselves, they like their brand too much; the choice needs to be taken out of it.

2.5 Community volunteering

Many participants were positive about community volunteering (e.g. community groups working to clear river banks of invasive species) and felt that if reasons and opportunities were publicised people would want to get involved. Some felt it would promote community spirit as well as being of practical assistance. Participants pointed out some issues that could be addressed to make it possible for people to volunteer e.g. liaising with benefits agencies and schools or colleges. In Peterborough an example was given of an initiative where there was an annual community gathering to tidy up a local lake.

I think it's a brilliant idea. It used to be done a lot in the early years, keeping your village or community nice.

Volunteering to take part in helping to restore natural habitats, remove harmful plant species or help educate people about the water environment was one of the things considered by respondents to the quantitative survey. Of all the measures this was the one with fewest people saying that they already did this (3%). 32% of people said they would not consider it, but half of respondents said they would consider volunteering, 10% said they would definitely consider it and a further 40% indicated that they might.

2.6 The importance of the right messages

At the re-convened workshop in London participants were asked, as part of a 'warm up' discussion, to talk about anything they might have done differently since attending the first workshop. One person reported that she went home and talked to a neighbour all about the issues discussed, and that the neighbour had since stopped flushing all her left over food down the toilet! This is a very interesting example to consider. As lay people the 3KQ team and the evaluator were all very pleased to hear that someone had gone to such trouble to change a significant daily habit. However, the Environment Agency staff explained that flushing food down the toilet was not necessarily as bad as it sounds as it was simply an undigested version of what would end up there anyway. The key point being that someone was willing to make a big change but without the right information such efforts could be relatively ineffective and could be better directed elsewhere.

People need to be aware of the issues so that they can make informed decisions and make changes that will have a positive outcome for the environment as a whole.

Another area of discussion in relation to individual action focused on what impact individual behaviour change could have.

> There is a big question about to what extent individual actions would make a difference compared to industry – we could all change a lot but it might not add up to much compared to what happens in industry and farming. (Peterborough participant)

An example of this was discussed in Leeds in relation to leaking pipes. People felt like mending a small leak in their own home environment would not make a lot of difference when set alongside larger scale leaks they had heard about through the media.

The view was, understandably, that people would need to be convinced that their efforts would be worthwhile in order to make the efforts in the first place. Where doubt exists about the impact of the action, change is much less likely.

2.7 Issues about who pays, perceptions of water companies

In the final session of each workshop, participants in small groups of four to five people, discussed a number of things including how measures to address Significant Water Management Issues should be paid for. There was an acknowledgement that whatever the mechanism it is ultimately society as a whole that pays for water management, whether through water bills, general taxation, local taxes or via the costs of production of goods such as food or household products. It was also recognised that it is society as a whole that pays if the management of these issues falls short, either in terms of paying to put problems right, or the environmental cost of impacts which aren't managed due to a lack of collective willpower or resources.

> We might be more happy to pay if we see what it's going to achieve, what the benefits are. You wouldn't hand over £70 in a supermarket without seeing what was in your shopping trolley, why would you do that on your water bill?

Inevitably during these discussions the role of the water companies arose, and many participants voiced concerns about the difficulties they perceived about private companies having responsibility for a 'public good':

> I don't like the fact that the water supply which is so important to everybody is privately owned. You have to pay every week or every month and there's not enough information for you to decide if you are paying a fair amount or not. (London participant)

Discussions in London and other workshops covered the fact that it was felt that a major success criteria for the water companies was profit, which was thought likely to compromise or conflict with the needs of individual local people in a particular area and/or the environmental considerations around water management and treatment.

> Companies are looking at their shareholders rather than their consumers. (Leeds participant)

> Water companies should invest more out of their profits. (Manchester participant)

Participants in Leeds did discuss the fact that Yorkshire Water invested in the environment and provides other benefits to local residents:

> We go to the reservoirs a lot for bird-watching and it's free parking and so on, so for us that's a benefit provided by the water companies, and they look after the woods around them as well. (Leeds participant)

When questioned about the focus of the water companies in terms of the balance between profit and long term water management issues a participant in Peterborough articulated the views of others when they said:

> The Environment Agency is the balance – they are professionals and that is what they are employed to do. They are the mediators to make sure these things are protected. They are there to protect our interests. They are independent experts and non-political.

Environment Agency staff explained that water companies do spend money on research. They are members of UKWIR[3] which was set up by the water industry to provide a framework for the procurement of common research. Ofwat (the economic regulator for Water Companies) also obliges them to undertake customer research during the development of their five yearly business plans. In addition water companies have to comply with environmental statutory obligations; if they do not they can be penalised.

There was also a discussion about the fact that there is a commercial incentive for the water companies to encourage good practice on the part of consumers. If people are made aware of some of the issues under discussion during this dialogue and take action as a result, then water companies could expect to save money on some aspects of water treatment. This was explained as a reason for various awareness raising campaigns run by water companies, such as a current effort by North West Water to alert people to what they should and should not flush down their toilet. However, given the scepticism of a proportion of dialogue participants about the motives of water companies in relation to the environment, it may be that they are not always best placed to 'front' awareness rising initiatives.

3. UKWIR facilitates collaborative research for UK water operators. UKWIR's members comprise 21 water and sewerage undertakers in England and Wales, Scotland and Northern Ireland. www.ukwir.org

3. Perspectives on what people value about water and the benefits of a well managed water environment

Asked what they valued about the water environment many people started from the fact that water is vital to life:

> If we didn't have water we wouldn't have life – it's that important. (Leeds participant)

> It's a lifeblood. Without water we can't be alive. (Exeter participant)

Many also mentioned valuing a reliable supply of water:

> You can get it out of a tap whenever you want. (Leeds participant)

Water as part of amenity and recreation was highly valued too, and the effect of water on emotional wellbeing was acknowledged by many groups, which this comment from a participant in Exeter typifies:

> Whenever we have leisure time we always seem to go somewhere where there is water. The water somehow draws people to it and is part of the beauty of the whole place. It's a special feeling.

> It's quite therapeutic to have a bit of wilderness especially in a town centre like Worcester. If you've got a spare half hour you can nip out and have a walk by the river, it's very calming.

When asked to consider the benefits identified by the Environment Agency, active leisure was one of the three least prioritised benefits ('It would be quite selfish to presume that our leisure was more important than wildlife') along with transport and commercial fishing . Most often prioritised was 'maintaining the cycle of life on which we depend' ('No water no life – that hits the nail on the head!') alongside 'drinking, washing, cooking, cleaning'.

A group discussion in Exeter was typical, where some benefits such as waste disposal, farming and household water were considered urgent:

> Without them society can't work really, if we couldn't drink and cook we would die and we wouldn't have anything to pass on to anyone.

Other benefits were considered to be less urgent but still important. These included 'passing on the environment to our children' and 'reducing the impacts of floods and droughts'.

At all workshops people were quick to pick up on the inter-relatedness of the benefits and there was some frustration about trying to separate the benefits from each other:

> It's all part of a big system really, if you took any one of them out it would affect the others. We need to work out which would create least ripple effect. (Brighton participant)

There was little regional variation in people's consideration of the various benefits identified by the Environment Agency, although the group in Worcester were more focused on the role of water in terms of physical and emotional well-being:

> I think it's interesting that as a nation we value Britain as a 'green and pleasant land' with rivers and streams and caring about the countryside, but there's a mismatch between that and what we have been talking about today [i.e. all the Significant Water Management Issues]. (Worcester participant)

A number of groups commented that they could foresee cost savings as a potentially significant benefit of a better managed water environment, bearing in mind that results of poor management will often be resource intensive to put right, or have a socio-economic cost in themselves.

Participants felt it would be helpful to communicate some of these implications of not having a healthy water environment, as a way of incentivising people to act individually and collectively to consider behaviour and choices which look after it.

Further details of the discussions about the value of water and the benefits of a well managed water environment can be found in the individual workshop reports in Appendix 3. The quantitative survey also asked people to consider 'the most important reasons for protecting England's water environment'. Results are detailed in Section 6 and Appendix 7 but the headline results contrast with the discussions during the public dialogue workshops in some respects. Water for household use was only identified by 33% of respondents as one of their three top reasons, with wildlife the top stated reason, mentioned by 66% of respondents. Similarly to the discussions of the public dialogue participants commercial fishing (7%) and transport 6%) were low down the list of priorities.

Discussions at the reconvened workshop suggested that economic factors were prevalent in decision making about management options. Wildlife and bathing water quality were considered important factors because of their impact on tourism and the knock on effect on employment and the local economy rather than their intrinsic value.

4. Prioritisation of the Significant Water Management Issues considered by participants

In the workshops, after the discussions about values and benefits, the seven 'challenges' were introduced[4]. A two side briefing on each issue was included in a booklet given to participants. They were given time to read the booklet, and had the chance to ask Environment Agency staff for points of clarification. Participants looked at the booklet alone, or went through it in small groups or pairs according to what they felt comfortable with.

Each topic was then discussed in turn, with different start points for different groups to ensure that there wasn't one topic always left until last and therefore possibly attracting less discussion/ significance. The individual workshop reports in Appendix 3 give additional information.

Phosphates and nitrates

Headlines

- Surprise that a finite resource like phosphorus is needed/used to clean water, and the apparent lack of substitutes.
- Acknowledgment of difficulty of decision-making for farmers in relation to commercial and environmental factors.
- General indication of willingness to pay more for food if it could be produced (and shown to be produced) in a way that is less damaging to the water environment.

Some discussion points

In relation to phosphates there was quite a lot of discussion around why products were available to consumers which contained phosphates: 'Why aren't more brands of environmentally safe products available?', 'There is a moral issue here; having sparkling glasses is a bit absurd if it is wrecking the environment'. Some people felt that there should be some charge to manufacturers if their products had a higher environmental impact and that this might lessen the price differential between these and more environmentally friendly products, leading to more people choosing the latter. There was a discussion at one workshop about perceived priorities: 'People are putting the economy above the environment. What's the point of having an economy if we don't have a planet? It's embarrassing!' One person said 'You don't have to be vegan to buy the right washing powder!'

In relation to nitrates there was an explanation of the role of nitrates in farming and the fact it helped to keep food costs lower than otherwise. There were a lot of questions – 'Shouldn't the cost be borne by the people who put it on the land?' 'Are the farmers completely aware of

4. There were nine topics at the first workshop in Brighton but it was felt too many so FIOs were combined with sanitary pollutants, and phosphates and nitrates were also combined to create seven topics for the subsequent six workshops (hence the separate graphs).

the damage they're doing?' Some people said that they would rather pay more for their food to take account of the higher cost of production without nitrates etc than have to pay via a water bill to deal with more pollution.

There was agreement at one workshop when someone said that there should be 'governing bodies watching the situation and monitoring what should be done.' Some people felt initiatives such as entry and higher level stewardship schemes were a good idea. There was a question over whether water companies were taking enough responsibility in this area.

Faecal indicator organisms and sanitary pollutants

Headline

- Participants were often surprised (and concerned) that what seems like a very basic issue has not yet been 'solved'.

Some discussion points

At each workshop there was clarification from Environment Agency staff regarding the various sources and discussion at several workshops focused on who should be responsible. Some people felt that it should be the water companies as they are paid to treat it, and others that it should be whoever produces it: 'We pay the water companies to take care of it and if they're not doing a good enough job they should be.' 'they're charging us for sewage treatment – they should make sure the systems work properly.' 'We want the toilets to flush it down, so we should pay for it.' In relation to the issues with misconnected sewers, more controls and inspections to enforce the existing regulations were felt to be key.

Participants at one workshop indicated surprise that fencing off a buffer from fields to stop slurry going into streams wasn't compulsory (they thought it should be) and that over half of England's shellfish and bathing waters are in the South West.

At another workshop there was interest in the fact that the planning and building control system would only be able to prevent misconnections in larger developments or extensions. As with other topics participants expressed their lack of knowledge and wish for more information.

Physical modifications

Headlines

- Low level of awareness of what this was about.
- Participants said they were more likely to contemplate the removal of historically significant modifications if it was beneficial to the water environment than before they had understood the implications.
- Feeling that developers should pay when physical modifications to a river were required in relation to new developments.

Some discussion points

Initially participants at the workshops were quite confused by this issue but after explanations from Environment Agency staff they felt more able to see the relevance. However there was some scepticism about the capacity for things to be different. After an explanation about

physical modification in the form of flood defences, road building, culverts, embankments and flow reduction in relation to commercial developments a person at one workshop commented 'Surely all that stuff had to be done so there isn't much we can do about it.' People felt that the costs should be borne by the people who benefited e.g. developer should pay in relation to physical modifications and/or the environmental costs of them in relation to new commercial or domestic developments. A preference for rivers to 'go back to a more natural state' was expressed, and the fact that this should be possible even in areas such as the Thames.

Sediment

Headlines

- Low levels of awareness, much better understanding after explanations.
- Appreciation of problems of different types of sediment ending up in different areas.
- Concerns about increasingly built up nature of urban areas in terms of hard paving.

Some discussion points

Participants were interested to find out how much harm the sediment causes and that it is 'still a problem even though this is the 21st century'. They were also interested in and concerned about the fact that unforeseen consequences could arise with sediment when it is taken from somewhere and arrives somewhere else.

Abstraction and flow

Headlines

- Potential for conflict between commercial use of water and environmental needs were commented on.
- LOTS of discussion about water use in the home and what could be done to save water.
- Broad consensus that water meters would result in households using less water.
- Concern about household usage in relation to industrial usage i.e. is it worth changing things at a household level?

Some discussion points

Concerns about the effects of population growth were the focus for the discussion about abstraction and flow in some workshops. 'I think that's a really difficult issue because it's got to happen hasn't it? There are more of us on this planet, we're going to use more of it, it's a problem.' It was an area where participants focused on individual behaviour in terms of water use: 'It's about all of us. If we are abstracting too much even for drinking water then we should be more careful with it at home.' Awareness came out as a critical factor again, with several people acknowledging that this was a hidden problem: 'I've always thought about problems like pollution, but never thought about if you take the water out then won't be enough. I'm shocked that I never thought about that before.'

Chemicals

Headlines

- A lot of discussion about consumer choice including the rights and wrongs of choice and possibilities of more regulation – interest in labelling scheme.

- Recognition of price barrier for many people when making choices about household goods, but discussion about 'polluter pays' and the possibility of narrowing the gap in price by taxing more damaging ingredients.

Some discussion points

There was a lot of discussion about the role of industry and consumer behaviour: 'If you leave it to business they will only do what is most profitable', 'It is worrying that we mindlessly put these products down the drain.' There was an appetite for introducing higher charges or taxes for the use of relevant chemicals/products, both to 'make them less attractive and encourage people and companies to use better alternatives' and it was suggested that a system could be put in place 'for manufacturers that are using these chemicals, that they offset by paying for other environmental solutions – like chemical offsetting.'

Point source and diffuse pollution were explained as part of the discussion in most workshops. Participants commented on the irony about 'clean' chemicals such as washing up liquid potentially causing pollution problems. One said: 'We're just not sure what is 'good' and what is 'bad': how bad is a 'bad' product for the environment, and how do these compare to the other products on the market? We need a labelling scheme that calibrates damage to the environment, perhaps a 0–5 scale.'

The tension between the necessity of the chemicals and their harmful effects was acknowledged: 'It's a Catch 22 – they're essential, but they cause all these problems. It seems like an immovable force.' It was suggested that the Government could introduce grants to pay for removal of lead pipes so that the level of chemicals added to water supplies to prevent absorption of lead could be reduced.

Invasive species

Headlines

- Participants seemed unconvinced about doing anything in relation to invasive species on an individual level, though it was an area where community action through volunteering was felt would have a chance of success if done in the right way.
- Low levels of awareness despite efforts via garden centres etc.

Some discussion points

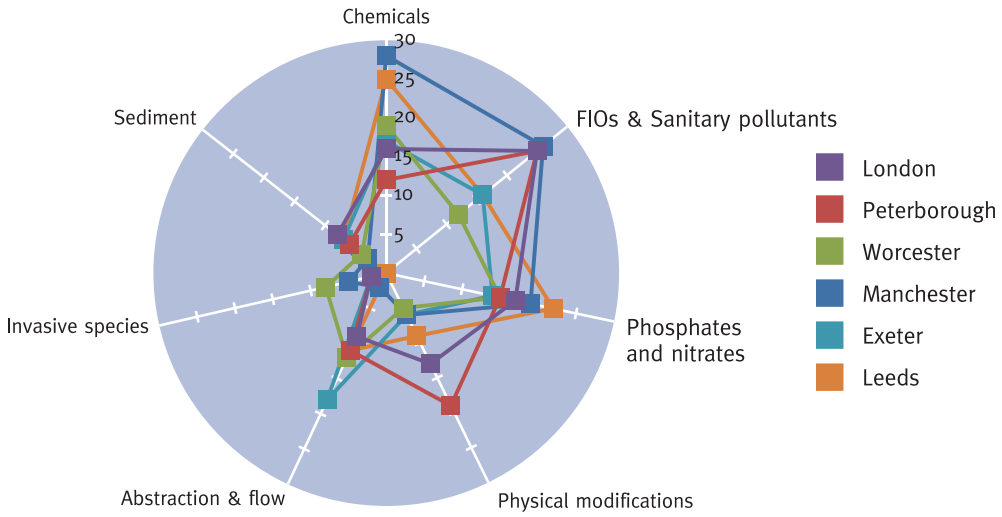
The discussion about invasive species again raised a lack of awareness about the extent of the problem, and the way the problem has developed. 'I was quite surprised about what you can get at the garden centre – I would have assumed everything there would have been checked.' Overall despite explanations about campaigns such as 'be plantwise', participants seemed to think they didn't have much power to influence in this area. A number of comments illustrated this: 'I feel a bit helpless about it; it's hard to know what to do.' 'Are we going to do anything about it? We haven't fixed red and grey squirrels, elm trees and all those things...' and 'It's a scientific problem, it's up to DJ [Environment Agency representative] and his crowd to do something about it'.

However quite a lot of people had a positive response to the idea of community volunteering to help to clear invasive species from public spaces e.g. river banks. 'I would go and do it if you can tell the job centre to get off my back and go away', 'There must be hundreds of students who are

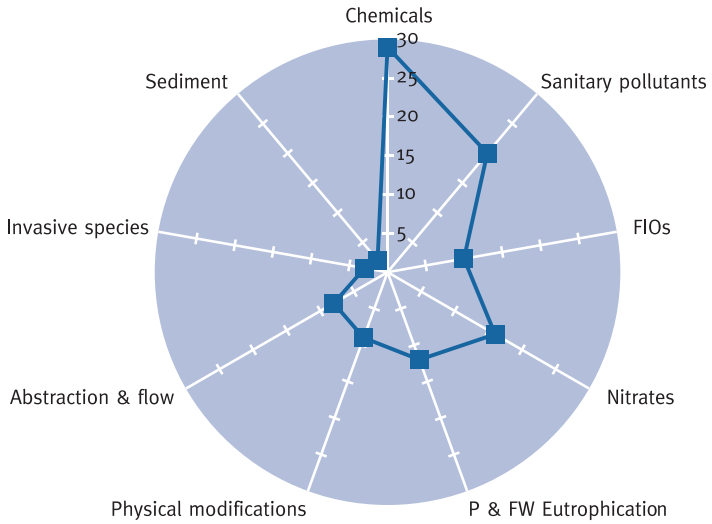
fit and able', 'I think it's a brilliant idea. It used to be done a lot in the early years – keeping your village or community nice'. There was an acknowledgement that not everyone would have the time or inclination to help but the general reaction was favourable. This is borne out by the findings of the quantitative survey in Section 6.

After discussion in groups about all of the 'challenges', participants were each given five dots to place where they liked against the seven challenges according to how urgent and significant they thought they were. As a 'weighting' exercise participants were asked to place as many as they liked on one or more challenges – for example, they could place all of their dots on one item if they felt it was of over-riding importance, or they could spread their dots over different items as they wished. It was stressed that this was not 'voting'(since all the challenges have to be met) but a way of us getting an indication of where their priorities lay.

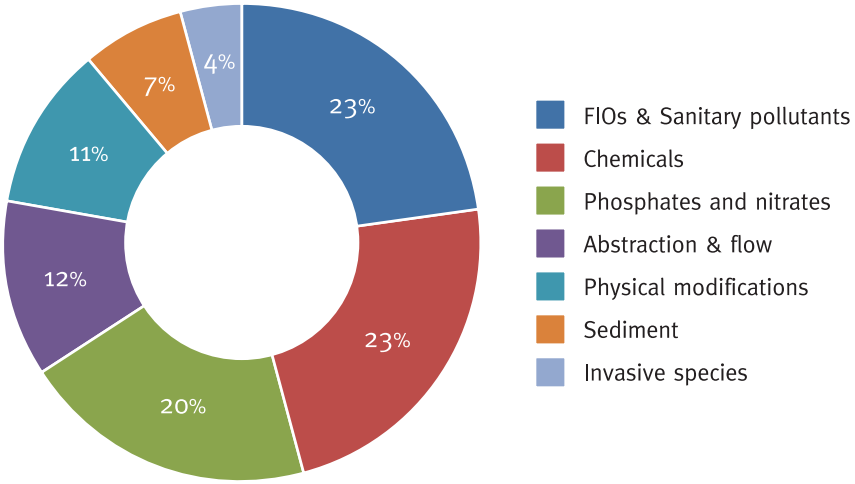
Weighting given to challenges in different districts



Results given in Brighton workshop where nine challenges were considered



Overall relative weighting of each challenge



There is a clear indication that chemicals and faecal indicator organisms and sanitary pollutants attracted the greatest 'weight', with phosphates and nitrates quite close. In each workshop, when the weighting was completed (all dots placed) the whole group discussed the results and had the opportunity to share their observations and response to the result. Commonly, participants recognised that they had given most weight to those challenges which seemed to them to have the most immediate impact on them:

> I think it's human nature – we worry about things which could directly harm us or our families.

Discussion also suggested that these issues may have represented those most easily understood by participants and certainly those most easily related to their everyday personal experience. Invasive species and sediment consistently lagged way behind. Spikes for abstraction and flow in Exeter and physical modifications in Peterborough may indicate a higher than average local awareness of these issues.

Participants were quick to recognise that they were making their judgements based on limited knowledge. However it is a useful indicator to give an idea of which issues have greater immediate impact and where the Environment Agency or other bodies might have more influence on individual or household behaviour.

Language is also a very important factor. Given the amount of discussion about water usage, water saving measures, water meters etc (page 13), and the value placed on the reliable availability of water (page 19), it could have been expected that abstraction and flow might have been more heavily prioritised. It would have been interesting to see what would have changed if it had been called 'water supply' or 'availability of water'. Consideration needs to be given to language and effective ways of communicating about issues where it would be helpful to encourage behaviour change on an individual or household level.

5. Lessons learned from the re-convened workshop

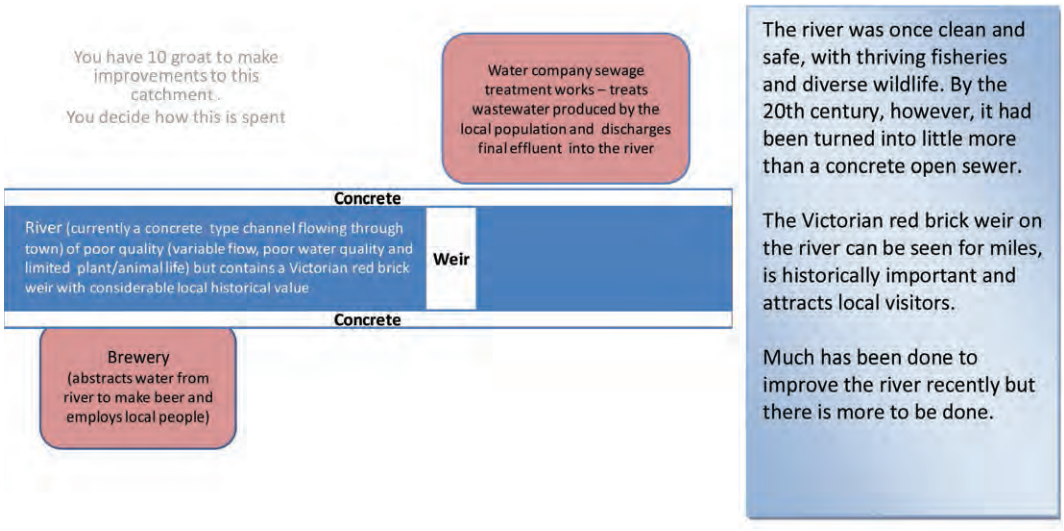
In the final eighth ('reconvened') workshop, participants considered some typical dilemmas that the Environment Agency faces in managing the SWMI challenges at a catchment level.

Participants at this workshop were selected from those who had attended one of the seven initial workshops and indicated that they were interested in taking part in a re-convened session. The purpose of the re-convened workshop was to enable people to build on their thinking and knowledge from the first workshop in order to deliberate further about:

- what they considered to be priorities in terms of issues/challenges
- the trade offs and complexities involved in decision-making
- possible measures to address different water management issues and their comparative costs
- what drives local and national priorities

As well as working in plenary, the group split in to two sub-groups to work (in parallel) with three simple, realistic scenarios in which challenges in a catchment could be addressed with improvements (measures), but with limited resources.

Scenario 1: Urban river catchment



You have 10 groat to make improvements to this catchment. You decide how this is spent.

Improvement 1 – reduce the amount of water the brewery to takes out of the river, this will increase flow in the river. But could lead to job losses and possibly more expensive beer.
Cost: 3 groat

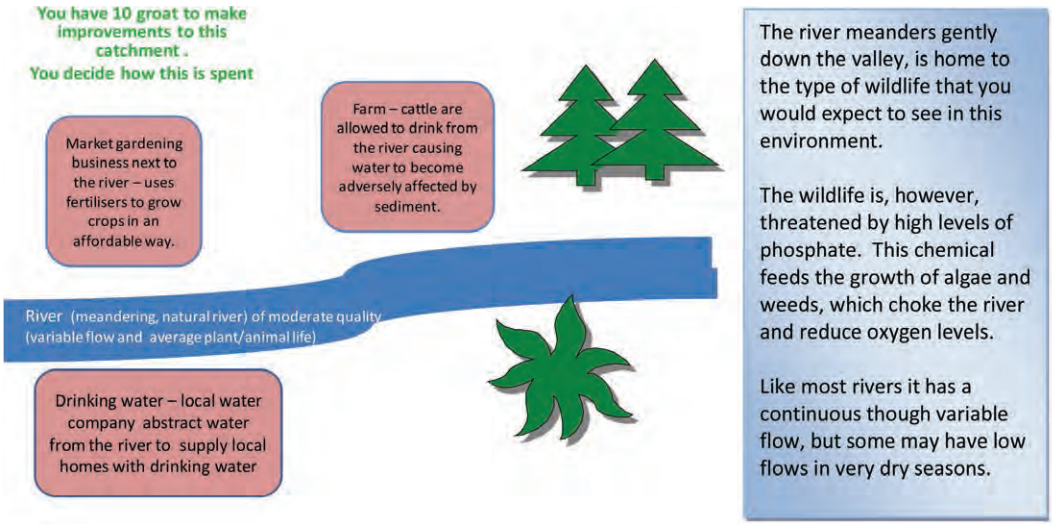
Improvement 3 – install a fish pass on the weir to facilitate movement of fish up and down the river providing a more natural water environment.
Cost: 4 groat

Improvement 2 – remove a small section of the concrete channel to allow more access to the river and to encourage plant and animal life back to the river edge.
Cost: 3 groat

Improvement 4 – remove the weir. This will improve the movement of aquatic wildlife up and down the river creating a more natural river environment but the historic weir will be lost.
Cost: 5 groat

Improvement 5 – insist (through regulation) that the water company clean the waste they are discharging into the river to a higher standard. This will mean higher water /sewerage bills for the local population.
Cost: 8 groat

Scenario 2: Rural catchment



You have 10 groat to make improvements to this catchment. You decide how this is spent.

Improvement 1 – reduce nutrient use through greater regulation and imposing different farming practices on the operator. This will improve the quality of the river as less harmful nutrients are entering the river. But is could also lead to more expensive food in local shops.
Cost of improvement: 3 groat

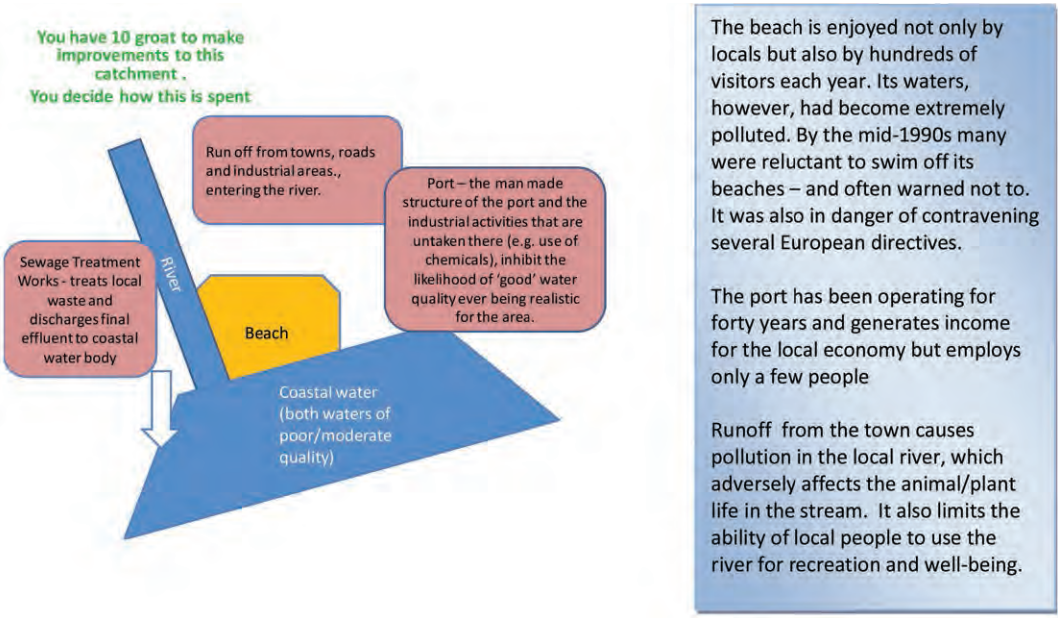
Improvement 3 –the local water company abstracts water from this river for drinking water supply but this causes the flow in the river to vary, especially in the summer. The solution is to reduce the amount of water abstracted and take additional water from a different location elsewhere in the river catchment.
Cost of improvement: 9 groat

Improvement 2 – fence parts of the river to stop cattle drinking directly from the river and provide drinking troughs for the cattle instead. This will prevent them polluting the river and reduce the amount of poaching /trampling caused. This could lead to higher milk/food prices and the fencing would spoil to the 'look' of a bit of the river.
Cost of improvement: 2 groat

Improvement 4 – build a new reservoir to provide supply to the area preventing water being abstracted from the river.
Cost of improvement: 10 groat

Improvement 5 – undertake some habitat work within the existing channels to create 'low flow channels' providing a refuge for fish and wildlife during peaks in abstraction .
Cost of improvement: 3 groat

Scenario 3: Coastal town & tourist catchment



You have 10 groat to make improvements to this catchment. You decide how this is spent.

Improvement 1 –The solution is to improve drainage systems and convert paved/concreted areas into 'green spaces' to intercept run off.
Cost of improvement: 4 groat

Improvement 3 – install sustainable urban drainage system (SUDS) on all new developments to manage the run off and pollution issues.
Cost of improvement: 4 groat

Improvement 2 – install a separate surface water drainage system to deal with the runoff and pollution issues. This will be expensive to install and local taxes will be increased to pay for it.
Cost of improvement: 10 groat

Improvement 4 – relocating the industrial port to a different site away from the town. This would create a more natural looking water environment and would, eventually, improve water quality. But jobs could be at risk and the cost of relocating would increase local taxes.
Cost of improvement: Between 10-20 groat depending on degree/speed of relocation

Improvement 5 - insist (through regulation) that the water company clean the waste they are discharging into the sea to a higher standard. This will mean higher water /sewerage bills for the local population.
Cost of improvement: 8 groat

A significant outcome of the scenario deliberations at the re-convened workshop was that the public who attended were struck by how difficult it is to make decisions when there are so many different factors which must be taken into consideration. One participant commented on the challenge for the Environment Agency:

> The complexity – trying to juggle the many issues while ensuring third parties such as water companies, other companies, traders, farmers and general public are not alienated. Tricky stuff!

A number of common messages came through when participants were considering the possible measures, but having to make difficult choices in response to the resource constraint in the three scenarios:

- Both groups were reasonably comfortable with contemplating necessary prices rises, whether bills or goods – to fund solutions – arguably consistent with views expressed in the initial workshops.
- The groups both seemed very averse to measures which involved any risk to jobs, perhaps reflecting the wider economic climate.
- The groups tended to favour long term rather than short term solutions (after debate).
- Both groups sought the greatest environmental impact at the least socio-economic cost.
- Were mindful of the need to make sure resources must be available for enforcement if reliable assumptions about the value of regulation were to be made (e.g. scenario 2, discussion about whether or not regulation should simply be enforced in order to address chemical pollution from farming).
- Decisions must be made on a good foundation of understanding of the problems, impacts, sources and solutions.

When looking across all three scenarios the groups were asked whether they would favour one or other of the areas for attention – for example the more urban area in order to maximise public awareness and make visible progress, or the higher parts of the catchment to minimise sources of problems having their effect further downstream. Generally, participants favoured spreading resource across the three areas, in recognition of the need for action everywhere, whilst understandably seeking the most benefit and impact for the resource they had to allocate.

The lasting impression from the workshop was that plenty of time was needed to make the difficult choices presented by the scenarios and particularly the process of building agreement in the groups about trade-offs and resource allocation. Arguably, this reflects the reality of catchment planning.

The full report of this workshop is included as Appendix 4.2

6. Omnibus survey

An omnibus survey was conducted on behalf of the Environment Agency to add context to, and aid interpretation of, the qualitative findings produced through the SWMI public dialogue being carried out by 3KQ and Ipsos MORI.

The questions were developed by the project team after the workshops, with support from Ipsos MORI. They were designed to follow up particular issues considered to be of relevance in the light of the dialogue process.

The survey was carried out on Ipsos MORI's i:Omnibus vehicle between 31st January and 4th February 2014. 867 panellists from Ipsos MORI's Online Access Panel were interviewed; all respondents were aged from 16 to 75 and from England. The questionnaire used is contained in Appendix 6. The detailed breakdown of the questionnaire analysis is shown in Appendix 7. Appendix 8 provides a guide to interpreting the findings, including information on sampling tolerances, statistical reliability and weighting. This section offers a summary of findings of the Omnibus survey.

Some initial general questions were designed to provide context to other findings such as asking respondents how often they visited the water environment, and asking how they felt about the current quality of the water environment in England. The survey found that almost seven in ten people (69%) visit England's water environment at least a few times a year. Just over one in ten (11%) said they never visited England's water environment. Of those who have visited England's water environment, over four in ten (46%) people consider the quality of water environments across England to be about right. Only a few (3%) think the quality is better than is really necessary. Around three in ten (31%) feel that the quality of water environments across England is worse than is should be.

Subsequent questions related more specifically to issues discussed in the public dialogue workshops such as the most important reasons for protecting the environment, concerns about risk of water quality and the cost of protecting the environment. Some differences were highlighted in relation to opinions about the most important reasons for protecting the water environment. In the dialogue workshops participants were most conscious about protecting the quality of water for everyday household use, whereas respondents to the survey highlighted 'for wildlife' as being the overall most important reason. Concerns about pollution, from businesses including farms and from homes were highlighted by both groups, with less concern about the impact of invasive species from both dialogue participants and omnibus respondents.

As highlighted in earlier sections of the report, participants in the dialogue workshops discussed the fact that they would be more likely to take action to protect the water environment if they were made aware of things they could do to effect change or mitigate against negative impact. The omnibus survey allowed the opportunity to explore this with a larger sample of the general public in England, and two questions were included about willingness to consider household

measures to protect the quality of the water environment, and opinion on the effectiveness of these measures. Seven measures were identified for consideration. Respondents were asked which of the measures they were already undertaking and which they would or would not consider in future. The number of respondents already carrying out each of the seven measures ranged between 3% (volunteering to take part in restoring natural habitats) to 42% (using a lot less water at home and in the garden). Many public dialogue participants were keen to take up measures to reduce their impact on the water environment. Survey respondents also expressed a positive interest, with those saying they would might or definitely do each of the seven measures ranging from nearly one in two (46% – for making sure pipes are correctly connected in their home) to nearly two thirds (65% – for purchasing products that do not contain certain chemicals).

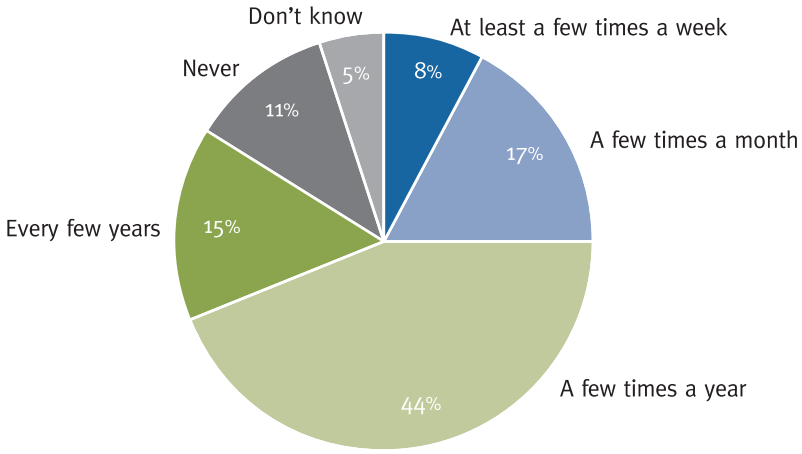
Prior to the final question in the survey it was explained to respondents that it will not be possible to protect the water quality in all the water environments across England to the highest level. Respondents were told that difficult decisions would have to be made about where to protect and to what level of quality. Respondents were given a number of principles on which this decision could be based and were asked to select the one they most agreed with. One third (33%) said their preferred option was to give 'the same level of protection to all water environments, even if this means each water environment can only be protected to a certain level'. This mirrored the discussions of participants in the reconvened dialogue workshop, who felt that they wanted to spread their allocated 'groats' across the three scenarios presented to them, rather than focusing more resources on any one particular area. Just under one in five (19%) survey respondents felt that protection 'should focus on the lowest quality water environments to bring them up to a moderate standard', while slightly over one in ten (13%) said that it 'should focus on the highest quality water environments to maintain them for the future'. Around one in ten (9%) felt 'protection should focus on the moderate quality water environments to bring them up to the highest standards'. Fewer than one in ten selected other means of prioritising protection, for instance by focusing on the most economically valuable (5%) or those most commonly visited (3%).

During the dialogue some participants expressed the view that having learned more about the issues from taking part in the workshop they were more inclined to support the need for resources to address the issues discussed. The omnibus survey showed that even amongst those who had not participated in the dialogue, a great majority consider protecting the environment to be important. Over eight in ten (84%) consider protecting the environment to be important, compared to just seven per cent who consider it either not very important or not at all important.

However, the survey responses show that difference of opinion lies in how much action should be taken. Over five in ten (54%) feel that protecting the environment is important so action needs to continue being taken 'as long as it is not too costly', whereas three in ten (30%) consider action should continue 'regardless of cost'. Very few (2%) think that protecting the environment is not at all important so we should not continue to spend money on it.

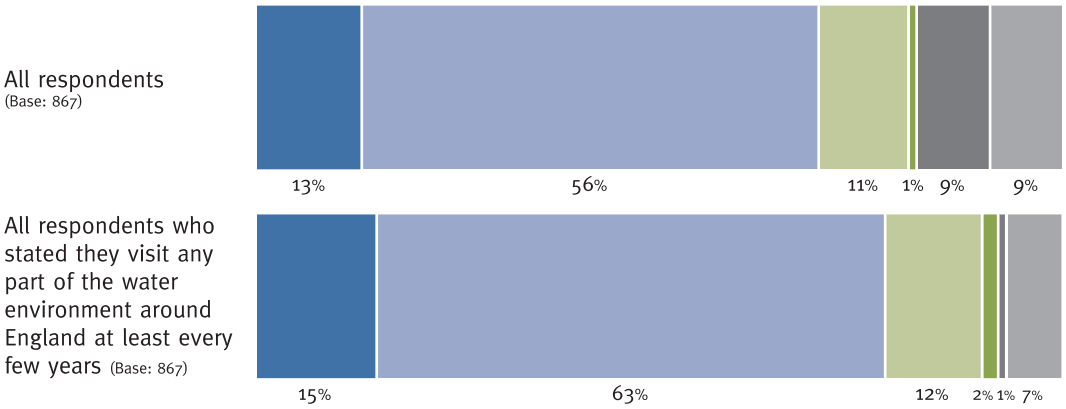
Each question and the headline results, in chart form, can be seen below.

How often people visit the water environment



Q. How often, if at all, do you visit any part of the water environment around England? This might be to go fishing, boating or swimming, to take part in a water sport or simply to go walking along a river, canal, around a lake or on a coastal path.

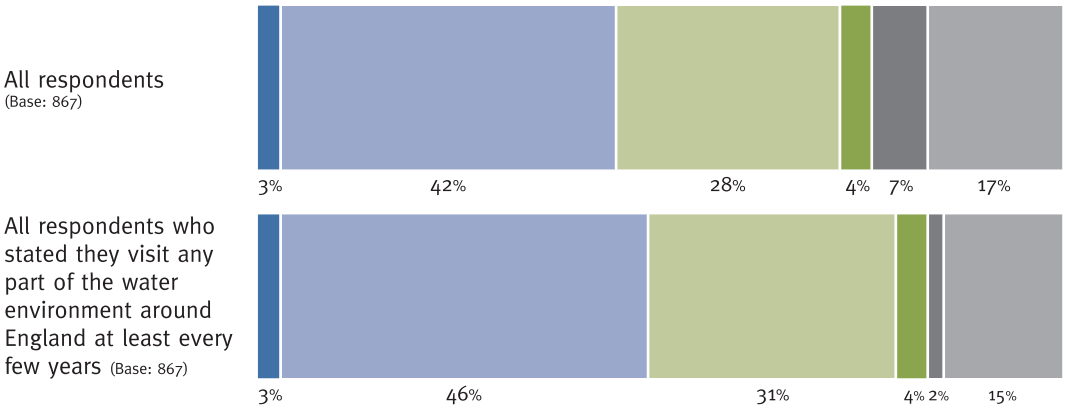
Absolute quality rating of the water environment



Q. Overall, how would you rate the quality of England's water environment? When answering, please think about the water environments you have visited.

- Very good
- Fairly good
- Fairly poor
- Very poor
- Not applicable: I have never visited any water environment in England
- Don't know / can't remember

Relative quality rating of the water environment

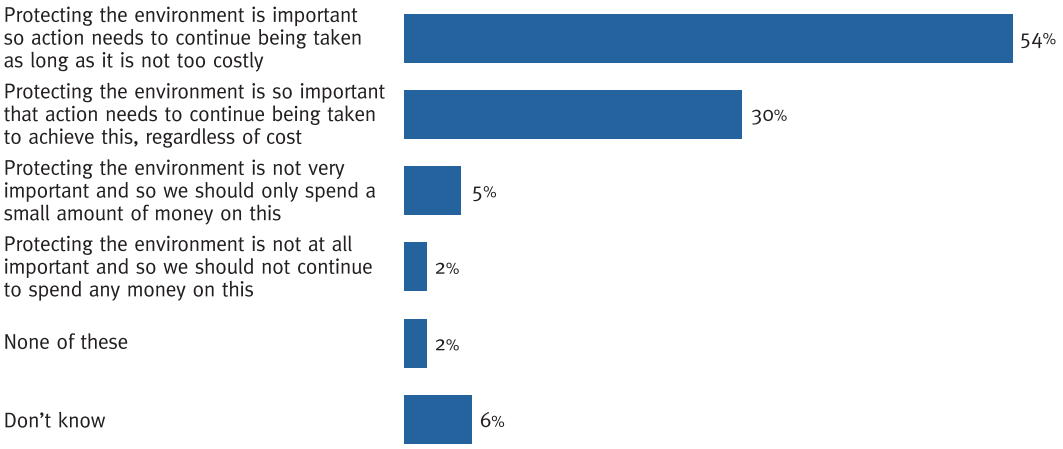


Q. Which, if any, of the following best describes how you feel about the quality of the water environments across England?

- The quality of water environments across England is better than is really necessary
- The quality of water environments across England is about right
- The quality of water environments across England is worse than it should be
- None of these
- Not applicable: I have never visited any water environment in England
- Don't know

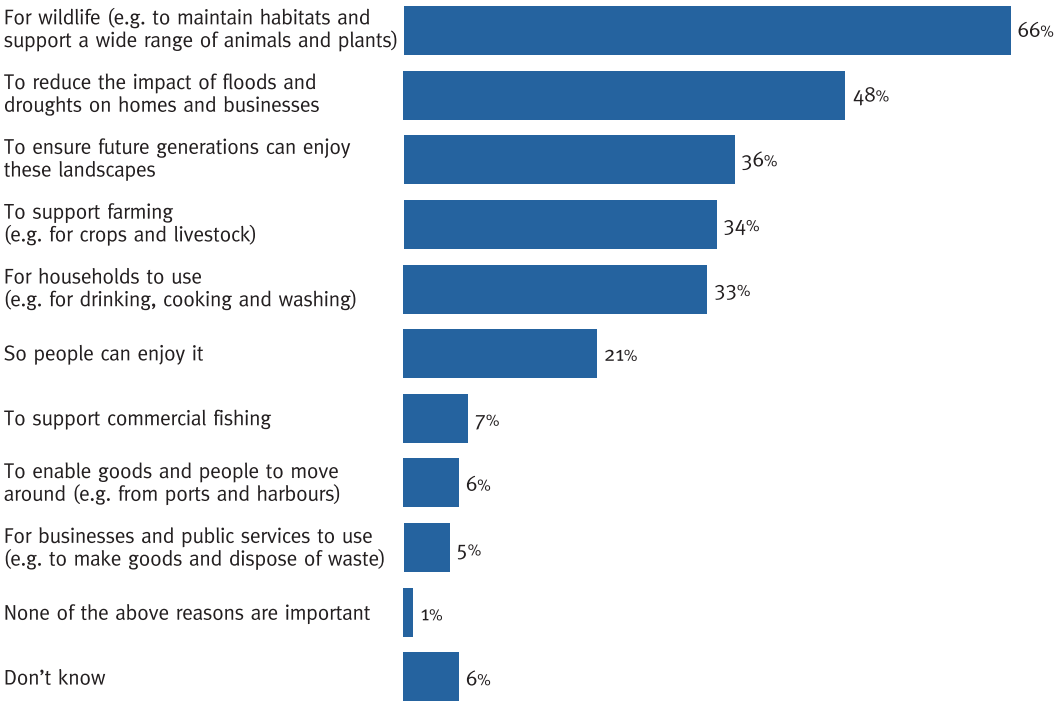
All graphs in Section 6 – Base: All respondents (867 unweighted base size) - Adults aged 16 to 75 in England from Ipsos MORI's Online Access Panel. Results have been weighted to reflect a nationally representative profile of Adults aged 16 to 75 in England. Source: Ipsos MORI / Environment Agency

Attitudes to cost and protecting the environment



Q. Please read the list of statements below. Which, if any, best describes how you feel about protecting the environment?

Most important reasons for protecting the environment



Q. Which, if any, of the following do you think are the most important reasons for protecting England's water environment? You can select up to three reasons.

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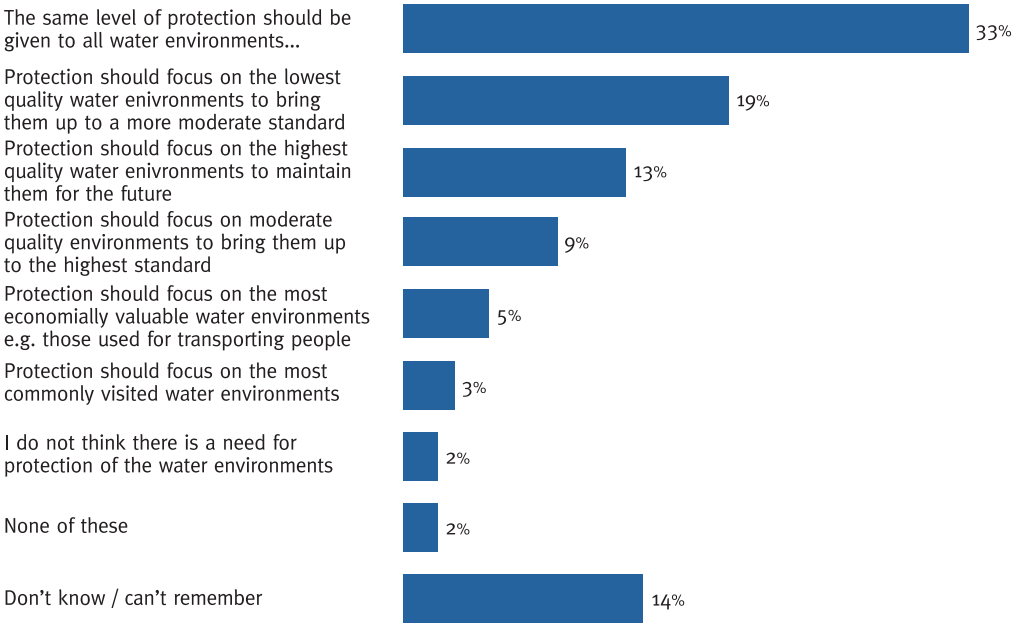
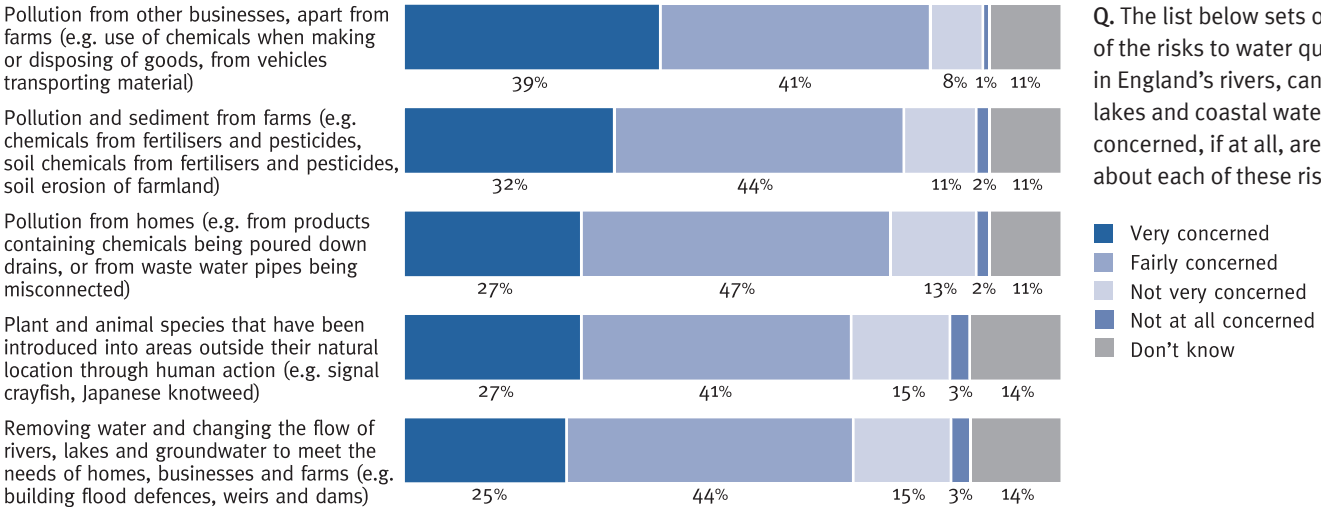
View about levels of protection for different water environments



Q. It will not be possible to protect the water quality in all the water environments across England to the highest level. Therefore difficult decisions have to be made about where to protect and to what level of quality. Which, if any, of the following best describes the principle on which you think we should decide which water environments to protect?

Concern about risks to water quality in England's rivers, canals, lakes and coastal waters



Q. The list below sets out some of the risks to water quality in England's rivers, canals, lakes and coastal waters. How concerned, if at all, are you about each of these risks?

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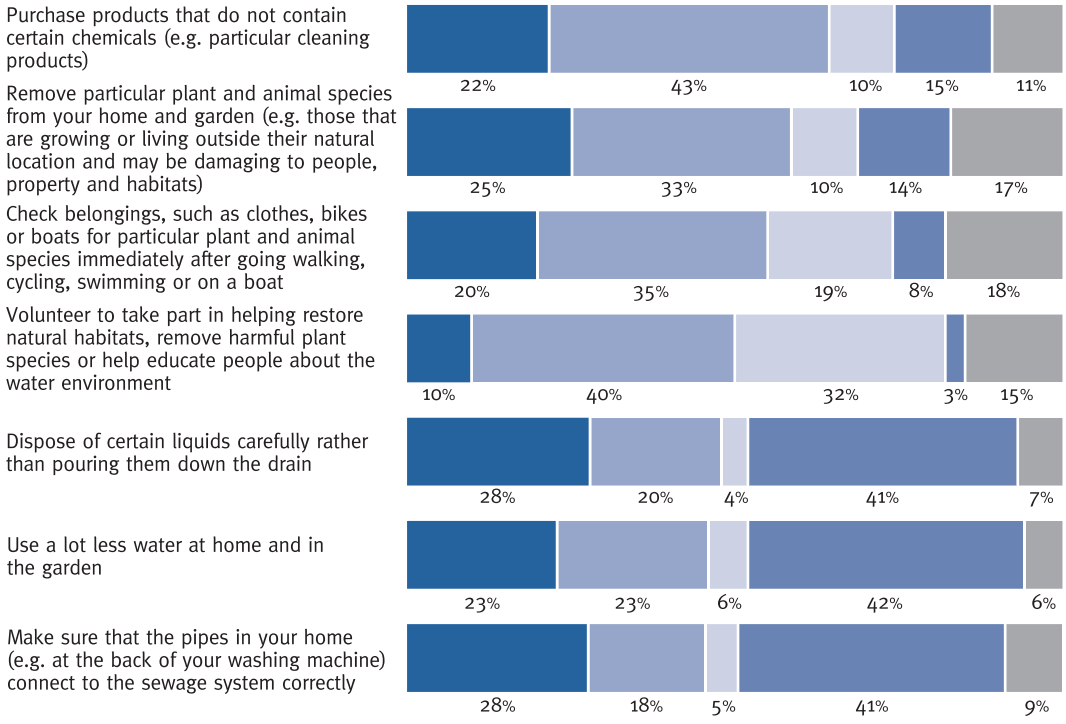
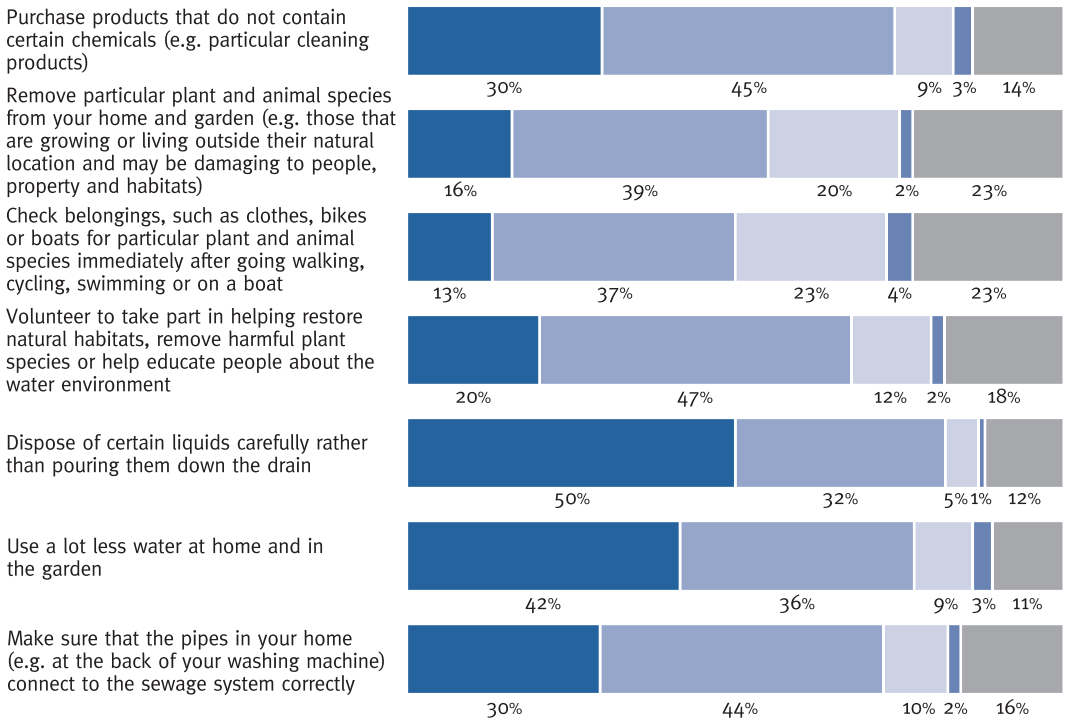
Willingness to consider household measures to protect the quality of the water environment



Q. There are some things that individual households can do to help protect the quality of water environments across England. To what extent, if at all, would you personally consider doing each of the following things in order to help protect England's water environments?

- I would definitely consider doing this
- I might consider doing this
- I would not consider doing this
- I do this already
- Don't know

Opinion on effectiveness of various measures to protect the water environment

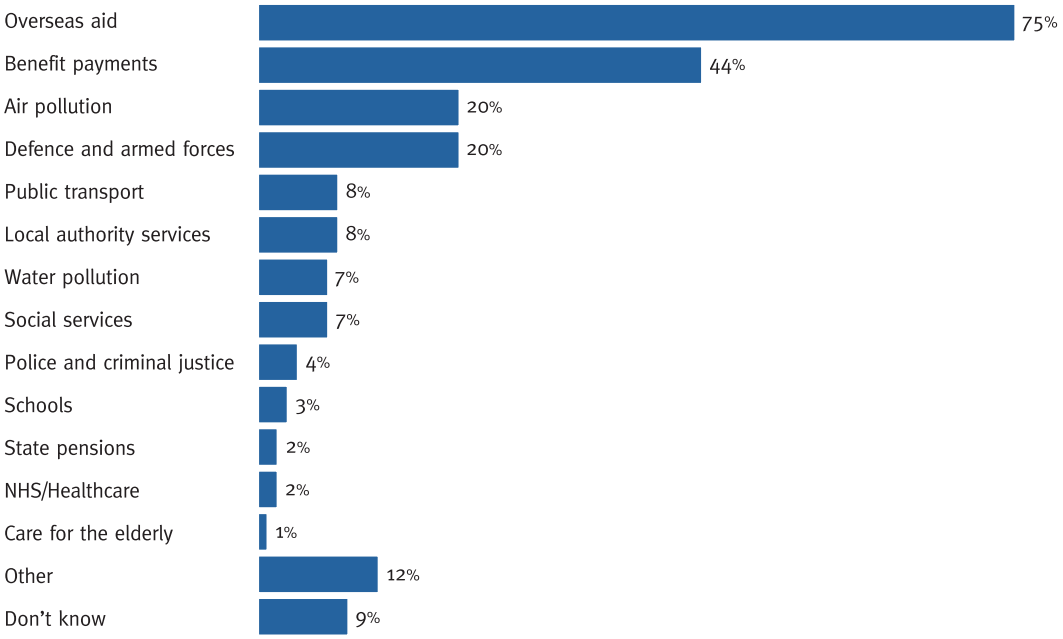


Q. How effective, if at all, do you think each of these actions would be for helping to protect England's water environments?

- Very effective
- Fairly effective
- Not very effective
- Not at all effective
- Don't know

All graphs in Section 6 – Base: All respondents (867 unweighted base size) - Adults aged 16 to 75 in England from Ipsos MORI's Online Access Panel. Results have been weighted to reflect a nationally representative profile of Adults aged 16 to 75 in England. Source: Ipsos MORI / Environment Agency

Views about which sectors respondents think public spending cuts should come from



Q. As you may know, the government is reducing the overall level of public spending as part of the process of reducing borrowing. Which two or three, if any, of the following areas do you think the UK Government should cut the most money from?

All graphs in Section 6 – Base: All respondents (867 unweighted base size) - Adults aged 16 to 75 in England from Ipsos MORI's Online Access Panel. Results have been weighted to reflect a nationally representative profile of Adults aged 16 to 75 in England. Source: Ipsos MORI / Environment Agency

Appendices

Appendix 1

Project reference group members

SWMI Dialogue Reference Group

- Angling Trust
  Mark Owen

- Association of Drainage Authorities (ADA)
  Time Vickers

- Consumer Council for Water
  Jill Thomas

- Defra
  Helen Ainsworth

- Highways Agency
  Michael Whitehead

- Natural England
  Glen Cooper

- Thames Estuary Partnership
  Amy Pryor

Appendix 2

Workshop plan and stimulus materials

2.1 Outline facilitation plan
2.2 Abstraction & Flow
2.3 Chemicals
2.4 Faecal and Sanitary Pollution
2.5 Invasive species
2.6 Phosphates & Nitrates
2.7 Sediment
2.8 Physical modifications
2.9(a) Benefits
2.9(b) Water cycle illustrations

Significant Water Management Issues Public Dialogue
Summary Workshop Plan

Objective for the workshop: To identify public views of the priority issues around strategic water management on a national level
To this end, to find out:

- What do people prioritise as issues?
- How do the public value benefits around water, and what are the tradeoffs and complexities?
- What measures do the public think should be taken to manage water issues, who should take these measures?
- How do the public want to pay for water management? What are the tradeoffs?
- What are their different priorities locally and nationally, and what drives these?

Session	Purpose	Key Questions
1000 One	Warm up, educate about the day, ground rules, permissions etc. Gather spontaneous views of issues relevant to local and national level.	KQ1 Think of an (outside) place that is special to you…"(allow a minute max.) Then - how many identified a place that included water? KQ2 "What do you think are the key issues facing the water environment?"
Two	Understanding perceptions of valuing water and trading off the benefits of managing water environment. Introduce pressures (challenges). • *Phosphorous and Nitrates* • *Faecal Indicator Organisms and Sanitary pollutants* • *Fine sediments* • *Chemicals* • *Invasive non native species* • *Abstraction and flow* • Physical modifications	KQ3 "What do you most value personally about our rivers, coasts, reservoirs, canals and other parts of the water environment?" KQ4 "Why do you value these aspects?" KQ5 "What are the different benefits we get from successfully managing the water environment?" (unprompted) KQ6 "Do you agree that these are benefits we get?" (sharing EA identified benefits) KQ7 "Which of these benefits do you think is most important? Why?" KQ8 "Which of these benefits do you think is the least important? Why?" KQ9 "What challenges, if any, do you think our water environment faces at the moment?" (unprompted) KQ10 "Where do you think these challenges come from?" KQ11 "What challenges do you think will change or affect the quality of our water environment and the way we manage it in future?"
Lunch		

Session	Purpose	Key Questions
Three	Learning about the pressures (challenges) and identifying what could be done about the dilemmas relating to each.	*Work through Challenges, one by one, in groups* KQ12 “Any surprises with this challenge? “Any questions?” KQ13 “Who should be responsible for any actions to address this challenge?” “Which of the listed? (Industry/Water Co’s/ Govt/Individuals) *Back to Plenary - comparing and weighting all the challenges. Participants asked to weight list of challenges, then discussion in plenary* KQ14 What do you think about the result? KQ15 Why did your dots go where they went?
Four	Comparing with other issues. Looking at costs & willingness to pay or act.	*Working in small groups* KQ16 How do these *(SWMI)* challenges compare in importance with other problems the country faces? KQ17 What are the fairest ways to pay? *(for action to address the challenges generally)* KQ 18 What would make you (a) more or (b) less likely to make lifestyle changes which would help address the challenges?
Way Forward	Thanks Evaluation questionnaires Next steps incl: sources of information, how to get involved further, workshop reports, reconvened workshop Final thanks and goodbye	
Close 1600		

Abstraction and Flow Problems

What is the issue?

- Abstraction **is the permanent or temporary removal of water** from a river, lake, reservoir, canal, estuary or groundwater. Some people and businesses are permitted to abstract water.
- Abstraction changes the natural flow pattern and the amount of water in the environment. This reduces the amount of habitat, prevents natural movement of species and concentrates pollution in the water environment.
- Moreover, abstraction from the ground can cause environmental problems by reducing flows to lakes, rivers and wetlands.
- **Abstracted water is used by everyone** in their day to day lives; for drinking water, cleaning, to irrigate crops, support industry, produce food, generate power, use in households and many other goods and services.

What locations are affected?

- Low flows caused by abstraction can be a problem anywhere in England, but particularly in the East and South East of England.

Why should this concern me?

► **The implications of reduced flows**

- Reduced flows can lead to changes to and the loss of habitat for aquatic animals, plants and insects. For example, more fish deaths during periods of droughts.
- Also, during low flow events, water use may have to be constrained - affecting households, industry and agriculture.

► **The effects of reduced groundwater**

- Resources of stored groundwater can become depleted.
- Dependent river and wetland habitats may be damaged.
- Saltwater can intrude, reducing the quality of water available for abstraction.
- The cost of abstracting and purifying water may increase.

What are the future challenges and concerns?

► **Population growth will mean more demand for abstraction of water**

- More people means greater water demand for producing food, making goods etc.

► **The availability of water will alter due to climate change**

- Due to changing rainfall patterns, water availability will become more variable during the year and by location.

What can be done about this issue?

Those who abstract water may need to address the way they do so:

- Water companies need to manage abstraction in tune with the environment whilst meeting our drinking water needs.
- Farmers and others may need to change how they store and use water.
- Industry and the public need to use water wisely.
- National and local government will need to ensure that water demand and supply is considered in their decisions about town and country planning.

This could happen by:

► **Reviewing licences given to abstract water to reflect environmental goals**

► **Sharing water better**

- Water could be shared between similar abstractors – for instance, groups of nearby farmers could invest in a reservoir to store water.
- Increasing storage during winter to offset needs in summer months.
- A market for buying and selling water could enable water to be used by those who need it at the times they need it.

► **Reducing water demand**

- Helping and providing incentives to abstractors to use water more efficiently.
- Encouraging water companies to reduce leakage and reduce consumer demand through metering and water saving initiatives.
- Encouraging more water efficient homes and businesses.

► **Changing land use and channel design**

- Restoring wetlands and using different farming and land management practices to change the way water is stored and moved around the landscape to improve water availability and quality.
- Reshaping river channels to deal with lower flows

Chemicals

What is the issue?

- **Chemicals are contained in many products that we all use** – such as paint, batteries, detergents, textiles, plastics and pesticides.

- These chemicals enter the water environment through many different routes.
- Most chemicals that end up in the water environment come **from people's homes and industry** through sewage treatment works, others enter from runoff from fields and roads.

- Some chemicals are persistent and do not break down easily.
- These chemicals can build up over a long time in animals due to their widespread use over the last few decades. The chemicals build up particularly in predators, both locally (e.g. in otters) and those very far away (e.g. Arctic foxes).

What locations are affected?

- The impact of each chemical is different; some have an impact very near to where the chemicals enter the water environment, whilst others have an impact in the far distant seas and oceans.

Why should this concern me?

► **The quality and cost of drinking water**

- The more chemicals in our water, the more water companies have to treat it to make it safe to drink – which means we may pay more for our water.

► **Harms plants and animals**

- Toxic chemicals in the environment can impact on the health of different plant and animal species (even in the oceans).
- Toxic chemicals may kill more sensitive species and impact on human health too.

What are the future challenges and concerns?

► **Population growth and changes in how land is used**

- More people will produce more sewage, traffic pollution and potentially increase the use of chemicals in homes.

► **Changes in industry**

- Industrial and/or agricultural expansion will mean greater use of chemicals.
- Discharges from historic industry (e.g. abandoned mines containing metals), which flooding makes worse, impacts on nearby water bodies.

► **The implications of climate change**

- Higher temperatures and changes in rainfall patterns may mean rivers will be warmer and have lower flows, which will mean chemicals will be less diluted.
- Changing rainfall patterns can increase the extent of flooding and intensity of rainfall both of which mean more chemicals enter water bodies via runoff.

What can be done about this issue?

► **Control the sources of the chemicals**

- EU legislation to control uses of harmful and persistent chemicals is available.
- Public awareness campaigns to encourage people to buy products that contain fewer harmful and persistent chemicals.
- Have manufacturers voluntarily substitute dangerous chemicals for less dangerous ones in their products.

► **Control the routes of the chemicals**

- Fix incorrectly connected drains in people's homes to ensure that all sewage enters the correct sewer pipe.
- Capture and treat runoff from roads, cities and agriculture to remove chemicals.

► **Reduce the entry of chemicals into the water environment**

- Treatment of water at sewage treatment works and industrial sites to reduce chemicals entering water bodies.

Faecal and Sanitary Pollution

What is the issue?

- Water can be contaminated with faecal and sanitary pollution.
- **Faecal pollution** is from human and animal faecal matter. Coming into contact with water that is contaminated with faecal pollution can be **harmful to human and animal health**. This could happen through drinking untreated polluted water, consuming contaminated shellfish, bathing or surfing.

- **Sanitary pollution** is human, animal and vegetable waste.
  - When this waste breaks down it **reduces the amount of oxygen available to fish and aquatic animals** (which they need to breathe).
  - When sanitary pollution breaks down it also **produces ammonia which can be toxic to fish and aquatic animals**.

- The main way faecal and sanitary pollution gets into our water environment is through **water discharged from sewage treatment works**.
  - Other sources in urban areas are from overflowing sewers and appliances in homes not being connected to the correct sewer pipe.
  - In rural areas this waste also comes from farms and household septic tanks.

What locations are affected?

- Sanitary pollution is mainly an issue for rivers, whereas faecal pollution is widespread and can affect both surface and groundwater.
- Over half of England's shellfish and bathing waters are in the South West.

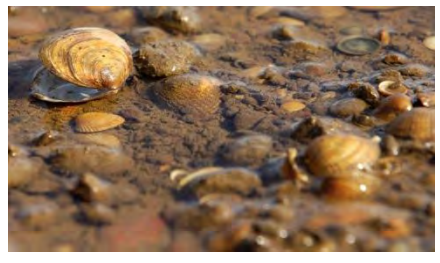
Why should this concern me?

► **People's and pets health may suffer from the faecal and sanitary pollution**

- For instance, people or pets becoming ill after swimming or playing in the sea.
- The loss of oxygen and production of ammonia by sanitary pollution harms (and can kill) fish and aquatic animals.

► **Local economies may suffer**

- Shellfish can become unfit to eat from faecal pollution, which impacts on the shellfish industry and the jobs that it provides.
- Fewer people may visit areas where water is polluted, which will impact on tourism and the local economy in these areas.



► **The costs from having to treat sewage to make water clean**

- It costs water companies more to treat sewage - a cost that can be passed on to people and businesses.

What are the future challenges and concerns?

► **Climate change could increase the impact of sanitary and faecal pollution**

- Climate change may mean more intense periods of rainfall – which we know is linked to sewer flooding and the leaking of slurry from farm stores.
- Therefore, climate change will mean more discharges from sewerage systems and more pollution from farms and urban areas washing into the water environment.
- These impacts will mean more faecal pollution in rivers and the sea - where people swim and shellfish grow.

► **Population growth will mean more sanitary and faecal pollution**

- Permits are used to control the discharge of sanitary and faecal pollution into the water environment. However, it may become more difficult and costly to control this as more people will mean more sanitary and faecal pollution.

What can be done about this issue?

Examples of what could be done to reduce faecal and sanitary pollution include:

► **Improving sewerage capacity further**

- We can reduce sewerage discharges further through modern engineering methods, better design standards and water company investment in new infrastructure.

► **By improving storage for slurry and dirty water on farms**

► **Measures to tackle other issues will reduce faecal and sanitary pollution**

- Addressing incorrectly connected drainage pipes in households will reduce faecal pollution from homes.
- For instance, measures to address sediment, phosphates, nitrates and chemical levels will address sanitary and faecal pollution.

Invasive Species

What is the issue?

- Invasive species are **species that have been introduced into areas outside their natural range**, through human actions. These are animals or plants that threaten to damage other species and habitats in a particular area. Invasive species can come to these areas both from other countries or from other parts of England.
- In England a number of species are a problem, such as Japanese knotweed, signal crayfish and Chinese mitten crabs.

- It is thought that invasive species cost England over one billion pounds per year in controlling their spread and repairing damage they cause.

- Many of the species have been established for a long time e.g. Japanese knotweed has been in England since 1886.
- However, the number of new invasive species is increasing - for example, killer shrimp are very recent.

What locations are affected?

- They appear in all types of water environments, in all areas of England.

Why should this concern me?

► **Invasive species can be a public health issue**

- For instance, the sap of giant hogweed causes blisters.

► **They can increase erosion of riverbanks and chances of flooding**

- Some invasive plants can die back in the winter, leaving riverbanks exposed to greater erosion.
- Some invasive animals burrow into riverbanks and can undermine flood defences. By burrowing and moving sediment downstream in rivers, habitats of native species (used for breeding for instance) can be destroyed.

► **They can have big impacts on other native wildlife**

- They can cause the local extinction of important species to conserve.

► **Reduce access to water bodies and leisure activities**

- Some plant species can end up blocking waterways for boats.
- Others alongside river banks can stop people using them for walking or angling.

What are the future challenges and concerns?

► **There are many ways that invasive species are introduced to England**

- The main routes for the introduction of invasive species into freshwater in England are the trade and cultivation of animal and plant species.
- The main route for saltwater species is through boats or ocean currents.

► **There are many ways that invasive species spread in England**

- As well as continual introduction from other countries, the main ways species spread are:
    - o Natural spread through water bodies.
    - o Human activities – such as gardening, moving boats and clothing contamination.

► **Climate change is likely to favour the spread of invasive species**

- As average temperatures rise, other species may migrate northwards from Europe.
- Current invasive species may also flourish in warmer temperatures, so may become even more of a problem if temperatures rise as a result of climate change.

What can be done about this issue?

- As it is extremely difficult and costly to eradicate established invasive species, it is better to prevent their introduction or eradicate them when they first arrive. Measures we can take include:

► **Contain and eradicate invasive populations as they are found**

- This could be done through organised public activities or the actions of other organisations.

► **Prevent the introduction and spread by raising public awareness of the issues and preventative measures.**

- For example, the national campaigns, “Check, Clean, Dry” and “Be Plantwise”.
- Limit the plant species sold at garden centres.

► **Develop new control methods to reduce the extent and impact of invasive species.** For example, using biological control agents.

Phosphates and Nitrates

What is the issue?

- Phosphates and nitrates are useful nutrients but when they become too concentrated in our water environments they can cause problems.
- **Phosphates** are essential for the growth of plants and animals but human activities have altered its natural cycle. The main sources are **drainage from farmland** (fertilisers, runoff from manure, etc.) and **sewage effluent** (which contains dishwasher detergents, food and drink additives). It is also used in **drinking water treatment** to control lead levels.
- **Nitrates** are used in fertiliser, which help farmers to produce more crops which can mean lower food prices.

- However, high phosphate and nitrate levels can cause **eutrophication – an issue when there is too much nutrient in a water body (e.g. rivers and lakes).** This can cause excessive growth of algae and other plants, which then affects water quality, damages plants and animals and stops us using the water.

What locations are affected?

- **Nitrates:** Highest levels in the driest parts of England (south and east), which are dominated by crop farming. Coasts and estuaries are also particularly sensitive to high nitrate levels.
- **Phosphates:** The Midlands, the South East and East Anglia are worst affected.

Why should this concern me?

► **Cost of having to treat sewage and drinking water**

- Water companies have to treat high nitrate levels in drinking water to make it safe for people to use. This is expensive and costs may be passed on to people and businesses. It is also expensive to treat high phosphate levels in sewage.

► **Harms ecosystems, sensitive plants and animals, increases toxic algae incidences**

- Increased number of toxic algal blooms which are a hazard to people, domestic animals and wildlife and can lead to loss of sensitive plants, animals and their habitat.
- Oxygen levels reduce in water bodies affected by eutrophication, which means fewer aquatic insects and fish.

► **The quality of our water environments for leisure activities**

- High phosphate and nitrate levels contribute to algal growth in our rivers, lakes and estuaries, which affects people's opportunity to use them for leisure activities.
- These losses can mean that the value of tourism and properties decreases.

What are the future challenges and concerns?

► **Nitrate and phosphate use will increase with population growth**

- The top sources are fertilisers, fossil fuel burning, sewage and treating drinking water –– sources which will increase as the population rises.

► **Climate change will increase use and impacts of nitrate and phosphates**

- Warmer summers, changing rainfall patterns and reduced river levels may mean higher concentrations of nitrates and phosphates in the water environment.
- This may also mean farmers change the way they farm, such as use more fertiliser.

► **More phosphorus being used to meet tighter drinking water standards for lead**

What can be done about this issue?

► **Improving nutrient management, manure and water storage on farms**

- These measures can be cost effective when used in parallel with other measures to reduce water pollution from sediment, nitrates and faecal indicator organisms.

► **Reduce nitrate and phosphate levels from sewage sources**

- Where necessary water companies can fix leaking sewers and improve sewage treatment works. However, this is costly and involves using more energy, meaning more carbon dioxide emissions.

► **Identify areas particularly sensitive to high nitrate levels**

- Within these areas land owners can be encouraged, through for example voluntary and incentive schemes, to reduce nitrate leaching.
- Currently farmers in Nitrate Vulnerable Zones must follow rules to manage their use of nitrates.

► **Legislate to reduce use of phosphorus in household products**

Too much sediment

What is the issue?

- Fine sediment is naturally present in estuaries, rivers and lakes. It gets into the water from weathering and erosion of river banks, and surrounding land.
- However, human activities can increase erosion, or add additional sediment (e.g. soil erosion) resulting in **too much fine sediment getting into the water environment.**
- Sometimes the **sediment can be contaminated** –farm fertilisers, pesticides, mining and industrial waste can enter the water environment (particularly estuaries).


A stream clogged with sediment

What locations are affected?

- This a widespread issue, affecting both rural and urban areas. Sediments can build up in estuaries and rivers.

Why should this concern me?

► **Reduces the health of plant and animal species**

- For example, too much sediment can reduce fish stocks by damaging their spawning sites.

► **Sediment reduces water quality making it more costly to treat before we can drink it.**

► **Increased risk of flooding**

- More sediment in a river can block up drainage channels. It is costly, time consuming and can be damaging to dredge sediment to keep flood water draining freely.

► **Disruption to navigation**

- Sediment can reduce the depth of water available in ports and harbours and for boats and ships to navigate inland (e.g. canals).
- Sediment often needs to be dredged so navigations function properly. This is costly and disruptive to boating activities and local communities.

What are the future challenges and concerns?

► **The potential for new and more intense farming practices**

- Farmers may have to increase food production to cope with population growth and future concerns about food security. Switches to different crop types may lead to more erosion and therefore more sediment.

► **Climate change may lead to even greater levels of soil erosion due to more intense rainfall.**

► **More buildings and paving over land to house more people**

- More water-resistant driveways, car parks and pavements will mean increased run-off of sediment into our rivers.

What can be done about this issue?

► **Different farming practices can reduce sediment**

- For example, not working wet soils will significantly reduce the risk of soil erosion. In some instances this may mean changing land to less intensive uses such as woodland or grassland. The financial benefits to farmers of protecting soil and keeping it on the field and out of water can be substantial.
- Improve farm infrastructure such as stores and using fencing to restrict livestock access to water courses.
- Planting buffer strips, hedges and creating or improving wetlands to intercept sediment laden run-off.

► **Reducing misuse and improving quality of sewer and surface drainage networks**

- Tackling wrong connections of foul water drainage from buildings to the surface water drainage network can minimise sediment.
- Improving surface water drainage and sewers capacity can help minimise the frequency of accidental releases of sediment from sewer overflows.
- Educating the general public to minimise the amount of sediment laden water getting into surface water drains from construction sites or car washing.

► **Provide grants or incentives for sustainable drainage**

- Improve and maintain drainage of roads, tracks and paths, in urban and rural areas to reduce sediment movement and help contain it.

Physical Modifications

What is the issue?

- Flood defences, coastal defences, dams, reservoirs, weirs, dredging and vegetation removal are examples of physical modifications we make to the water environment.
- These physical modifications can affect the quantity and quality of water and the shape of water bodies. This **affects flows and the physical form of water bodies**, **altering habitats for wildlife and reducing habitat diversity**.

- Aquatic wildlife is affected not only by the quantity and quality of water but also the physical characteristics of the water environment. For example, modifed rivers might have faster currents, which means fewer plants take root.
- However, many physical modifications are beneficial to society and reduce flood risk, provide navigable water bodies, and support hydropower and water supplies.
- Physical modifications have been around for a long time, some date back to Roman times.

What locations are affected?

- Physical modifications are the most widespread issue affecting our water environment across England.

Why should this concern me?

► **Physical modifications mean that our water environments look and behave less naturally**

- This can mean they look less appealing to people and affect habitats for wildlife.

► **Embankments and flood defences can separate rivers from their floodplains**

- This increases flood risk elsewhere and can block the movement of fish and other wildlife.

► **Widened and deepened channels slow down the flow and increase the level of sediments suspended in the water**

- These sediments can reduce water quality and eventually smother habitats such as fish spawning sites.

What are the future challenges and concerns?

- **More extreme weather as a result climate change will affect modified river channels more than natural ones**
  - Wildlife in modified rivers is more vulnerable to increased floods and droughts due to lower habitat diversity.

- **Population increases leading to higher demand for food, water, recreational activities and flood defences**
  - This may mean we need to modify our water environments more in the future.

- **Changes in the way we use land**
  - Changes in response to climate change (e.g. retreat from coastal areas) and population growth leading to increased urbanisation, could all impact the levels and types of physical modifications we find in our water environment.

What can be done about this issue?

- **Regulating and controlling physical modifications**
  - These may include ensuring that new developments do not cause deterioration.

- **New design standards for developments on or near the water environment**
  - Provide partnership support and expert guidance to those involved in new developments, land management and river restoration works.

- **Promote and fund programmes of river, coastal and wetland restoration**
  - This would make the water environment more natural.

Drinking, cooking, washing, cleaning

Maintaining water supply to our homes and for public health

Farming

Maintaining water supply for crops and animals

Industry, business and civic use

Maintaining water supply for manufacturing, producing energy, public buildings, mining, recreation

Waste disposal and treatment of waste

Sewage and industrial effluent

Transport

People and goods

Commercial fishing

Trawling, fish farms, shellfish

Active Leisure

Boating, canoeing, fishing, surfing, swimming,

Wellbeing

Enjoying landscapes and wildlife
Knowing it's there for future generations

Wildlife

Diversity of plants and animals, improving habitats

Reducing the impact of floods and droughts

Helps the public, farmers, business, insurance

Maintaining the cycle of life on which we depend

Water flow, soil formation and fertility, climate

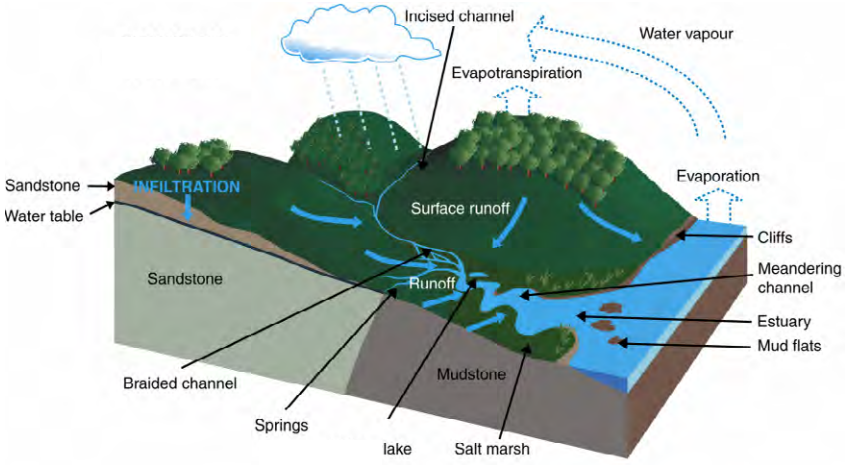
Preserving our economic security

Protecting our economy from the effects of droughts, floods. Our water supply is safe

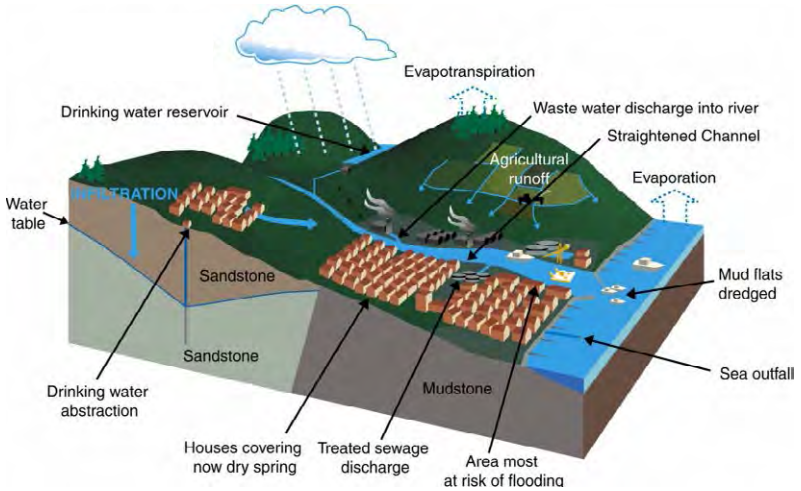
Passing on our environment to our children

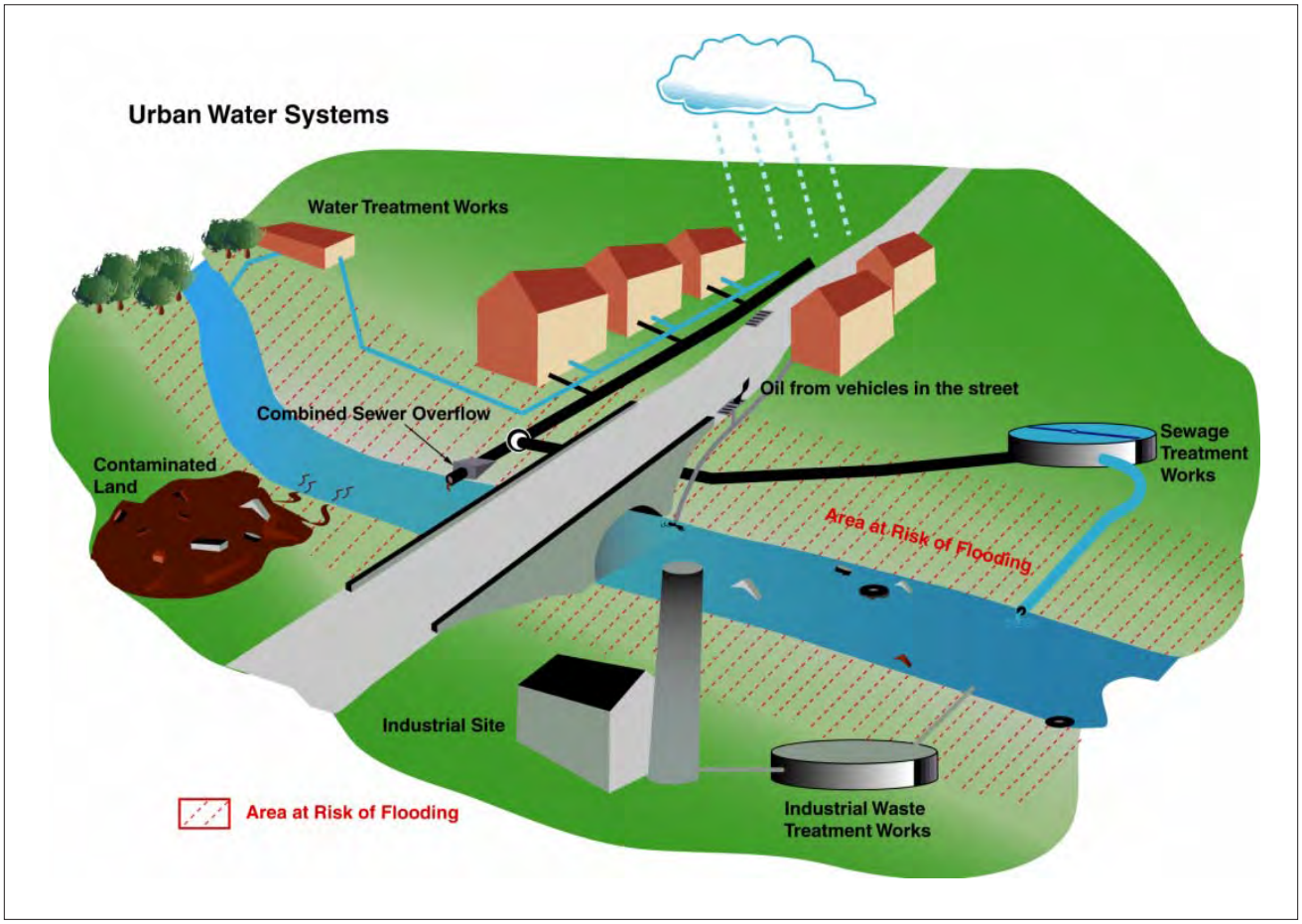
Maintaining the water environment makes it resilient for the future

Natural water cycle



Developed water cycle




Urban Water Systems
Water Treatment Works
Combined Sewer Overflow
Contaminated Land
Oil from vehicles in the street
Sewage Treatment Works
Area at Risk of Flooding
Industrial Site
Industrial Waste Treatment Works
Area at Risk of Flooding

Appendix 3
Workshop reports

Public Dialogue on Significant Water Management Issues

An Environment Agency project, funded by Sciencewise - Workshop 1 - Brighton

14th September 2013

Summary of Discussions

Present:
16 participants recruited by Ipsos MORI supported by:

3KQ (facilitators)	Richard Harris, Jenny Willis, Rowena Harris, Jane Dalton
Ipsos MORI	Antonia Dickman, Peter Harrold
Environment Agency	D J Gent, Alison Futter, Caroline Scott

> 'There should be more education. All the stuff we're talking about now should be taught to kids in schools.'
> 'There used to be more awareness, but years on it's just a utility that's taken for granted.'

These quotes illustrate a main theme of the day – participants acknowledging their lack of awareness about many of the issues raised and what role they might have in relation to them. Participants also expressed a real interest and appetite to learn more.

After welcomes and introductions participants were asked what they thought were the key issues for the water environment. The following issues were mentioned:

- Pollution – oil, chemicals
- Debris being washed up on the tides, litter
- Growing population – 'we need more water'
- Impacts on habitat
- Climate change
- Flooding
- Costs to treat water
- Old leaky sewers
- Lead pipes
- Fracking
- Coastal erosion

- Private corporations – profit motive and the fact they have influence on water supplies/environment
- Flouridation of water
- Effects of treatment and geology on taste of water

Discussion around value:

Participants considered what they valued about water and listed the answers on post it notes. Many of these were linked to well-being – 'keeps me alive', 'healing properties', 'keeps me clean', 'water at home – safety and purity'. Other themes were recreation, nature and the aesthetic values of water.

Discussion of what is valued sometimes linked with fears about the future, particularly about climate change:

'It's about liking the way the world is now, not wanting areas that I grow up in to disappear and not be there when I'm older.'

Many people talked about the elemental aspect of water, the fact it is essential for life.
There was also agreement that water and the water environment is often taken for granted:
'It's probably something that's a bit undervalued. It maybe has more of a background feel, it's only when events or issues occur that we start to think of it.'
This was linked to people recollecting problems with water supply or quality:
'It's only if your water is turned off for any length of time that you start to appreciate how much you use it.'
Another participant recalled living in the countryside near a stream with plenty of wildlife, 'then there was an industrial leak upstream and everything died, it smelled awful, it smelled of death.'
Participants also discussed trying to use less water and the fact that this was sometimes to save money but also from a consciousness that clean water is a resource which should be valued in a moral sense.

Discussion around benefits:

A number of benefits were put before participants (see appendix) and they were given a few minutes to consider them. The discussion revealed that people were conscious that many of the benefits listed were not ones they had previously thought about, such as 'economic security'.

Discussion about which benefits were most important centred around which were fundamental, such as 'passing on our environment to our children' and 'Maintaining the cycle of life on which we depend'. A benefit considered less important was 'active leisure' - 'It would be quite selfish to presume that our leisure was more important than wildlife.'

There was some frustration about trying to separate the benefits from each other – 'It's all part of a big system really, if you took any one of them out it would affect the others. We need to work out which would create least ripple effect.'

Discussion around challenges:

Participants discussed 'challenges' to the water environment and these were listed on a flip chart. They were as follows:

- Weather, unpredictability of climate
- Poor management of water resources
- Prioritisation of other things at Government level
- Technical capabilities – our ability to affect things e.g. treatment, storage – are we as effective as we could be
- Location
- Ownership

- Demands and values of the population
- External threats, actions of others e.g. threat from nuclear incidents
- Pollution
- Balancing economic factors and long-term environment and well being
- Ignorance about personal responsibilities and effort required
- Feeling disconnected from the environment
- Knowing who is accountable – we have no choice about suppliers
- Costs – of consultation, education

A lot of the discussion was around cost, supply and usage. There was a general consensus that water meters made people more conscious about water usage, both in cost terms and in moral terms. However some felt that more education was needed to help people inform their choices and actions regarding water: 'It's very difficult to work out what you can do to make an impact. It would be useful to have more information - how much would it save to not turn on the washing machine, how many times less can you flush the loo?'

Some frustration was voiced about perceived wastage:

'The gallons of drinking water that we flush down the toilet, you would have thought there would be something they could change about that.'

Frustration was also voiced in relation to water companies, with one participant describing having to pay to fix a 'drip drip' leak in his own home but days later seeing a mains leak nearby with water 'gushing out'. One remarked: 'What the big companies get away with!' Another said: 'With big companies – if it's going to infringe on their profits even if it's good for the environment then they're not going to do it. There needs to be a moral responsibility as well as economic.'

The discussion again linked back to a general lack of awareness: 'a bit like the expression 'it's on tap' - until you see something like a reservoir only half full, you don't think about it.' In terms of raising awareness there was concern about what sources of information were trustworthy. Generally people were more inclined to listen to the views of those in the scientific community not connected to politics or commercial interests such as the water companies.

Participants of one sub-group generated and discussed a number of different ideas and strategies throughout the day for e.g. raising public awareness, getting people to think differently about how they behave, introducing measures to change corporate practices, learning from other countries, and planning for the future. These suggestions have been recorded for consideration.

Discussion around the nine 'topics'

Bacteria from faecal pollution

Some participants expressed surprised that what seems like a very basic issue has not been 'solved' as a problem yet. There was a discussion around the various sources of faecal pollution and what could be done about it. Ideas ranged from offering more support to farmers to shooting seagulls!

Freshwater eutrophication (too much nutrient)

Surprise was expressed about the use of phosphorus to treat water considering it is a finite resource, and also that there aren't already substitutes in a wider range of cleaning products. Lack of awareness was acknowledged again as a factor limiting the action of individuals.

Invasive non native species

Some people were surprised by this being a significant issue: 'It almost sounds like a fake story! It sounds like a joke. I am a little bit surprised by it and that it got into the top nine issues.'
Others had heard of problems related to invasive non-native species, but many hadn't and awareness raising was again seen as critical in relation to this issue.

Nitrates

Much of the discussion around this topic related to the difficulty of balancing economic interests in terms of commercial food production with environmental issues.
'What should we be aspiring to? What is a sustainable level for all these things?'
'How do you fit something that we all need for our survival within a capitalist system?'
A number of people indicated they would be prepared to pay more for food that is farmed more sustainably.

Physical modifications

There was a very low level of awareness of what this meant so the main discussion in both sub-groups was around examples given by EA representatives. Participants felt that they understood some of the dilemmas more and implications of action or inaction.

Sanitary pollutants

There was some confusion about a perceived overlap between this topic and bacteria from faecal pollution. As with physical modification the discussion in both groups was around factual clarifications.

Too much sediment

This discussion was again useful to participants in that they didn't understand it, and hadn't thought about it but were able to do so with the help of explanations from Environment Agency staff. The link with agriculture was again noted though there was an unwillingness to label farmers as 'the bogeymen'.

Abstraction and flow

'I am getting the impression that the movement of water is not very well planned – we don't have a National Grid for water.'
The potential for conflict between the commercial use of water and environmental needs was again noted.

Chemicals

There was a lot of discussion about the role of consumer choice regarding products containing relevant chemicals or their alternatives:
'You don't have a choice if you don't have enough money. Why is this country selling products that are harmful (they wouldn't do it with medicine)? I'm not saying ban bleach as such, but you can regulate what you sell.'
Awareness raising was felt to be key but there was also an appetite for tighter regulation.

Ranking exercise:

Participants were given seven dots to place where they liked against the nine issues according to how important/pressing they thought the issue was. They could place as many as they liked on one issue if they felt it was of over-riding importance, or could spread them over different issues.

The results were as follows:

- Chemicals – 29
- Sanitary pollutants – 20
- Nitrates – 16
- Phosphorus and fresh water eutrophication – 12
- Faecal indicator organisms – 10
- Physical modifications – 9
- Abstraction and flow – 8
- Invasive non-native species – 3
- Fine sediments - 2

Participants were unsurprised at chemicals being considered the most significant issue as it was felt to be most easily understood in terms of potential harm to individuals.
'There's an emotive element with chemicals – something we don't quite know and understand.
We are frightened of poison.'
Chemicals were also seen as significant because people felt they could influence change e.g. by buying different products, unlike some other issues where they felt unable to make a difference e.g. sediments or physical modification: 'Very few of us are going to go out there and physically modify rivers, but we all use chemicals.'

Who should pay?

This was a short discussion, with the following issues raised:
'How profitable are the water companies? If they are like the energy companies then they should be paying for more tax'

'This is part of national infrastructure so it should come out of general taxation'

'If it's to do with health it can't be left to the market.'

Lifestyle changes

'If people knew more they might make more changes. It all comes down to information – the more you tell them the more incentive you give them to change.'

'There is a big question about to what extent individual actions would make a difference compared to industry – we could all change a lot but it might not add up to much compared to what happens in industry and farming.'

Some comments from participants

I've been quite quiet today as I've had a sense of guilt – I've never paid for water – it's really opened my eyes.

I came here today because of the money but it's flown by, it's been fascinating, I'm thinking totally differently now.

Until I came here today I hadn't made that connection at all [environmental issues being integral to other issues] – I think every member of the electorate should come on something like this. I'll never look at water the same way again.

Appendix One

Benefits identified by the Environment Agency and considered during the workshop session:

- Drinking, cooking, washing, cleaning
- Maintaining water supply to our homes and for public health
- Farming
- Maintaining water supply for crops and animals
- Industry, business and civic use
- Maintaining water supply for manufacturing, producing energy, public buildings, mining, recreation
- Waste disposal and treatment of waste
- Sewage and industrial effluent
- Transport
- People and goods
- Commercial fishing
- Trawling, fish farms, shellfish
- Active leisure
- Boating, canoeing, fishing, surfing, swimming
- Wellbeing
- Enjoying landscapes and wildlife; knowing it's there for future generations
- Wildlife
- Diversity of plants and animals, improving habitats
- Reducing the impact of floods and droughts
- Helps the public, farmers, business, insurance

- Maintaining the cycle of life on which we depend
- Water flow, soil formation and fertility, climate
- Preserving our economic security
- Protecting our economy from the effects of droughts, floods; our water supply is safe
- Passing on our environment to our children
- Maintaining the water environment makes it resilient for the future

For queries or more information regarding the project and/or workshops please contact:

Emma Collyer (Project Manager) emma.collyer@environment-agency.gov.uk

*'Independently designed and delivered by 3KQ and Ipsos MORI as part of a series of public dialogue workshops'

"The Sciencewise Expert Resource Centre (Sciencewise-ERC) is the UK's national centre for public dialogue in policy making involving science and technology issues."

LIT 8778

Public Dialogue on Significant Water Management Issues

An Environment Agency project, funded by Sciencewise - Workshop 2 - London

28th September 2013

Summary of Discussions

Present:
18 participants recruited by IPSOS Mori supported by:

3KQ (facilitators)	Richard Harris, Carl Reynolds, Rhuari Bennett, Jenny Willis
Environment Agency	D J Gent, Alison Futter

> 'We take it for granted. We are all sitting in this room breathing and not really thinking about it. It's the same with water, when we want water we just turn the tap on. We don't really think about it.'

> "You appreciate it more when you have to go without it – losing it for a day makes you realise how important it is.'

At this workshop there was a lot of discussion about water supply and the fact that it is often taken for granted. This was linked to a lack of awareness that was perceived amongst some people towards water which caused them to do things such as throw litter in rivers or leaving water running unnecessarily e.g. when brushing teeth. As with other workshops in this series, participants felt that more education and awareness was needed to try and encourage people to 'do the right thing' and make choices that would be beneficial to the water environment as a whole.

After welcomes and introductions participants were asked what they thought were the key issues for the water environment. The following issues were mentioned:

- Litter – respect for water
- Sewage in rivers and coastal waters
- Urban water management including freshwater issues, re-use of waste water and water treatment
- Pollution – accidental e.g. spills and deliberate e.g. litter

- Cities are dirty places
- Transport issues – boats and ships
- Reservoirs – where they are, cleanliness
- Re-cycling of water – how is it done. Can water from sewage be recycled?
- Tributaries and the Thames – relationship between them
- Where water comes from; distribution between dry and wetter places
- The seriousness or otherwise of hosepipe bans
- How it gets to us
- The fact that only 3% of water is fresh

Discussion around value:

Participants considered what they valued about water and listed the answers on post it notes. There were a number of contributions related to the natural beauty of water: 'I think it's the beauty. It's really beautiful when you're in a good spot looking at the river.' There was also plenty of consideration given to valuing the supply of water with post it notes mentioning 'plentiful supply', 'available without difficulty', 'instant hot water' and water being 'available and instantly accessible.' This linked to a discussion around metering and water bills. Many agreed with the idea that 'Metering changes your mind about how you use water', with the acknowledgement that lack of awareness about cost can be linked to lack of consideration about water use: 'I don't pay the bills so I don't think about it. I am completely naive and don't even think about it.' One group discussed the water cycle and a couple of participants agreed that awareness about the water cycle had made them think that 'water doesn't disappear, it stays on the planet'; 'I don't feel guilty about using water because I know it just comes back'. At this point the Environment Agency representative explained that some uses of water make it more difficult to re-use it for human requirements e.g. if it is discharged into the sea.

Participants agreed that if they knew more about the availability of water and the cost and effort associated with water treatment and water management it might have an effect on their water usage. One said 'I don't know how it works or where it comes from. I just turn the tap on. I would like to know more.' Another commented 'We're so used to turning on the tap and having an abundance of water. I wonder what would happen if we didn't have water. Information is needed, I know it is a mammoth task but in order to change behaviour I think it would be a step forward'.

Finally the fact that water and rivers are often seen as symbolic of cultural heritage in big cities was considered a significant value for London in relation to the Thames.

Discussion around benefits:

Participants were asked to consider what they saw as the benefits from successfully managing the water environment. Responses included availability of clean water and an uninterrupted supply: 'It's just available in UK, unlike in other countries: there would be a massive impact on lifestyle if you had to walk for miles for it like in developing countries.' Cost was also mentioned – 'I imagine that if it were managed properly it might be cheaper'.

A number of benefits were put before participants (see appendix) and they were given a few minutes to consider them. Both groups considered 'maintaining the cycle of life on which we depend' ('No water no life – that hits the nail on the head') as one of the most important benefits, alongside 'waste disposal and treatment of waste' and 'drinking, washing, cooking, cleaning'. One group also mentioned 'passing on the environment to our children' but the other group identified that as a surprise as they hadn't really thought about the water environment in that way before.

Participants found it more difficult to identify the less important benefits, but many agreed that fishing was a lower priority citing the fact that fish production was quite specific and that there were lots of other

alternatives in terms of food products. Active leisure was also acknowledged to be less important compared to other more vital benefits of water.

Discussion around challenges:

Participants discussed 'challenges' to the water environment and these were listed on a flip chart. They were as follows:

- Resource use – demands of society
- Distribution issues – pipes/supply
- Wastage
- Management of water
- Personal responsibilities e.g. leaving taps running
- Laziness/people being uninformed – people's attitudes and behaviour
- How to work out effective use of media to educate and raise awareness
- Taking water availability for granted
- Use of water by big business – conflicts of interest
- Farming
- Pollution – failure to deal with it now
- Drought
- Inappropriate development
- Population growth
- Accountability - personal and business
- Inadequate infrastructure e.g. for treatment and transport of water
- Terrorism
- Political priorities
- Water companies making a profit
- Availability of 'people talent' to develop technological solutions to address water challenges
- Impact of current economic situation on developments
- Spread of water borne diseases
- Population growth and shifts in population (including from other countries affected by water issues)

In relation to supply it was felt that more water meters would help to manage water. There was mention of the fact that disasters such as flooding raise awareness and prompt action but that the effect fades. Short term effects were also discussed in relation to the role of politics: 'Because of the political system there can't be any long term planning' and vested interests – 'if it costs somebody too much they won't do it, even if it is good for the environment'. This led to a concern about future challenges in relation to water pollution: 'if we don't deal with it now it will affect generations to come even more'.

There were several mentions of the water companies and the fact that they are privately owned: 'I don't like the fact that the water supply which is so important to everybody is privately owned.', 'You have to pay every week or every month and there's not enough information for you to decide if you are paying a fair amount or not.' The discussion covered the fact that it was felt that a major success criteria for the water companies was profit, which was thought likely to compromise or conflict with the needs of individual local people in a particular area and/or the environmental considerations around water management and treatment.

Concern was expressed about a perceived lack of education about water management issues at a school level: 'people could be even less aware in the future'.

Discussion around the seven 'topics'

Phosphorus and nitrates

In relation to phosphates there was quite a lot of discussion around why products were available to consumers which contained phosphates: 'Why aren't more brands of environmentally safe products available?', 'There is a moral issue here; having sparkling glasses is a bit absurd if it is wrecking the environment', '. Some people felt that there should be some charge to manufacturers if their products had a higher environmental impact and that this might lessen the price differential between these and more environmentally friendly products, leading to more people choosing the latter. There was a discussion about perceived priorities: 'People are putting the economy above the environment. What's the point of having an economy if we don't have a planet? It's embarrassing!' One person said 'You don't have to be vegan to buy the right washing powder!'

In relation to nitrates there was an explanation of the role of nitrates in farming and the fact it helped to keep food costs lower than otherwise. There were a lot of questions – 'Shouldn't the cost be borne by the people who put it on the land?', 'Are the farmers completely aware of the damage they're doing?'. One person said that they would rather pay more for their food to take account of the higher cost of production without nitrates etc than have to pay via a water bill to deal with more pollution.

Many participants commented that this was not something they had really thought about before the workshop.

Bacteria from faecal pollution and sanitary pollutants

When asked about surprises in relation to this topic most participants indicated that they were unaware of the fact that there were two drainage systems. Others indicated surprise that fencing off a buffer from fields to stop slurry going into streams wasn't compulsory (they thought it should be) and that over half of England's shellfish and bathing waters are in the South West. They were interested in the fact that the planning and building control system would only be able to prevent misconnections in larger developments or extensions. As with other topics participants expressed their lack of knowledge and wish for more information.

Too much sediment

Participants were interested to find out how much harm the sediment causes and that it is 'still a problem even though this is the 21st century'. They were also interested in and concerned about the fact that unforeseen consequences could arise with sediment when it is taken from somewhere and arrives somewhere else.

Chemicals

Point source and diffuse pollution were explained. Participants commented on the irony about 'clean' chemicals such as washing up liquid potentially causing pollution problems. One said: 'We're just not sure what is 'good' and what is 'bad': how bad is a 'bad' product for the environment, and how do these compare to the other products on the market? We need a labelling scheme that calibrates damage to the environment, perhaps a 0-5 scale.'

Invasive non-native species

There was an initial discussion about the fact that it was the fact that a species was invasive that was significant rather than necessarily if it was native or non-native. On the whole despite explanations about campaigns such as 'be plantwise', participants seemed to think they didn't have much power to influence in this area. A number of comments illustrated this: 'I feel a bit helpless about it, it's hard to know what to do.'

'Are we going to do anything about it? We haven't fixed red and grey squirrels, elm trees and all those things…' and 'It's a scientific problem , it's up to DJ [EA representative] and his crowd to do something about it'. However one person did say that they felt if given the opportunity local communities would come together to do something about invasive species if they felt it to be a threat in their local area 'it will be the will of the people to want to do it to conserve their communities... they don't need any money to do it they just want to conserve their environment.'

Abstraction and flow

This was an area where participants saw a much greater connection with personal behaviour: 'as householders we all have a responsibility. I try and save water where I can.' There was discussion about the various ways to reduce water usage such as having a shower rather than a bath, not leaving taps running unnecessarily, having smaller toilet cisterns or putting something in to reduce the amount of water used in flushing the toilet. Metering was also mentioned in this context. However a concern was raised about corporate behaviour: 'What's the point of us saving water if corporations use lots and waste lots. There has to be a consistency between personal and corporate behaviour.'

Physical modifications

Initially participants were quite confused by this issue but after explanations from EA staff they felt more able to see the relevance. However there was some scepticism about the capacity for things to be different. After an explanation about physical modification in the form of flood defences, road building, culverts, embankments and flow reduction in relation to commercial developments one person commented 'Surely all that stuff had to be done so there isn't much we can do about it.' People felt that the costs should be borne by the people who benefited e.g. developer should pay in relation to physical modifications and/or the environmental costs of them in relation to new commercial or domestic developments. A preference for rivers to 'go back to a more natural state' was expressed, and the fact that this should be possible even in the Thames area.

Ranking exercise:

Participants were given five dots to place where they liked against the seven issues according to how important/pressing they thought the issue was. They could place as many as they liked on one issue if they felt it was of over-riding importance, or could spread them over different issues.

The results were as follows:

Faecal and sanitary pollutants	25
Phosphates and nitrates	17
Chemicals	16
Physical modification	13
Abstraction and flow	9
Sediment	8
Invasive non native species	2

In discussing the reason for their prioritisation participants said they had identified the issues which affected them personally the most or ones they felt able to do something about. In relation to faecal and sanitary pollutants and chemicals one person said 'From what we've discussed it's what we can do the most about directly.' Another said 'The first and second things affect us and the way we live. It might be different if we lived in the country.'

Who should pay?

There was a recognition that if everyone 'played their part' and contributed to good water management it would keep costs down generally. Metering was generally felt to be a good thing although not everyone

was keen to have it personally. There was also a general feeling that organisations with a commercial interest e.g. water companies, manufacturers etc should contribute adequately.

Lifestyle changes

'There is a need to raise awareness and educate people. See the 'catch it, bin it, kill it' campaign – it really had an impact.' Another participant talked about skin creams and make up and how some brands which advertised as avoiding particular additives had become mainstream. She hoped the same could happen for other household products. Consumer choice was also discussed from a different angle: 'Why should the consumer have a choice if it's damaging to the environment. Education is too difficult. We don't have a choice about everything, this is a good area where we shouldn't have a choice'. Participants said there were a number of things they would do as a result of taking part in the workshop including looking at product information, stopping pouring bleach down the sink, seeking more information, volunteering in the community, turning the taps off and chilling fat and putting it in the rubbish rather than putting it down the sink and then pouring bleach down after it!

Some comments from participants

'We are all citizens. We ought to be involved and get our gum boots on!'

'There's a lot of information here, it's good to hear what's going on.'

Appendix One

Benefits identified by the Environment Agency and considered during the workshop session:

- Drinking, cooking, washing, cleaning
  Maintaining water supply to our homes and for public health
- Farming
  Maintaining water supply for crops and animals
- Industry, business and civic use
  Maintaining water supply for manufacturing, producing energy, public buildings, mining, recreation
- Waste disposal and treatment of waste
  Sewage and industrial effluent
- Transport
  People and goods
- Commercial fishing
  Trawling, fish farms, shellfish
- Active leisure
  Boating, canoeing, fishing, surfing, swimming
- Wellbeing
  Enjoying landscapes and wildlife; knowing it's there for future generations
- Wildlife
  Diversity of plants and animals, improving habitats
- Reducing the impact of floods and droughts
  Helps the public, farmers, business, insurance
- Maintaining the cycle of life on which we depend
  Water flow, soil formation and fertility, climate
- Preserving our economic security
  Protecting our economy from the effects of droughts, floods; our water supply is safe

- Passing on our environment to our children
  Maintaining the water environment makes it resilient for the future

For queries or more information regarding the project and/or workshops please contact:

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*'Independently designed and delivered by 3KQ and Ipsos MORI as part of a series of public dialogue workshops'

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LIT 8799

Public Dialogue on Significant Water Management Issues

An Environment Agency project, funded by Sciencewise - Workshop 3 - Peterborough

28th September 2013

Summary of Discussions

Present:
18 participants recruited by Ipsos MORI supported by:

3KQ (facilitators)	Rowena Harris, Rob Angell, Jane Dalton, Hannah Wynne
Environment Agency	Dave Freeman, David Whiles

> "If you have a meter in a house, then you start using less water, you make so much better use of it, and you save money. It makes you think."

> "In general we're doing a pretty good job [in the UK] which is good, but the negative side is the general public don't think about it."

These quotes illustrate key themes of the day – participants acknowledging that we are very lucky in this country with regard to the quality of our water supply and water environment, but also seeing the need to raise people's consciousness about the water that they use and the need for more education about the issues.

After welcomes and introductions participants were asked what they thought were the key issues for the water environment. The following issues were mentioned:

- Human impact – pollution and habitation
- Adding fluoride to water
- Not having enough water
- Safety (e.g. warning signs re swimming in rivers/lakes)
- Industrial processes
- Wastage due to leakages and breaks in the infrastructure
- Management/over-use

- Water meters for everyone
- Increasing population
- Flooding
- Global warming
- Waste dumping/run-off from other activities
- Better ways to manage water including capture and storage
- Awareness-raising of scarcity
- Maintenance of waterways and infrastructure
- Too many 'hard' surfaces

Discussion around value:

Participants considered what they valued about water and listed the answers on post-it notes. Many of these were linked to enjoyment and spiritual well-being – 'scenery and tranquillity', 'relaxing', 'beauty of the sea and lakes', 'calming influence', 'spiritual value' – but also physical well-being and survival – 'health value', 'without water you can't survive'. Other themes were recreation, wildlife and the natural environment.

Many participants talked about the importance of water in the natural environment as something to be enjoyed, as well as being vital for wildlife, and several references were made to local places that are visited by people and their families: "Living in a city it's free, everyone can enjoy it. The health benefits are just amazing for a lot of people.", "When you take away the trappings of society, that is our natural environment.", "It's important for our children to be exposed to this."

Discussions linked to different attitudes towards water influencing what people value: "We live in a consumer world … we don't live in a sustainable way.", "I don't like to waste water because it is a limited resource and it costs money to make it drinkable.", "I take availability of water completely for granted, I drink as much as I want, I have a shower whenever I want. It's a Western attitude."

Frustration was expressed that we are suffering the consequences of the past, and it was suggested that it is important that today's society acts now to avoid making further mistakes: "We're constantly playing catch up, we've spent 100 years pumping whatever we want into our water system, and now it's coming back to haunt us".

Discussion around benefits:

Participants were asked to consider what they see as the benefits from successfully managing the water environment. Responses included: health, reduction in the price of water, and fewer restrictions on usage – "if you manage it well you minimise your impacts". It was also recognised that as a nation we are already very fortunate: "Our water system is one of the best so how are we going to benefit any more than what we have? Water's available where we need it when we need it", "We're lucky, we can drink our water straight from the tap – there's a lot of places that can't."

A number of benefits were then put before participants (see Appendix) and they were given a few minutes to consider them. There was some surprise at the number of benefits.

Discussion about which benefits were most important centred on those which are fundamental, particularly 'Maintaining the cycle of life on which we depend': "It's the high level one, whereas the other ones are bits to achieve that." However, it was also acknowledged that most of the benefits cannot be separated from each other – "I don't think we should be categorising them – these cannot be prioritised, they all depend on one another and need to be considered together."

The benefits considered less important were 'Active leisure' and 'Transport': "Active leisure is nice but it isn't essential to life.", "Transport benefits people but not the environment. That's more of a selfish benefit.", however it was acknowledged that this is perhaps due to the local context.

Discussion around challenges:

Participants discussed 'challenges' to the water environment and these were listed on flip chart. In addition to some of the issues raised earlier, the challenges included:

- Building in the wrong places
- Not enough space in the UK – not enough woodlands and grasslands
- Farming practices including land management and too much fertiliser leading to algae
- Waste disposal
- Fracking – threat to water supply
- Government and European policies
- Lack of power/independence for the Environment Agency
- Funding
- Lack of public awareness
- Weather and climate – natural disasters
- Inadequate/aging infrastructure, and lack of (skilled) staff for maintenance
- Lack of clarity over responsibility for parts of infrastructure – too much bureaucracy, inefficiency and waste of resources

A lot of the discussion focused on the need to raise awareness about making better use of water. Although not welcomed by everybody, many participants felt that making water meters compulsory would make people more conscious of how they use water, as well as saving them money. It was also felt that water is too often taken for granted, and that it takes problems with the water supply to make people think differently: "the water shortage and threats of hosepipe bans, it makes you think". It was noted on several occasions that the quality of our water supply is better than in many other countries, but this causes its own issues: "I suppose it's a positive and a negative – we don't need to worry so much about our water because we can drink the water from our taps, but we take it for granted because we don't have to think about it."
In contrast, others considered that water is not being wasted "because it all goes back into the system", and that there is no shortage but a problem with supply and demand: "We are talking about water like it is oil. The point should be if they keep developing the southern part of England they need to make sure the water can get from Wales and the Lake District to the southern part of England."

Concerns were voiced about the role of the water companies, with several participants expressing frustration with inefficiencies and bureaucracy: "They sent four people to dig a new hole in the road instead of fixing the problem in my house". Some participants felt that water companies should belong to the Government so that profits could be invested back into "improving the system" instead of "going overseas and to shareholders", but others felt that nationalised companies would be less efficient.
In terms of who should be responsible for managing the challenges, it was broadly felt that the water companies and the Government have a key role to play, but there was also much recognition that individuals are also responsible. There were concerns that profit-making overrides environmental considerations, and the role of the Environment Agency (EA) was considered key in relation to this: "They are the balance. They are the mediators to make sure these things are protected. They are independent experts and non-political."

Several suggestions were made e.g. more Government grants for storage and water-saving measures, better enforcement of regulation, planning for the future, and improved education, but it was also acknowledged that these all have a cost.

Discussion around the seven 'topics'

Phosphorus and nitrates (this topic was only discussed by one of the two sub-groups due to time)
The discussion focused on explanations and clarifications from the EA representatives, including the causes and consequences of these compounds getting into the water system. Participants voiced their concerns about the scale of the problem in East Anglia, including the impacts on river-health. Discussions focused on how to address the challenges: "Can the Government and the Environment Agency regulate the products so that we can't pollute the environment – if we can't buy it we won't do it!", "It is down to the Government to put pressure/regulation on the industry and farmers, because people won't make those personal choices."

Bacteria from faecal pollution and sanitary pollutants

Following clarification from the EA regarding the various sources, discussion primarily focused on who should be responsible, with some people feeling that it should be the water companies as they are paid to treat it, and others that it should be whoever produces it: "We pay the water companies to take care of it and if they're not doing a good enough job they should be.", "We want the toilets to flush it down, so we should pay for it." In relation to the issues with misconnected sewers, more controls and inspections to enforce the existing regulations were felt to be key.

Too much sediment

This discussion again focused on clarifications from the EA, and the challenges in determining who is responsible were highlighted. There were different views about who is in the best position to take responsibility for addressing this issue, and the lack of resources in the EA was also acknowledged.

Chemicals

There was a lot of discussion about the role of industry and consumer behaviour: "If you leave it to business they will only do what is most profitable", "It is worrying that we mindlessly put these products down the drain." There was an appetite for introducing higher charges or taxes for the use of relevant chemicals/products, both to "make them less attractive and encourage people and companies to use better alternatives" and it was suggested that a system could be put in place "for manufacturers that are using these chemicals, that they offset by paying for other environmental solutions – like chemical offsetting."

Invasive non-native species

Whilst some participants had heard about these problems, many did not know much about the issues. Following clarification from the EA, much of the discussion focused on balancing consumer and economic freedom against tighter regulation of what comes into the UK. In relation to managing what has already entered the eco-system, the possibility of commercial food production was discussed, and it was also suggested that volunteers could do more of the work involved in control and management: "If we enjoy that environment it's nice to give back as well."

Abstraction and flow

This discussion again focused on explanations from the EA, including the issues associated with seasonal demand. Some participants felt that responsibility for addressing the challenges lies primarily with the Government, the EA and the water companies, but it was also suggested that public education has a key role to play: "The less we use, the less that needs to be abstracted." Abstraction licensing was also welcomed as a "good thing".

Physical modifications

The EA explained the historic reasons for modifications, how planning and permitting now works, and gave local examples of the positive/negative impacts of local modifications. There was some debate about whether physical modifications can be "a bit of a fool's errand", and discussions also focused on who should pay for any modifications and mitigating against their impacts.

Ranking exercise:

Participants were given five dots to place where they liked against the seven issues according to how important/pressing they thought the issue was. They could place as many as they liked on one issue if they felt it was of over-riding importance, or could spread them over different issues. The results were as follows:

Phosphorus and nitrates – 15 (this topic was only discussed by one of the sub-groups due to time)
Faecal indicator organisms and sanitary pollutants – 25
Fine sediments – 6
Chemicals – 12
Invasive non-native species – 2
Abstraction and flow – 11
Physical modifications – 19

Participants were unsurprised at faecal indicator organisms and sanitary pollutants being considered a significant issue because "it's a public health issue" and "contamination affects all of it whichever way you look at it, and not just people, wildlife as well". The EA representatives were unsurprised with the ranking of physical modifications, as many of the rivers in this area are not natural, although one participant explained that they had put a few dots on this issue as they had read it as urbanisation and the effect on the environment of building on natural habitats.

Who should pay?

The following issues were raised: "Polluter pays seems fair, but in the end prices all go up anyway.", "We're all responsible and we'd all benefit, plus future generations.", "Should be a fair system where many are contributing and many benefit.", "If we value the fact that we've got usable, drinkable water, we should be prepared to pay for that.", "Government could put taxes on harmful products and raise revenue.", "Cheaper to think about prevention more than dealing with the results.", "The Government should pay for modifications and invasive species, but the others should all be covered by industry and consumers.", "Would prefer to put the money into people in other countries that haven't got good drinking water."

Lifestyle changes:

Awareness-raising and education: "Breaking habits is important – marketing and raising awareness makes a difference.", "More education in schools, not a one-off but across the curriculum.", "Exchange ideas with older generations, they know how to save water and use less chemicals."

Understanding the benefits: "If you understand the issues and appreciate water more, you're more likely to do things to protect it.", "We might be more happy to pay if we see what it's going to achieve, what the benefits are. You wouldn't hand over £70 in a supermarket without seeing what was in your shopping trolley, why would you do that on your water bill?"

Using different products: "Make the more harmful products more expensive.", "Promote the less harmful products that already exist.", "People will never make those choices themselves, they like their brand too much – the choice needs to be taken out of it."

Water meters: “Metering is the only way to do it – cost changes behaviour.”, “I think everybody should have a meter – it really focuses your mind.”, “If you think about the reverse, if you had electricity on a standing meter people would be leaving lights on all the time, leaving the TV on.”

Some comments from participants:

“I’ve learned so much today, I did take it for granted.” “The more you learn the more you’ll do.”

“It [water management] is a very important thing, I wouldn’t want to see the standards drop, but there are no big problems at the moment that need dealing with so I don’t favour more investment.”

Appendix One

Benefits identified by the Environment Agency and considered during the workshop session:

- Drinking, cooking, washing, cleaning
  Maintaining water supply to our homes and for public health
- Farming
  Maintaining water supply for crops and animals
- Industry, business and civic use
  Maintaining water supply for manufacturing, producing energy, public buildings, mining, recreation
- Waste disposal and treatment of waste
  Sewage and industrial effluent
- Transport
  People and goods
- Commercial fishing
  Trawling, fish farms, shellfish
- Active leisure
  Boating, canoeing, fishing, surfing, swimming
- Wellbeing
  Enjoying landscapes and wildlife; knowing it’s there for future generations
- Wildlife
  Diversity of plants and animals, improving habitats
- Reducing the impact of floods and droughts
  Helps the public, farmers, business, insurance
- Maintaining the cycle of life on which we depend
  Water flow, soil formation and fertility, climate
- Preserving our economic security
  Protecting our economy from the effects of droughts, floods; our water supply is safe
- Passing on our environment to our children
  Maintaining the water environment makes it resilient for the future

For queries or more information regarding the project and/or workshops please contact:

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LIT 8800

Public Dialogue on Significant Water Management Issues

An Environment Agency project, funded by Sciencewise - Workshop 4 - Worcester

5th October 2013

Summary of Discussions

Present:
15 participants recruited by IPSOS Mori supported by:

3KQ (facilitators)	Rowena Harris, Carl Reynolds, Helen Fisher, Jenny Willis
Environment Agency	Chris Tidridge, Andrew Osbaldiston, Emma Collyer
Icarus (evaluators)	Helen Bovey

> 'It's quite therapeutic to have a bit of wilderness especially in a town centre like Worcester. If you've got a spare half hour you can nip out and have a walk by the river, it's very calming.'

The more people who can access these areas, the more respect they will have for water. It wasn't until I started surfing that I thought 'oh maybe I should look after water' – I wouldn't have thought that when I was younger.

Participants in Worcester were very aware of their local natural water environment. There was a lot more discussion about well-being and healthy living in connection with water than at other workshops so far. Concern about increasing numbers of housing developments in and around Worcester also seemed an important background element influencing participant's thinking on the issues more widely.

After welcomes and introductions participants were asked what they thought were the key issues for the water environment. The following issues were mentioned:

- Pollutants
- Flooding
- Scarcity in the future
- Litter
- Wildlife – possible threats to them and the impact of built up areas
- Synthetics/chemicals

- Building works/planning
- Remodelling of towns
- Drought/rain
- Reservoir stocks
- Water and leisure use – need managing, lack of access in some areas e.g. too few slipways
- Leisure – health and safety
- Other uses of waterways
- Water board – too many leaks, wasting water
- Structures – barriers to flooding, planning issues
- Need for dredging, impact on flooding
- Bank erosion, need for bank management and maintenance
- Fishing
- Population growth, demand on water
- Need for management and maintenance of water – lack of it creates disregard, litter etc.

Discussion around value:

Participants considered what they valued about water and listed the answers on post it notes which were then discussed. Many participants talked about valuing the natural water environment, and the links between nature and human beings, 'keeping it safe for the environment and for nature', 'I value that the wildlife are happy and the water is safe for them to be in, we haven't got ducks dying and things like that', 'Wildlife plants and animals: think - if we lose plants and animals we'll be the next'.

The link between water and wellbeing was another key theme: 'You can go one day and it will be totally different from another day depending on the weather and the seasons', 'It's a relaxing environment – beaches, lakes, rivers canals are nice to be around in their natural state.' Two people mentioned water as an inspiration for creativity: 'Some people are interested in poetry and literature but the art is interesting to me – lots of paintings have water or reflection on water.' 'Yes I completely agree – I do a lot of song writing and I always do it by water.'

Participants talked about valuing water supply – 'It's there!' and appreciated the cleanliness and availability of drinking water compared to other countries. There was a discussion about water meters and the fact that there seemed to be a clear indication that giving water a monetary value through metering made people more considerate of the amount they used. Even for those without a water meter there was an awareness of water consumption: 'I don't have a water meter but I do try and think about it.' People felt that despite lack of awareness of many of the issues under discussion during the day, there was a general awareness about the need to be careful about water consumption, e.g. the need to turn the tap off when cleaning teeth, or collecting rainwater for using in the garden. 'I am aware water is sometimes a rare commodity. It's a natural commodity but it can be hindered and harmed and wasted. I try not to waste it and that's a small way I can contribute to saving it.' [Referring to saving rainwater]

Discussion around benefits:

Participants were asked to consider what they saw as the benefits from successfully managing the water environment. Responses included consideration of costs: 'Of all of this a benefit would be possibly to reduce costs and that would affect all of us. There is a cost of managing water, of building pipe work, and if that is managed carefully that might reduce costs and would have money available for other things'. Community awareness was mentioned as way of increasing the benefits by encouraging people to act differently with regard to water. Consistent supply – 'managing distribution so everyone has access', lack of pollution, safety of water for leisure activities, use for businesses and benefits for the environment itself were also mentioned.

A number of benefits were put before participants (see appendix) and they were given a few minutes to consider them. Both groups considered the list of benefits to be comprehensive, but commented that transport hadn't occurred to them, maybe because of not being near the coast. One group had a discussion about some benefits such as waste disposal, farming and household water being urgent 'without them society can't work really', 'If we couldn't drink and cook we would die and we wouldn't have anything to pass on to anyone' - whereas they considered others less urgent but still important. These included 'passing on the environment to our children', 'reducing the impacts of floods and droughts' and 'active leisure'. The other group, having discussed the inter-linkages between the benefits, felt that 'passing on the environment to our children' was the most important, just ahead of household water, 'We shouldn't be selfish, we've got to be keeping the planet going for the future.'

Transport and commercial fishing were considered less important benefits in both groups. Some also considered active leisure to be less important but this was countered by others who explained their view that active leisure was a foundation for a healthy lifestyle which they felt should be prioritised.

Discussion around challenges:

Participants discussed 'challenges' to the water environment and these were listed on a flip chart. They were as follows:

- Growing population
- Climate change
- Danger of water – swimmers and safety
- Funds – are they there?
- Pollution – chemicals, farming, industry
- Education and public awareness
- Feast or famine of water
- Wildlife diversity
- Need more reservoirs
- Threats to wildlife – pollution and population growth (more building)
- Sources of pollution – litter, including fishing lines & weights, waste from industry, illegal dumping

People identified the challenges as coming from car use, the boating industry, and day to day behaviour of individuals and groups: 'Every time I'm doing decorating I worry when I wash the paint brushes but I don't know another way to do it.' 'There's a lot of chemicals used on farms which might go back into the river.' 'Farmers over use water as well. They've got those greenhouse things where they use sprinklers.'

Discussion around the seven 'topics'

Phosphorus and nitrates

Participants asked whether anyone checked what farmers put on the land. The Environment Agency representative explained that the Rural Payments Agency checks that farmers don't over apply nitrates but there isn't the same system for checking phosphates at present.
In terms of responsibility people felt it should largely lie with government. There was agreement when someone said that there should be 'governing bodies watching the situation and monitoring what should be done.' People felt initiatives such as entry and higher level stewardship schemes were a good idea. There was a question over whether water companies were taking enough responsibility in this area.
There was also a discussion about the virtues of people growing their own vegetables – 'If you are growing your own, there is less waste, less fertiliser, more land available for park areas.' However, others were sceptical: '... the government policy of more dense housing means there is less room for gardens', ' Even if you do grow your own vegetables, you won't grow enough to sustain a big family.', 'You've got to know what you're doing and I don't have the time or energy to get it right.

Bacteria from faecal pollution and sanitary pollutants

Some people felt this should be the responsibility of central government: 'The government should pick up the bill and decide how that is apportioned.' Others felt it fell within the remit of local authorities. When discussing misconnections as one of the causes of this problem one group discussed the importance of awareness raising and suggested it could be done through water companies or government.

Too much sediment

The role of farming was discussed and the fact that some buffer strips and hedges had been taken away over the years to allow bigger machinery to get around the land. However most felt that farmers should be supported to reinstate measures that would help prevent sediment running off into rivers and lakes: 'But I think if you are expecting to put these things back in, the farmers shouldn't be expected to pay – they have so many pressures already.'
In terms of urban areas people recognised the impact of more building and fewer green spaces, including the fact that many front gardens were now paved and used for parking.

Chemicals

People expressed concerns about battery recycling not being accessible enough, and thoughts about possible chemical pollution not being considered properly within the workplace. When one group were asked if they considered chemical ingredients when they were buying household products the vast majority said no: 'Never give it any consideration!!, 'I don't know, I think I trust that the companies are going regulate this stuff', 'I just think I like this stuff I'm going to buy it', 'Most people trust it by brand, they think if it's a big company it will be safe and won't cause a problem'. Some members of the other group said they did: 'I at home use the eco range. I don't understand why more companies aren't going into those kinds of products. Why aren't they being more advertised as better products? Why aren't people being educated more about them? It's little things like using a lemon or household things like vinegar.' However in addition to being more expensive there was a feeling that 'eco alternatives' were seen as less effective. Awareness was cited again as a barrier to change 'You don't realise when your sink looks a bit blocked and you shove a load of bleach down, you don't need that.'

In terms of responsibility people were clear that there it was multiple and interlinked: 'It's down to the industry, absolutely – but we're the ones in control, buying the products, giving the chemical companies our money', 'I'd say maybe the government could do something about the way these products are construed in the media', 'If we're talking about chemical cleaners, then there should be some incentive for businesses to use simpler more eco-friendly products and market those rather than products with lots of chemicals in them.' There was also an observation that with the rise of online shopping it was less easy for people to look at ingredients on labels so clear ways of assessing the environmental 'rating' for products would be a step forward.

Invasive species

The discussion about invasive species again raised a lack of awareness about the extent of the problem, and the way the problem has developed. 'I was quite surprised about what you can get at the garden centre – I would have assumed everything there would have been checked.' There was an enthusiastic response in both groups to the idea of community volunteering to help to clear invasive species from public spaces e.g. river banks. 'I would go and do it if you can tell the job centre to get off my back and go away', 'There must be hundreds of students who are fit and able', 'I think it's a brilliant idea. It used to be done a lot in the early years – keeping your village or community nice'. There was an acknowledgement that not everyone would have the time or inclination to help but the general reaction was very positive.

Responsibility was seen as mixed between individuals, water companies, business and government.

Abstraction and flow

Concern about the effects of population growth dominated the discussion about abstraction and flow in both groups. 'I think that's a really difficult issue because it's got to happen hasn't it? There are more of us on this planet, we're going to use more of it, it's a problem.' It was an area where participants focused on individual behaviour in terms of water use: 'It's about all of us. If we are abstracting too much even for drinking water then we should be more careful with it at home.' Awareness came out as a critical factor again, with several people acknowledging that this was a hidden problem: 'I've always thought about problems like pollution, but never thought about if you take the water out then won't be enough. I'm shocked that I never thought about that before.'

Physical modifications

'I was surprised – these modifications were meant to be a benefit surely to begin with. Now we're realising we probably shouldn't have done that.' This was a typical reaction and was linked to concerns about other types of development: 'They're knocking a lot of greenery down and building houses. How is that going to affect things?'
One group was asked if it should only be people threatened by flooding that pay for works to alleviate it or if it should be spread across everybody. Reactions were in agreement that it should be a shared responsibility: 'It should definitely be spread as we all have the river – it is there.'
'Everybody who walks along it', 'Not just from the river – you can have flooding from sewers too. It should be spread', 'It has to be spread. Flash floods can happen on the road and might be nowhere near a river. I think most things need to be centrally funded and spread'.

Ranking exercise:

Participants were given five dots to place where they liked against the seven issues according to how important/pressing they thought the issue was. They could place as many as they liked on one issue if they felt it was of over-riding importance, or could spread them over different issues.

The results were as follows:

Chemicals	19
Phosphates and nitrates	15
Faecal and sanitary pollutants	12
Abstraction and flow	12
Invasive species	8
Physical modification	5
Sediment	4

Participants were not surprised that chemicals had been ranked at the top, citing the fact that the direct impact on human health was clear and therefore not surprising that people would place priority on it as an issue. One person said they were surprised that abstraction and flow hadn't come out higher as they saw it as the 'fundamental thing'. Given the local experience in Worcester another expressed surprise that physical modifications (especially in relation to flooding) hadn't been given higher priority, however they felt it was because 'As a group we're thinking generally not just thinking about Worcester.' Another said 'The reason I didn't put one on physical modifications because if it's disgusting and full of chemicals who cares how it flows?'

Who should pay?

There seemed to be a common feeling that in general 'polluter pays' is fair, however the knock on effects were acknowledged as having an impact on everybody. Concerned were expressed about charges being passed on in water bills. In relation to industry one person said 'give them benefits for doing the right thing and make them fix anything that is causing a problem', another said 'If there are fines, they should be put back into solving the problem rather than into the central pot'.
There was also an understanding that although there is a cost in managing the problems outlined, there is a cost saving offered in terms of the results of better management outcomes.

Lifestyle changes

'Education is so important. If you had asked me about any of this before 10 this morning wouldn't have known, but I think it's just that block – people don't know so don't care.'
There was a general consensus that more awareness amongst the public was essential to increase the chance of behaviour change. Participants said that as a result of taking part in the discussions there were a number of things they would do differently including having more showers instead of baths, not pouring fat down the sink, being more aware of what household products they buy, getting a water butt and telling other people about what they have learned. Other comments included: 'If everyone was on a meter and you put the amount up it would make people more careful about what they use.', 'I would do more if I could see the cost benefits.', 'If I were on my own I would have done more, like a grey water tank. But I can't get my partner to agree as we wouldn't make our money back. He is driven by the economic argument, but for me it's the ecological argument too', 'You need more documentaries about this sort of thing on TV'.
In common with discussions in other workshops an environmental equivalent to the fair trade mark was seen as a good idea.

Some comments from participants

I was quite blinkered but now I'd think about these things more. They're like silent problems really.

You need to frighten people to make them change their behaviour. They need the facts. Like the anti-smoking ads.
People are too detached from the physical world at the moment, they spend so much time inside and in offices.
If these things were advertised people would talk about them more, then it would get politicians to talk about it more too.

I think it's interesting that as a nation we value Britain as a 'green and pleasant land' with rivers and streams and caring about the countryside, but there's a mismatch between that and what we have been talking about today.

Appendix One

Benefits identified by the Environment Agency and considered during the workshop session:

- Drinking, cooking, washing, cleaning
  Maintaining water supply to our homes and for public health
- Farming
  Maintaining water supply for crops and animals
- Industry, business and civic use
  Maintaining water supply for manufacturing, producing energy, public buildings, mining, recreation
- Waste disposal and treatment of waste
  Sewage and industrial effluent
- Transport
  People and goods
- Commercial fishing
  Trawling, fish farms, shellfish
- Active leisure
  Boating, canoeing, fishing, surfing, swimming

- Wellbeing
  Enjoying landscapes and wildlife; knowing it's there for future generations
- Wildlife
  Diversity of plants and animals, improving habitats
- Reducing the impact of floods and droughts
  Helps the public, farmers, business, insurance
- Maintaining the cycle of life on which we depend
  Water flow, soil formation and fertility, climate
- Preserving our economic security
  Protecting our economy from the effects of droughts, floods; our water supply is safe
- Passing on our environment to our children
  Maintaining the water environment makes it resilient for the future

For queries or more information regarding the project and/or workshops please contact:

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*'Independently designed and delivered by 3KQ and Ipsos MORI as part of a series of public dialogue workshops'

"The Sciencewise Expert Resource Centre (Sciencewise-ERC) is the UK's national centre for public dialogue in policy making involving science and technology issues."

LIT 8826

Public Dialogue on Significant Water Management Issues

An Environment Agency project, funded by Sciencewise - Workshop 5 - Manchester

12th October 2013

Summary of Discussions

Present:
18 participants recruited by Ipsos MORI supported by:

3KQ (facilitators)	Richard Harris, Rob Angell, Jane Dalton, Jenny Willis
Environment Agency	Rachel Argyos, Jim Ratcliffe
Icarus (evaluators)	Steve Smith

> "The biggest problem is we all take water for granted."

> "I think because it's easily available we never really think about where it comes from, if we suddenly didn't have it you'd start to think about it."

> "The biggest thing about this is knowledge. We don't know enough, we need to know more."

These quotes illustrate key themes of the day – participants acknowledging that we are very lucky in this country with regard to our water supply, but also seeing the need to raise people's consciousness about the water that they use and the need for more education about the issues.

After welcomes and introductions participants were asked what they thought were the key issues for the water environment. The following issues were mentioned:

- Lots of new housing/building development, but no new reservoirs
- Pollution
- Fly-tipping
- Extreme weather – flooding, droughts, water shortages.
- Health and safety around water bodies

- Access to rivers/lakes e.g. for families/disabled
- Clean water
- Education for children to make them aware from an early age about saving water
- Upkeep and use of canals – potential for using them for transportation
- Terrorism/poisoning of our water supply.
- Transportation of water from where it is to where it's needed
- Lack of wildlife in the rivers – habitat not as good as it was

Discussion around value:

Participants considered what they valued about water and listed the answers on post-it notes. Many of these were linked to the quality and availability of our water supply – 'clean drinking water', 'safe', 'taste', 'just being able to turn on the tap'; the importance of water to life – 'can't live without it', 'used for so much'; and also recreation and enjoyment – 'enjoy the lakes and green lands', 'a place to walk my dog', 'sea quality (activities)'. Other themes included plants, farming and wildlife.

Many participants talked about the importance of the availability of safe, clean water: "It's got to be readily available to be able to live your life day by day.", "Your main thing is drinking water – it's vital for life, it's like oxygen.", "You can't survive without it – plants, food, animals, not just us humans."

The fact that people in this country take our water supply for granted was acknowledged: "You turn the tap on and you expect it to be there, you expect it to be clean and clear.", "We're very lucky, it's always available, it's clean it's fresh. You see these adverts in Africa of children with dirty water, we take it for granted.", "If they turn the water off, within half an hour you realise just how much you use it, how often you turn the tap on.", "A lot of things which you take for granted involve water in some way – cleaning in buildings, streets, used in industry…."

There was a general feeling that the water quality in the northwest is very good in comparison to other parts of the UK, but there were also concerns that this is at risk due to e.g. fracking and land development. In contrast, some participants said that they drink bottled water or boil/filter their tap water either because they prefer the taste, or because they are concerned about the quality.

The importance of the natural environment and the enjoyment that comes from water was also discussed: "I love walking by rivers, walking over little bridges, walking alongside them. Taking a bit of time to stop and listen.", "In the urban environment they have these fountains where the children can walk through and the kids love it. There's a tremendous amount of enjoyment in water.", "Water pistols are still popular in the summer with kids."

Discussion around benefits:

Participants were asked to consider what they see as the benefits from successfully managing the water environment. Responses included: consistency – clean water wherever you go, health benefits, reduction in soil erosion, can add healthy things (e.g. fluoride), guarantee that it's clean/safe, availability for all the things we need it for, drought management, improved storage, reduced risk of flooding, recreation, gardening.

A number of benefits were then put before participants (see Appendix) and they were given a few minutes to consider them. It was acknowledged that most of the benefits are inter-linked and that they are very hard to prioritise, however there was broad agreement that 'Maintaining the cycle of life on which we depend' is the fundamental aim, and that achieving this is reliant on many of the others, particularly 'Waste disposal and treatment of waste'. 'Preserving our economic security' and 'Industry' were also highlighted as important issues: "I'd put that one [Industry] quite high up because if it's not being actively managed it's more likely to go wrong."

The benefits generally considered less important were 'Active leisure', 'Transport' and 'Commercial fishing', although not everybody agreed e.g.: "Active leisure is not an important thing. Water is more for well-being and survival. Those that have the money can afford to go surfing, water-skiing etc. If you're working class you think about more of the day to day things.", "if you think of the benefits of people being able to do that [Active leisure] as opposed to other things… that's got to be of benefit.", "The fisherman gets his living from that [Commercial fishing], who am I to say it's not a priority?"

Discussion around challenges:

Participants discussed the 'challenges' that might get in the way of receiving the above benefits both now and in the future, and these were listed on flip chart. They included:

- Lack of money and resources to do what needs to be done
- Need for housing taking land and causing more problems
- Industry using more water – need incentives to reduce the amount used
- Fly-tipping
- Holding people accountable and identifying who they are
- Population growth – reliance on antiquated systems
- Pollution e.g. from farming
- Changes in rainfall – more unpredictable weather
- Climate change
- Government regulations – might need to be changed/tightened
- Privatisation of water companies
- Movement of population centres – infrastructure requirements
- Maintenance of storage systems
- NIMBYism – people not wanting development near them
- Not doing now what is needed for the future
- Ignorance – lack of awareness
- Waste and leakage
- Need for more investment
- Water companies making more profit – not re-investing
- Uncertainty re the future – need things in place to cope with the various possibilities
- Need to invest in storage/reservoirs
- More investment in waste water recycling

A lot of the discussion focused on the need to raise awareness about making better use of water. Many participants felt that making water meters compulsory would make people more conscious of how they use water: "I was very cautious when I was on the meter with the kids, how much I put in the bath and so on. But now [no longer on a meter] I just turn it on. I realise I am more frivolous now I don't have a meter."

Concerns were voiced about privatisation of the water companies, particularly in relation to how profits are used: "Water companies should invest more out of their profits.", "If the water companies were publicly owned, there'd be more transparency over money flows.", "Water comes out of the sky for free so they're profiting from mother nature really aren't they?"

Discussion around the seven 'topics'

Phosphates and nitrates

The discussion focused on explanations and clarifications from the EA representatives, including sources and consequences of these compounds getting into the water system. Discussions considered how the problem could be addressed, and the difficulties that farmers would face if they reduced their use of nitrate fertilisers were also discussed: “If you stop people using them here, we’ll go somewhere else for our food and they’ll be using them – it just exports the problem.”, “Given that it seems as though farmers aren’t able to survive without using nitrate fertilisers, I would say it has to come from an EU farming policy.”, “I really think we should decrease the use of nitrate fertilisers anyway. They’re made from crude oil and as crude oil is used up any industry relying on these would collapse.”

Personal shopping behaviour was also considered: “We can influence them [industry and farmers] through what we buy.”, “Most products I pick up I’m not necessarily looking at what’s in them.”, “Well I’ll look now I know this.”

Bacteria from faecal pollution and sanitary pollutants

Following clarification from the EA regarding the various sources, it was clear that participants were not aware that this issue existed: “People wouldn’t believe it if you told them all of this about sewerage flowing freely.”, “I find it really quite shocking and surprising that we’re still operating on these Victorian systems.” There were also low levels of awareness of what the water companies do to treat waste water.

With regard to who is responsible it was felt the Government, water companies, industry and individuals all have a part to play: “We should be taking a bit more care over what we put down the toilet and what products we use.”, “If I go through an oil change my mechanic stores my oil in a tank, shouldn’t restaurants be doing the same thing?”

Too much sediment

This discussion again focused on clarifications from the EA, and the challenges in determining who is responsible were highlighted. It was suggested that local authorities should be policing the land within their areas if land owners and farmers are not managing their land properly. The difficulties that farmers face were also discussed: “If it was simple the farmers would be doing it already. They might not be doing it because they haven’t got the resources, the ability, the money. Look at incentives rather than policing.”, “The best way might be a partnership between Defra and farming concerns themselves as they each have a motivation for trying to limit the movement of material into the rivers.”

Chemicals

Discussions focused on the role of industry, farming and consumer behaviour, as well as how the use and disposal of chemicals is regulated/enforced. Although it was felt that the Government ultimately needs to be responsible for regulation, the difficulties of enforcing and controlling were acknowledged. Prevention was considered to be key: “Responsibility should be at the source, whether it’s a farmer putting things on the land, industry or households, so it doesn’t get into the water course in the first place.” and the need for raising awareness was again highlighted: “I think leaflets should be sent to every household in the country.”, “I think if the public is aware of what these things cost, and that the things that they’re doing are wrong, they should be responsible for disposing of them in the right way.”

There were also suggestions for making the prices of products more equal e.g. by introducing tax benefits on eco-friendly products and applying levies to those containing harmful chemicals.

Invasive species

Suggestions for prevention included improved immigration control, however it was also noted that “there are all sorts of ways these things come in” making prevention difficult.

There was some debate as to whether private landowners should be responsible for control and management, and the difficulties were acknowledged: “It’s quite difficult for private owners to do something about it – rivers, lakes, streams, they often cover more than a single person’s property.”, “Doing something like eradicating a population of shrimp would require a lot of equipment and technology. Apart from everything else if you miss one breeding pair you’re just going to have to do it all again.”

It was suggested that voluntary groups could do more of the work, although it was also noted that there is a limit to this: “They’re the people that are using the environment, doing the walking by the streams, by the rivers, so let them do it.”, “Could resources go into coordinating activities at a grass roots level?”

Abstraction and flow

This discussion again focused on explanations from the EA. Some participants felt that responsibility for decision-making on levels of abstraction should lie primarily with the EA rather than the Government: “I would have thought it has to be the Environment Agency, because who else is going to make a decision on that? It should be based on expertise – if it was political it might be about business or lobbying, rather than a non-political decision.” It was also felt that public consumption has a key role to play and water-saving measures were discussed.

Physical modifications

The EA explained the historic reasons for modifications, how planning approval and permitting now work, and gave examples of the positive/negative impacts of modifications. An example of a recent project to reinstate the ecology of a river by removing weirs etc. was welcomed: “It’s good that we are doing something about it. We need to bring these things back to life, the animals, the fish, the butterflies, the insects.”

Ranking exercise:

Participants were given five dots to place where they liked against the seven issues according to how important/pressing they thought the issue was. They could place as many as they liked on one issue if they felt it was of over-riding importance, or could spread them over different issues. The results were as follows:

Chemicals – 28
Faecal indicator organisms and sanitary pollutants – 26
Phosphorus and nitrates – 19
Physical modifications – 6
Invasive species – 5
Fine sediments – 3
Abstraction and flow – 2

Participants were unsurprised by the top three issues because “those are the things that are going to affect us”, they’re about health and welfare”, and “there’s more you can do with the top three things than the others”. Reasons that were given for placing of the dots included: “quite a lot of those [the higher-ranked issues] are to do with water quality overall and that has cumulative effects – you get higher returns. Everything else is much more piecemeal and the effects are much smaller.”, “If you take abstraction that’s controlled and regulated, so it’s already in a controlled situation.”, “Invasive species come in from elsewhere and we haven’t a lot of control over that.”

Most people felt that having taken part in the workshop they would now give more weight than previously to water/environmental issues, and the top-weighted issues were felt by some to be as important as the NHS, education and the economy. However, some participants felt that other national issues, particularly the NHS, should have a greater priority, especially as “there is no great crisis” about water quality. Views differed on whether issues such as defence and foreign aid were more or less of a priority.

Who should pay?

Many people felt that the polluter should pay, especially farmers and industry, but questions remained over how this could be allocated amongst polluters, and how easy it would be to identify those causing pollution. The potential for levies or fines was discussed, with the income generated being used to pay for water treatment or funding the EA. It was also suggested that this should go alongside "a price freeze so that costs couldn't easily be passed immediately to the consumer."

Other comments included: "We're all polluters so we should all pay.", "If everybody pays that isn't fair on the innocent.", "We're already paying the water companies for what we drink and the waste.", "It should be the developer that pays for the flood barriers if they build on a flood plain.", "Lottery money – they give money to charity for art galleries and stuff which the likes of us will never go to – they should put it into water stuff instead.", "There's a need for Europe-wide action so there can be common commitments and no one country is left paying more."

Lifestyle changes:

Awareness-raising and education: "People should learn/be taught about the issues through their employer/radio/TV.", "There should be advertising, public service bulletins.", "We should be putting the idea of water-saving into children's education, making children aware from an early age.", "[need to be] given a 'robust academic case' for action."

Using different products: "If environmentally friendly products were cheaper than the conventional products it would make it easy/attractive for people to buy them.", "Look at product placement in supermarkets, make them [eco-friendly products] easy to find, more visible.", "Much clearer labelling, you could have a water-friendly symbol."

Water meters: These were felt on the whole to be a good idea for water-saving measures and it was also suggested that money is the biggest motivator for making lifestyle changes. "If we globally put everybody on a meter it would make everyone more conscious.", "If everybody had to pay for what they use they'd think differently", but there were also concerns e.g. "It puts a lot of pressure on very low income people."

Final comments from participants:

Comments about the day included:

"I think it has been an eye-opener – I wondered how we'd talk about water for 6 hours but we have."

"I will be more stringent about chemicals and water in the house."

"I am more curious about chemicals and not wasting natural resources."

"When I'm cleaning out the [weedkiller] sprayer at work I used to just put it down the drain – now I would think about that."

Appendix One

Benefits identified by the Environment Agency and considered during the workshop session:

- Drinking, cooking, washing, cleaning
  Maintaining water supply to our homes and for public health
- Farming
  Maintaining water supply for crops and animals
- Industry, business and civic use
  Maintaining water supply for manufacturing, producing energy, public buildings, mining, recreation
- Waste disposal and treatment of waste
  Sewage and industrial effluent
- Transport
  People and goods
- Commercial fishing
  Trawling, fish farms, shellfish
- Active leisure
  Boating, canoeing, fishing, surfing, swimming
- Wellbeing
  Enjoying landscapes and wildlife; knowing it's there for future generations
- Wildlife
  Diversity of plants and animals, improving habitats
- Reducing the impact of floods and droughts
  Helps the public, farmers, business, insurance
- Maintaining the cycle of life on which we depend
  Water flow, soil formation and fertility, climate
- Preserving our economic security
  Protecting our economy from the effects of droughts, floods; our water supply is safe
- Passing on our environment to our children
  Maintaining the water environment makes it resilient for the future

For queries or more information regarding the project and/or workshops please contact:

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3KQ THREEKEYQUESTIONS Ipsos MORI

'Independently designed and delivered by 3KQ and Ipsos MORI as part of a series of public dialogue workshops'

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Public Dialogue on Significant Water Management Issues

An Environment Agency project, funded by Sciencewise - Workshop 6 - Exeter

19th October 2013

Summary of Discussions

Present:
16 participants recruited by Ipsos MORI supported by:

3KQ (facilitators)	Richard Harris, Rob Angell, Jane Dalton, Helen Fisher
Environment Agency	Jeremy Bailey, Cath Beaver, Roseanne Broome

> "I suspect we'll go home thinking about things we'd never thought of before. If there was greater awareness and we all used a bit less water…"

After welcomes and introductions participants were asked what they thought were the key issues for the water environment. The following issues were mentioned:

- Litter/rubbish in waterways including e.g. shopping trolleys/bicycles in canals
- Rainfall variability
- Sewerage
- Flooding
- Extraction of water from rivers causing dried up ponds/rivers
- Impact on animals and fish in rivers
- Fertiliser run-off getting in the water
- Oil pollution (in the sea)
- Development and tourism
- Erosion
- Silting up of estuaries
- Industrial chemicals
- Planning/development contributing to flooding
- Building properties on flood plains

- Chemicals/excessive nutrients from fish farming
- The economy – lack of money to look after the natural environment

Future challenges

- Fracking
- Sea levels rising
- Use of water for energy production e.g. hydroelectric.
- Wind farms spoiling the coast
- Introduction of invasive species
- The potential for desalination
- Increased water usage
- Cost of tap water
- Wasting clean water e.g. using drinking water to flush toilets
- Purity of water

Discussion around value:

Participants considered what they valued about water and listed the answers on post-it notes. Many of these were linked to the quality and availability of our water supply – 'unlimited water supply in homes', 'good tasting water', 'clean and quality water supply'; the importance of water to life – 'necessity', 'water sustains us'; and enjoyment of the natural environment – 'natural beauty', 'feeling of well-being in beauty', 'landscape value', 'recreation', 'fun days out'. Other themes included the availability of clean water for future generations, the importance of maintaining the water cycle, and the reasonable cost of water at present.

Participants talked about the vital nature of water: "It's a lifeblood.", "You can't live without water.", and its importance for well-being and enjoyment was also discussed: "I think surveys or information shows that if you actually live near water, the stress levels of the people there are less than in urban areas.", "That idea of being in a field by a stream is just idyllic.", "Whenever we have leisure time we always seem to go somewhere where there is water. The water somehow draws people to it and is part of the beauty of the whole place. It's a special feeling."

It was acknowledged that we are very lucky in the UK and that our water supply is taken for granted: "Some people use too much water, maybe for washing cars, gardening. Some people have a bath every day and waste water.", "Three generations ago people had to go to a well for water, and now you just turn a tap on and it's there – I think it's amazing."

Some participants live in properties with boreholes and they agreed that it makes them appreciate and value water more. Others gave examples of their existing water-saving measures: "If I turn the hot tap on, a jug's worth of cold water comes out first, so I keep a jug by the hot tap and use it for the garden.", "I have three children – instead of three separate baths they all go in one after the other to save water. It's not just my view, it's the children's as well –they say one day we might live on a planet where there isn't any water."

Discussion around benefits:

Participants were asked to consider what they see as the benefits from successfully managing the water environment. Responses included: economic benefit, generation of electricity, cleaner and more pure water, constant supply, prevents flooding, provision of work/jobs (e.g. ship-building), tourism, transport and industry.

A number of benefits were then put before participants (see Appendix) and they were given a few minutes to consider how they would prioritise them. It was acknowledged that most of the benefits are strongly inter-linked and several people felt that it was therefore difficult to prioritise them: "These are so interdependent – if one messes up, it messes up another, which messes up another – they can go out of kilter very easily." There was, however, broad agreement that 'Maintaining the cycle of life on which we depend', 'Drinking, cooking, washing, cleaning', 'Passing on our environment to our children', 'Reducing the impact of floods and droughts', and 'Waste disposal and treatment of waste', were most important.

Concerns about taking a short-term view were expressed: "We're putting ourselves first though aren't we.", "The problem is we're taking it now, short-term, and what we're doing now impacts the future. We need to remember the generations that follow.", and some felt that the natural environment and wildlife/bio-diversity should be prioritised higher: "I think we need to move wildlife up to the top of the agenda more – I think people and wildlife are of equal importance."

The benefits generally considered less important were 'Active leisure', 'Transport' and 'Commercial fishing', however it was also felt by some that 'Active leisure' should be a higher priority in Devon due to its links with tourism/economic security.

Discussion around challenges:

Participants discussed the 'challenges' that might get in the way of receiving the above benefits both now and in the future. They included:

- Lack of funding and resources to do what needs to be done
- Planning – e.g. allowing development in flood plains, enforcement of building regulations, misconnections, use of porous surfaces etc.
- The political agenda e.g. developing housing but not considering the negative impacts
- Responsibility and accountability for the issues
- Dual standards (in relation to what people vs industry are allowed to do)
- People taking a short-term view rather than longer-term thinking
- Climate change and natural weather patterns
- Population growth
- Greed – people wanting to make money from development
- Erosion of river banks
- Bureaucracy (especially local government) and the time it takes to get anything to happen
- Increased demand for supply
- Future cost of the water supply
- Impacts of flooding e.g. overflows causing pollution on beaches
- Individual behaviour e.g. concreting driveways, wasting water
- Carrying out immediate fixes rather than permanent solutions
- People not thinking about how their actions (e.g. cutting down trees) will affect water
- Discussions focused on the need to raise awareness about making better use of water, and for people, farmers, industry and councils to use water more efficiently. Trade-offs were also discussed e.g. using more water for farming may harm wildlife, and whether it is a waste of water to wash plastics/glass before recycling them.

The tensions between regulation and de-regulation were also recognised: “They want to cut red tape, but then when you get de-regulation you get bad things happening.”, “But if you de-regulate there’s no protection anymore.”, “It’s about how you manage the regulation.”

Discussion around the seven ‘topics’

Phosphates and nitrates

The discussion focused on explanations and clarifications from the EA representatives, including sources and consequences of these compounds getting into the water system. Lack of public awareness was acknowledged as an issue: “I don’t think many people realise how poisonous these products [detergents] are. You see adverts all the time about cleaning things. If people thought that these were poisoning our water supply, they might think differently.” and it was also suggested that use of the compounds should be banned.

It was felt that Government, farmers, industry and individuals all have a part to play, although some felt that consumers are already paying for their water to be treated. There was a particular focus on farming, and whilst it was felt by some that “farmers contribute most of the problem, can something not be done about that?”, there was also sympathy for their situation: “It’s a difficult one – if they can’t produce food at a low enough rate for us to buy we’ll import more.”

It was generally felt that it is necessary to tackle the problems both through source control and water treatment. Some people felt that consumer choice should be taken away, but others felt awareness-raising would be better: “I think we should be allowed the choice but we should be more informed on the decisions we’re making. Before today I had no idea that phosphates were polluting the water, but maybe if there was an advert on the telly that explained what phosphates are doing I might change what I do.”

Bacteria from faecal pollution and sanitary pollutants

Discussions focused on the problems caused by misconnections and raw sewerage being released into the sea from overflows at water treatment works. It was felt that water companies are primarily responsible as “that’s what they’re paid to do by their customers”, and the role of the Environment Agency and the Government in regulating and/or funding for prevention was also discussed.

Too much sediment

It was noted that issues with sediment in the south west are mainly to do with agriculture due to the type of soil and how land is managed. The focus of the discussion was on how farming practices contribute to the problem, including the impact of growing certain crops, but the market pressures that farmers are under to produce specific crops and farm intensively were also acknowledged. The role of run-off from urban areas was also reiterated, and it was suggested that the use of porous surfaces should be encouraged/enforced by local planning authorities.

Chemicals

Frustrations with supermarkets, manufacturers and the Government were voiced, particularly in relation to the use of plastic: “I feel they only pay lip-service to it, plastic bags and everything, I notice that things are more often in plastic not less, there’s more use of plastic. They’re not practising what they preach.” Consumer behaviour was also discussed, and although some participants said that they do consciously buy environmentally friendly products, others acknowledged that they don’t think about it, or only do so after the fact: “I don’t so much think where’s it going, and then I’m looking to put it in the recycling and you think why can’t they use that instead.” Suggestions included clearer labelling or colour-coding systems for recycling and environmentally household products, and banning certain chemicals: “Like parabens in shampoos and stuff – they’re banned in France.” The use of alternative products was also suggested: “I

don't know why we don't use more natural products like sheep's wool and stuff.", "That's the great stupidity, we don't use the things that we've readily got, we manufacture more things using chemicals.", "There should be more research into finding more environmentally friendly alternatives."

With regard to where responsibility lies, it was felt that individuals and industry both have a role to play, but the role of Government was also discussed: "Government need to tell you what to do.", "But it's the industry that are going to be producing things. The Government can tell you what you like but it doesn't mean they'll do it."

Invasive species

Although people were aware of some of the species that are causing issues, few people had heard of recent public education campaigns. There was some surprise at how much it is costing to manage the issues, and it was acknowledged that some species are now so well established that we may "just have to live with it." It was suggested that companies selling non-native plants should "educate their clients as to what not to do", and the need for improved control over what comes into the country was also raised: "Surely you've also got to look at preventing others coming in, in the future." Further suggestions included: "If you put these things on a good menu that could help.", "Perhaps having community groups who get other people involved and foster community relationships."

Abstraction and flow

This discussion again focused on explanations from the EA. The potential for desalination and the impact of population growth were both discussed. It was agreed that individuals have a role to play: "I think we don't collect enough rainwater… if everyone did something to collect water, it would solve a lot of problems.", "I'd agree that encouraging people to use less water has got to be good news."

The potential for a 'National Grid' system for water was also discussed: "The southeast has lots of people and not so much rain, but here we get plenty of rain and have not so many people. So as a country, whether we could have some kind of National Grid for water – the idea seems sensible."

Physical modifications

The EA explained the historic reasons for modifications, how planning approval and permitting work, and gave examples of the knock-on effects of modifications on e.g. biodiversity, health and safety, flooding and so on. Some participants felt that it is important to keep things as natural as possible, and examples were given of natural disasters that governments have tried to protect against without success: "you can't stop floods, it's natural, they're natural events.", "In my view keep it as it is – natural, as natural as possible – and maybe engineers can protect some places." With regard to local flood defence schemes, some felt that keeping/making things natural is less important than the benefits they provide e.g.: "The flood defence side is very important, but making it look pretty is not."

It was generally felt that responsibility for future adaptations should be shared between local/central Government and the Environment Agency, as well as individuals and industry: "It should be all the parties working together – the Government are in a position to fund it, but it goes all the way down to the individuals. The council knows what that area's like – the Government might say do this kind of modification but it might not be appropriate locally.", "Local government planning officers should be taking responsibility for allowing building in a place that is prone to flooding." Concerns were also expressed about the motivations of industry: "I'm not happy about industry looking after it as there's a bit of self-interest going on there."

Ranking exercise:

Participants were given five dots to place where they liked against the seven issues according to how important/pressing they thought the issue was. They could place as many as they liked on one issue if

they felt it was of over-riding importance, or could spread them over different issues. The results were as follows:

Abstraction and flow – 18
Chemicals – 17
Faecal indicator organisms and sanitary pollutants – 16
Phosphates and nitrates – 14
Sediment – 7
Physical modifications – 6
Invasive species – 2

Explanations for the highest rankings included: “Everything depends on how much water you’ve got or haven’t got, and that’s why abstraction and flow come first.”, “It’s not just about what we’re doing now, but the longer-term impact for our children [chemicals and phosphates].” There was some surprise that phosphate and nitrates had not come higher, but others said that they had grouped them in with chemicals.

Reasons given for lower rankings included: “I decided against putting dots on invasive species because a lot of money’s been spent and nothing’s happened.”, “Local people can take action against that [invasive plants] but they can’t tackle the other things.”, “I thought they come in an order – there’s no point doing this one until you’ve done this one.”

Some participants said that having taken part in the workshop they would now give more weight than previously to water/environmental issues: “These water issues are pretty fundamental and therefore more important than many issues.”, and it was acknowledged that it is not a stand-alone issue: “It affects public health.” However, others felt that other national issues, including the economy, infrastructure, housing and the NHS, are more urgent especially as “there is no great crisis” about water quality. It was also suggested that a national weighting exercise should be carried out.

Who should pay?

Many people felt that the ‘polluter pays’ principle is the most fair, with business, industry and farming being identified as the main polluters. Questions remained over how feasible this would be as polluters cannot always be identified. Other suggestions included paying via water bills, re-investing water company profits and increasing taxes.

Lifestyle changes:

The main comments were around awareness-raising and education: “People are more likely to change what they do if awareness is raised about choices/impacts.” Ideas for doing this included: “Use TV, media, public information adverts.”, “It should be education at schools and in homes. When children are young they absorb things, they have fresh minds.”, “Marketing/PR”, “A drama like ‘Blackout’ – something about water presented in the form of a drama.”

Saving money was also identified as a key incentive for changing personal behaviour, and other suggestions included: giving people rain butts for their gardens, introducing “codings on bottles to help you tell more environmentally friendly products.”, and creating “an independent body/advisory centre … to educate people.”

Participants said that people are generally less likely to change if it costs money or takes time, and that there are some people who will not change because they ”just won’t do the right thing”, or due to “sheer inability” or “laziness” – “While water is still coming out of the tap people won’t bother.”

Other comments from participants:

“I suspect we’ll go home thinking about things we’d never thought of before. If there was greater awareness and we all used a bit less water…”

“People don’t know how much water they use. In England it’s too luxurious. Dakar is always short of water and people know it is important. We have a saying there: water is life. Here we don’t have that problem. Until the water stops people won’t think it’s important.”

“It’s really good to teach kids how to do it, but we’ve got to do stuff ourselves too. We can’t just be teaching kids in schools; that’s important but we have got to have awareness in all parts of the population.”

Appendix One

Benefits identified by the Environment Agency and considered during the workshop session:

- Drinking, cooking, washing, cleaning
  Maintaining water supply to our homes and for public health
- Farming
  Maintaining water supply for crops and animals
- Industry, business and civic use
  Maintaining water supply for manufacturing, producing energy, public buildings, mining, recreation
- Waste disposal and treatment of waste
  Sewage and industrial effluent
- Transport
  People and goods
- Commercial fishing
  Trawling, fish farms, shellfish
- Active leisure
  Boating, canoeing, fishing, surfing, swimming
- Wellbeing
  Enjoying landscapes and wildlife; knowing it's there for future generations
- Wildlife
  Diversity of plants and animals, improving habitats
- Reducing the impact of floods and droughts
  Helps the public, farmers, business, insurance
- Maintaining the cycle of life on which we depend
  Water flow, soil formation and fertility, climate
- Preserving our economic security
  Protecting our economy from the effects of droughts, floods; our water supply is safe
- Passing on our environment to our children
  Maintaining the water environment makes it resilient for the future

For queries or more information regarding the project and/or workshops please contact:

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3KQ THREEKEYQUESTIONS Ipsos MORI

'Independently designed and delivered by 3KQ and Ipsos MORI as part of a series of public dialogue workshops'

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Public Dialogue on Significant Water Management Issues

An Environment Agency project, funded by Sciencewise - Workshop 7 - Leeds

26th October 2013

Summary of Discussions

Present:
18 participants recruited by Ipsos MORI supported by:

3KQ (facilitators)	Rowena Harris, Rob Angell, Jane Dalton, Gwen Harrison
Environment Agency	Dominic Shepherd, Dan Bean

> "When you see these third world countries where children can't get clean drinking water – we're so lucky."

> "People complain a lot if the water gets cut off, even if it's just for 8 hrs, because it affects your life so much. It's only when it's not there that you appreciate it."

> "It all boils down to education."

These quotes illustrate key themes of the day – participants acknowledging that we are very lucky in the UK and that we take our water supply for granted, as well as the need for more information and education about the issues to raise people's awareness about the issues and what role they have in relation to them.

After welcomes and introductions participants were asked what they thought were the key issues for the water environment. The following issues were mentioned:

- Pollution
- General water quality
- Over-population – demand for water
- Impact on wildlife
- Wastage through leaks/burst pipes

- Lack of conservation of water
- Changes to the weather

Recreation activities affecting water quality e.g. water-skiing, motorboats on lakes

- Cost to water companies of treating/saving water
- Flooding, including flood defence costs and the knock-on effects of flooding e.g. increased cost of insurance

Discussion around value:

Participants considered what they valued about water and listed the answers on post-it notes. Many of these were linked to the necessity of water for life and the quality and availability of our water supply – 'water is life itself – without it we would all perish', 'being able to have clean water whenever I want or need it', 'quality of drinking water', 'safe to drink'; enjoyment of the natural environment – 'natural beauty', 'peace, tranquillity of the sea'; and health/recreation – 'swimming pool water….fitness for ageing!', 'leisure', 'hydration'. Other themes included affordability, provision of public amenities, clean rivers/canals and wildlife.

Participants talked about the vital nature of water for survival and health, as well as its value in everyday life: "If we didn't have water we wouldn't have life – it's that important." The importance of water in the natural environment and its importance for well-being and enjoyment were also discussed: "When you're sat at the side of a river….you're away from everything, away from work, it's really relaxing.", "On holiday, when you're in the sea, you can do lots of water sports. It's just there – you can have so much fun", "Sometimes we go to the coast and just listen to the sea. I can't imagine not being able to do that. Nature – it's a basic".

It was acknowledged that the quality and availability of the water supply in the UK is taken for granted: "You can drink as much as you want – there's no limit to what you can use.", "When you go abroad, I bet most of us buy bottled water, even in America. We don't trust it. Here we drink it out of the tap, that's a compliment to the water board isn't it.", "Last year we had a lot of bursts in the area and the water was turned off…. it really made you appreciate it more."

The amount of water that is wasted was discussed, including e.g. drinking water being used to water gardens, and some participants gave examples of their own water-saving measures: "At home we talk about having caravan showers [turning the water on/off]", "I'm on a water meter and I had my bath taken out.", "In the summer I recycle my bath water."

Discussion around benefits:

Participants were asked to consider what they see as the benefits from successfully managing the water environment. Responses included: cleaner water, keeping costs down, continuity of supply, pleasure and recreation (e.g. swimming pools), having water that is safe to drink, and not having to collect/treat it ourselves: "I think the benefits are the things we felt were important to us – the things we take for granted, the things we value, they're the benefits."

A number of benefits were then put before participants (see Appendix) and they were given a few minutes to consider how they would prioritise them. It was acknowledged that most of the benefits are strongly inter-linked and it was therefore difficult to rank them: "They all link – each one has a knock-on effect on the others." Although views differed, 'Maintaining the cycle of life on which we depend', 'Drinking, cooking, washing, cleaning', 'Passing on our environment to our children', 'Preserving our economic security' and 'Waste disposal and treatment of waste', were generally considered most important.

The benefits considered less important were 'Active leisure', 'Transport' and 'Commercial fishing'. It was, however, acknowledged that leisure is important for well-being and tourism, that land transport requires water, and that without all forms of transport our food supply would be affected.

Discussion around challenges:

Participants discussed the 'challenges' that might get in the way of receiving the above benefits both now and in the future. They included:

- Lack of funding
- Politics – makes action too slow
- Red tape/bureaucracy – difficult to get things done
- Planning laws and building in flood plains
- NIMBYism e.g. more reservoirs needed but people don't want reservoirs near them
- Cost of maintaining existing infrastructure and installing new infrastructure
- Lack of suitable places for new infrastructure
- Ability to use parts of the environment
- Weather/climate change
- Leakage from the system – lack of maintenance of an old system
- Not being proactive about future needs e.g. should be mending things before they break, prevention as opposed to cure
- Our lifestyles and increased expectations e.g. more bathrooms in houses, washing of clothes and people etc.
- Chemicals in cleaning products and detergents – puts more demand on treating waste water
- More products being flushed down the toilet
- Growth in population – rising demand, infrastructure can't cope
- Increased use of water for leisure e.g. pollution in lakes due to boating, water-sprinklers on golf courses/sports pitches
- Increased demand for bottled water

A lot of the discussion focused on personal responsibility and the need to raise awareness about making better use of water. Participants felt that "people", "mankind", "we" are responsible for many of the issues facing our water supply: "It's demand isn't it, we all demand it", "You can't control the natural elements, but the rest of it we can control.", "Everybody could do better probably, I definitely could." It was also suggested that better use could be made of water in public buildings.

Many participants felt that making water meters compulsory would make people more conscious of how they use water, although it was acknowledged that it would not be universally popular: "I shower rather than having a bath, it's amazing, my bills have halved. I think you're more aware because you're on a meter. Before I just used it, but now because I'm paying for every drop I think about it.", "My neighbours, a family of 5, use water like it's going out of fashion. And they pay the same as me. They even use my water to clean the path. I don't mind paying for what I'm using but my water bill is exactly the same as someone who uses much more.", "If you were running a bath and you could see it clocking up, you'd maybe turn it off sooner."

Concerns were voiced about privatisation of the water companies, particularly in relation to profits: "You hear how much profit they earn, and then the prices go up.", "Companies are looking at their shareholders rather than their consumers.", "They should reinvest the profit." It was, however, acknowledged that Yorkshire Water invests in the environment and provides other benefits e.g.: "We go to the reservoirs a lot for bird-watching and it's free parking and so on, so for us that's a benefit provided by the water companies, and they look after the woods around them as well."

Discussion around the seven 'topics'

Phosphates and nitrates

The discussion focused on explanations and clarifications from the EA representatives, including sources and consequences of these compounds getting into the water system. It was suggested that levies could be imposed: “The use of phosphates and nitrates could be taxed more but at an EU level not nationally.”, and it was also suggested that farmers have a part to play although the financial knock-on effects were also noted: “If we cripple the farmers we cripple the economy, perhaps it’s better to incentivise.” The tension between the necessity of the chemicals and their harmful effects was acknowledged: “It’s a Catch 22 – they’re essential, but they cause all these problems. It seems like an immovable force.”

It was suggested that the Government could introduce grants to pay for removal of lead pipes so that the level of chemicals added to water supplies to prevent absorption of lead could be reduced.

Bacteria from faecal pollution and sanitary pollutants

Discussions focused on the problems caused by misconnections, and contamination in shellfish. It was felt that water companies should be primarily responsible as “they’re charging us for sewage treatment – they should make sure the systems work properly.” and the role of individuals in making sure their drains are connected properly was also discussed.

Too much sediment

Discussions focused on the damage to the ecology caused by dredging, and the problems caused by farming practices and new housing developments due to population growth. It was suggested that responsibility should lie with farmers, supported by other agencies such as Natural England, the Environment Agency and highways authorities. It was also suggested that the Government could introduce planning policies that require measures to be installed in new developments e.g. storage tanks on roofs, not building in flood plains, more effective drainage systems etc.

Chemicals

Consumer choice and behaviour were discussed, including the balance between a free economy and banning the use of certain chemicals: “If you banned the mass produced chemicals that has an impact on the economy.”, “But if there was more market demand for natural products, market forces would balance things out.”

Suggestions included labelling or colour-coding systems for household products: “Have an obligation on the producer to have labelled products, so no-one would buy the bad ones.”, “Eco-ranking like energy efficiency on household chemicals products.”, and the use of alternative/natural cleaning products: “lemon juice, vinegar and so on”

With regard to where responsibility lies, it was felt that individuals, manufacturers and water companies all have a role to play: “Us as individuals – we shouldn’t buy products with them in.”, “Manufacturers… should put less or different chemicals in.”, “They’re [water companies] doing the best they can to treat it but they can’t control it.”, “But they’re profit-making companies so they should do more to treat it. They want profit and it’ll cost them to take chemicals out.”

Invasive species

It was suggested that the Environment Agency and conservation groups could lead on trying to do something to resolve the issues, and individual behaviour was also highlighted: “There is that desire, you go off on holiday, you see all this beautiful plant life, and you want to recreate it at home. If it’s not natural to this country we shouldn’t have it.” Improved legislation over what comes into the country was also suggested, but it was noted that regulations don’t always stop new species getting into the environment. Education was again raised as key in raising public awareness: “Interest groups could help publicise the problem when people are out and about doing their leisure activities.”, “If you learned more about it at school, you’d know a bit more about it.”

Abstraction and flow

The discussion again focused on explanations and clarifications from the EA. It was agreed that individuals have a role to play: "We can do things to change how much we use.", "A lot more people need to be doing things to address the challenge than are doing now.", and the introduction of compulsory water meters was reiterated: "There will be people abusing water use because it's free so we should have meters.", "I've got 5 kids so it would cost me more, but then I suppose I chose to have 5 children so I should pay for them!", "People will complain but they should get over it."

Suggestions were also made for improving the collection and storage of water: "We need to try and save the rainwater somehow, need to store the water or sort the drains out or something.", "Wouldn't it be nice if each home could collect water from the roof, like they've done with electricity panels on your roof?", "I water my plants from my water butt – we could have everyone doing this." The potential for a 'National Grid' type system for transporting water was also discussed.

Physical modifications

The EA explained the historic reasons for modifications, how planning approval and permitting work, and gave examples of the knock-on effects of modifications. Discussions focused on building houses in flood plains and the difficulties in insuring properties that have been flooded. The extent to which the EA is involved in planning approvals was discussed and there was broad agreement that there should be more power for them to either prevent development or demand mitigation. It was suggested that homeowners who have been affected by flooding should be compensated in instances where local authorities and developers have ignored EA/other expert advice in the past. Other suggestions included increased Government control over future physical modifications, building houses on stilts and not paving over gardens/drives.

Ranking exercise:

Participants were given five dots to place where they liked against the seven issues according to how important/pressing they thought the issue was. They could place as many as they liked on one issue if they felt it was of over-riding importance, or could spread them over different issues. The results were as follows:

Chemicals – 25
Phosphates and nitrates – 22
Faecal indicator organisms and sanitary pollutants – 16
Abstraction and flow – 11
Physical modifications – 9
Too much sediment – 7
Invasive species – 0

Explanations for the highest rankings included: "Those are the ones that I felt were more immediately harmful.", "I think one thinks about one's own health a lot – the words are very emotive… that helped me put my dots where I did.", "Chemicals – that's something we can control, we can cut down on the number of chemicals that are put into the system, us the population.", "I also think they have a knock-on effect on other things, for example killing off natural species."

Reasons given for lower rankings were: "I decided against putting dots on invasive species because a lot of money's been spent and nothing's happened.", "Local people can take action against that [invasive plants] but they can't tackle the other things.", "The other things are just more important."

Many participants said that having taken part in the workshop they would give more weight than previously to water/environmental issues, and it was acknowledged that water is not a stand-alone issue: "It's up there with health and education because it has so many knock on effects.", "You could save money on the NHS

by tackling these issues." Some felt that the NHS is still a higher priority, and it was suggested that less money should be spent on nuclear power, defence and aerospace.

Who should pay?

Many people felt that the 'polluter pays' principle is the most fair, with manufacturers, industry and farming being identified as the main polluters. In terms of who should pay for improvements to infrastructure, comments included: "Money would have to come from the general public and then your bills would go up.", "The Government should pay for it.", "Yes but who pays the Government? We do! It's all our money and they're spending it for us." Other suggestions included reducing dividends paid to water company shareholders, legislation to reduce profit margins and regulating how profits are spent.

Whilst some people felt that individuals shouldn't pay, others felt that the 'user pays' principle could be adopted: "Should more responsible people/households pay less?", "Should there be higher prices for harmful products – thus penalising users of harmful products?", "If water companies explained what they spend money on we wouldn't mind higher bills – don't trust them not to use higher prices to pay for higher salaries."

It was also suggested that the Government could play more of a role in setting legal requirements for reduction of waste and pollution, and providing support for people to make household improvements e.g. rainwater collection and water-saving measures.

Lifestyle changes:

The main comments were around awareness-raising and education but it was also noted that this needs to be ongoing: "I think there has to be a constant feed, not just a one-off because you soon forget – it has to saturate." Ideas for raising awareness included: "Reintroduce home economics classes with emphasis on water cleanliness.", "Use adverts – leaflets go straight into the recycling bin.", "Schools should have 'Green Councils' and eco-schools awards to encourage more awareness.", "The power of advertising is so strong, so use that to change behaviour.", "A documentary.", "Get people to think about water as a natural resource that shouldn't be wasted."

Saving money was also identified as a key incentive for changing personal behaviour, and other suggestions included: feedback/discussion with the water companies including e.g. 'Willingness to pay' surveys, "Labels on packaging to give you information to help you make your decisions.", "Make a law to take baths out of every establishment.", "Seeing how much water appliances use – kettles, dishwashers, washing machines...."

Compulsory installation of water meters was reiterated, and better information from the water companies and the Government about what they are spending "our" money on was also suggested.

Participants acknowledged that changes in attitude and behaviour can be very short-lived and that some people will never change: "You can't reach everybody – there's apathy. Not everybody will change.", however people also gave examples of changes that have happened: "The plastic bag charge is an example of how people can change." Frustrations were, however, expressed about water being wasted through leaks in the infrastructure not being fixed.

Other comments from participants:

"Water needs to be more in the public eye – you don't know it's going on – you don't hear about it."

"I came here open-minded, no clue about the problems we face. Surely all households should have a copy of this information."

"In the 70s and 80s there was risk of wars breaking out over oil. In the future there will be wars over water."

Appendix One

Benefits identified by the Environment Agency and considered during the workshop session:

- Drinking, cooking, washing, cleaning
- Maintaining water supply to our homes and for public health
- Farming
- Maintaining water supply for crops and animals
- Industry, business and civic use
- Maintaining water supply for manufacturing, producing energy, public buildings, mining, recreation
- Waste disposal and treatment of waste
- Sewage and industrial effluent
- Transport
- People and goods
- Commercial fishing
- Trawling, fish farms, shellfish
- Active leisure
- Boating, canoeing, fishing, surfing, swimming
- Wellbeing
- Enjoying landscapes and wildlife; knowing it's there for future generations
- Wildlife
- Diversity of plants and animals, improving habitats
- Reducing the impact of floods and droughts
- Helps the public, farmers, business, insurance

- Maintaining the cycle of life on which we depend
- Water flow, soil formation and fertility, climate
- Preserving our economic security
- Protecting our economy from the effects of droughts, floods; our water supply is safe
- Passing on our environment to our children
- Maintaining the water environment makes it resilient for the future

For queries or more information regarding the project and/or workshops please contact:

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Appendix 4

Re-convened workshop plan and report

Public Dialogue on Significant Water Management Issues

An Environment Agency project, funded by Sciencewise - Workshop 8 - Re-convened (London)

9th November 2013

Summary of Discussions

Present:
16 participants recruited by Ipsos MORI supported by:

3KQ (facilitators)	Richard Harris, Rob Angell, Jane Dalton, Jenny Willis
Environment Agency	David Baxter, Chris Tidridge

> "People don't mind doing something, but it's no good if the advice changes. It makes you feel like you don't want to bother."

> "They're all important aren't they really, it's a question of where you put your priority. It's a hard one isn't it?!"

Participants at this workshop were selected from those who had attended one of the regional workshops and had also indicated that they were interested in taking part in this re-convened session.

Lead facilitator Richard Harris started by explaining the purpose of the reconvened session which was to enable people to build on their thinking and knowledge from the first workshop session in order to deliberate further about:
- what they considered to be priorities in terms of water management
- the trade offs and complexities involved in decision making
- possible measures to address different water management issues and their comparative costs
- what drives local and national priorities

To start with there was a 'warm up' discussion to help people recollect discussions from the first workshop they attended, and to share thoughts with people who had attended sessions in different regions.

Discussion around benefits:

Water for personal use was prominent for many people, with one person commenting 'People tend to focus on benefits to themselves, there isn't enough education to think about wider benefits and economic security'. Wildlife and farming were also mentioned, and there was general agreement from participants from the different regions that there should be more education about the wider benefits of good water management.

Discussion around challenges:

Participants recalled a number of different threads to this discussion including ignorance, flooding, climate change, run off in increasingly built up areas, increasing demands in farming and short term thinking rather than long term solutions.

The materials from the previous workshops were re-introduced so people could remind themselves and refer to the content if useful.

Working on Scenarios

The rest of the day was introduced as being focussed on working in 3 different scenarios which would help us all look at the dilemmas inherent in managing the water environment, but especially mindful of the benefits sought and the challenges discussed.

Each scenario was introduced and opportunities given to ask questions from the EA expert on hand.

For each scenario, each group was given a total of 10 'Groats' to spend on the improvement options given. Groats were explained to be a unit of resource (time, money, people etc) not just cash. The group were only allowed to spend Groats where they agreed and could 'bank' unspent Groats for later. After going through all 3 scenarios groups could spend banked Groats on any improvement, in any of the scenarios.

The whole group split into 2, with each group working through the 3 scenarios given. The two groups then came back together to share and discuss results.

Scenario 1 was introduced as follows:

Scenario 1: urban river catchment

You have 10 groat to make improvements to this catchment .
You decide how this is spent

Water company sewage treatment works – treats wastewater produced by the local population and discharges final effluent into the river

Concrete

River (currently a concrete type channel flowing through town) of poor quality (variable flow, poor water quality and limited plant/animal life) but contains a Victorian red brick weir with considerable local historical value

Weir

Concrete

Brewery (abstracts water from river to make beer and employs local people)

The river was once clean and safe, with thriving fisheries and diverse wildlife. By the 20th century, however, it had been turned into little more than a concrete open sewer.

The Victorian red brick weir on the river can be seen for miles, is historically important and attracts local visitors.

Much has been done to improve the river recently but there is more to be done.

You have 10 groat to make improvements to this catchment.
You decide how this is spent

Improvement 1 – reduce the amount of water the brewery to takes out of the river, this will increase flow in the river. But could lead to job losses and possibly more expensive beer.
Cost: 3 groat

Improvement 3 – install a fish pass on the weir to facilitate movement of fish up and down the river providing a more natural water environment.
Cost: 4 groat

Improvement 2 – remove a small section of the concrete channel to allow more access to the river and to encourage plant and animal life back to the river edge.
Cost: 3 groat

Improvement 4 – remove the weir. This will improve the movement of aquatic wildlife up and down the river creating a more natural river environment but the historic weir will be lost.
Cost: 5 groat

Improvement 5 – insist (through regulation) that the water company clean the waste they are discharging into the river to a higher standard. This will mean higher water /sewerage bills for the local population.
Cost: 8 groat

Commentary on scenario 1 decision making:

After much discussion both groups made a final choice of improvement 5 for the urban river catchment, which focused on insisting the water company clean the waste the are discharging to a higher standard. This comment was typical as they came to their decision 'Basically we need to make sure the water is clean, then we may have the money left over to put the fish pass in'. 'Whatever we go for with these [other options], we've still got the issue of sewage which will affect things downstream'.

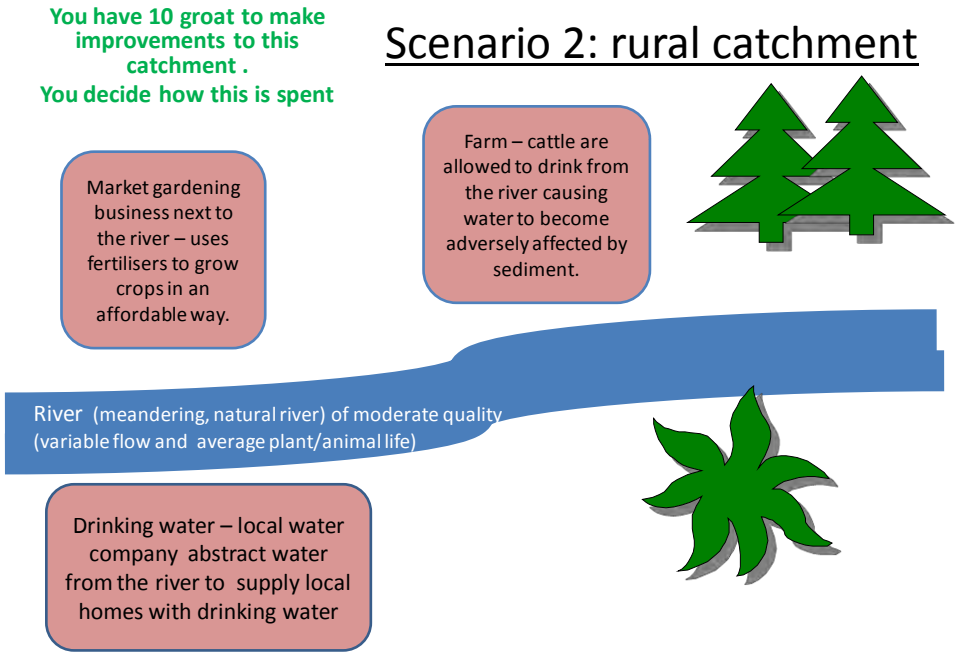
In one group there was a debate about timescales with some thinking of going for 'quicker wins' e.g. improvement 2 or 3, but others favouring taking a long-term view: 'I don't think time is the factor – we should be taking a longer-term view'; ' But some of these would be quicker – spend on the smaller projects to get quicker results on some aspects'. The longer term view won out in each group.

Participants in both groups felt negative towards improvement 1,mainly due to concern about the likelihood of resulting job losses. Expensive beer was not viewed favourably, even though the mention of increased bills did not put either group off their final choice of improvement 5.

Overall participants felt that improvement 5 focussed on the biggest environmental impact with the least negative socio-economic impact.

This was the scenario which both groups found agreement easiest to reach.

Scenario 2 was introduced as follows:



The river meanders gently down the valley, is home to the type of wildlife that you would expect to see in this environment.

The wildlife is, however, threatened by high levels of phosphate. This chemical feeds the growth of algae and weeds, which choke the river and reduce oxygen levels.

Like most rivers it has a continuous though variable flow, but some may have low flows in very dry seasons.

You have 10 groat to make improvements to this catchment .
You decide how this is spent

Improvement 1 – reduce nutrient use through greater regulation and imposing different farming practices on the operator. This will improve the quality of the river as less harmful nutrients are entering the river. But is could also lead to more expensive food in local shops.
Cost of improvement: 3 groat

Improvement 3 –the local water company abstracts water from this river for drinking water supply but this causes the flow in the river to vary, especially in the summer. The solution is to reduce the amount of water abstracted and take additional water from a different location elsewhere in the river catchment.
Cost of improvement: 9 groat

Improvement 2 – fence parts of the river to stop cattle drinking directly from the river and provide drinking troughs for the cattle instead. This will prevent them polluting the river and reduce the amount of poaching /trampling caused. This could lead to higher milk/food prices and the fencing would spoil to the 'look' of a bit of the river.
Cost of improvement: 2 groat

Improvement 4 – build a new reservoir to provide supply to the area preventing water being abstracted from the river.
Cost of improvement: 10 groat

Improvement 5 – undertake some habitat work within the existing channels to create 'low flow channels' providing a refuge for fish and wildlife during peaks in abstraction .
Cost of improvement: 3 groat

Commentary on scenario 2 decision making:

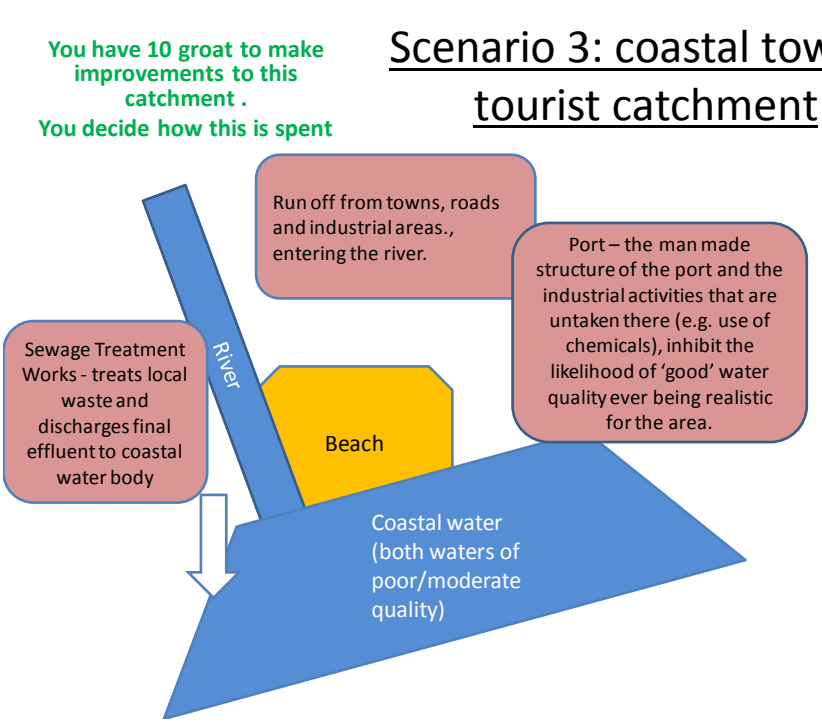
Again both groups separately came to the same initial preferred improvements for scenario 2, by choosing improvements 1, 2 and 5, costing a total of 8 'groats', leaving 2 to spend elsewhere.

In this scenario the combination of cheaper improvements was considered worthwhile: 'These 3 make a greater impact together to this scenario. We're dealing with more issues than just one', 'My gut instinct is to go with the small ones which I think would have the biggest impact.'

However there was some discussion about the effectiveness of legislation in relation to improvement 1, with one participant commenting: 'If you're looking at phosphates and chemicals, my point of view is that there has to be legislation with farmers .... but even with laws, you can bring any law out but how can you control it?'. This option was therefore not favoured on its own as it was seen to carry a risk.

One group re-visited their decision in scenario 2 after they had initially discussed all three scenarios and found they had spare 'banked groats'. They decided to allocate them to improvement 3 (9 groats) instead of 5, which they felt would be covered by the more extensive impact of the more expensive option.

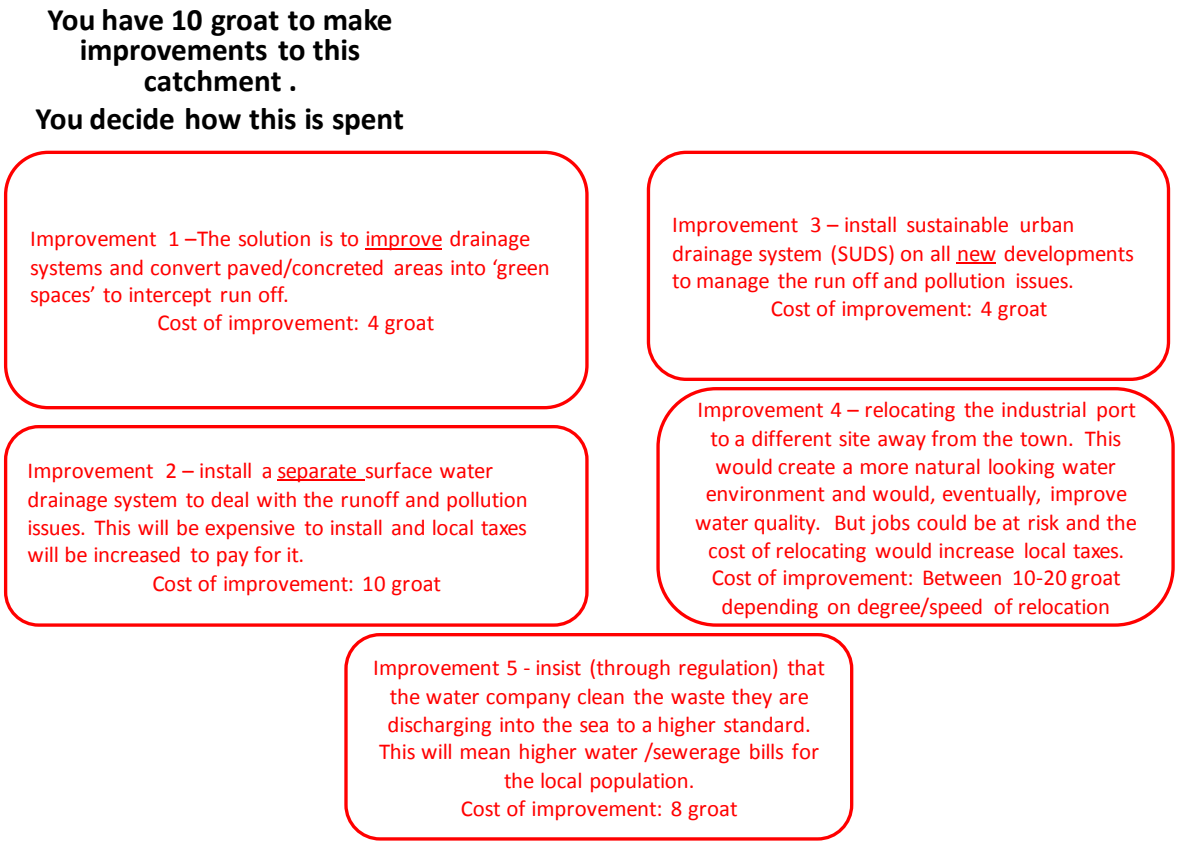
Scenario 3 was introduced as follows:



The beach is enjoyed not only by locals but also by hundreds of visitors each year. Its waters, however, had become extremely polluted. By the mid-1990s many were reluctant to swim off its beaches – and often warned not to. It was also in danger of contravening several European directives.

The port has been operating for forty years and generates income for the local economy but employs only a few people

Runoff from the town causes pollution in the local river, which adversely affects the animal/plant life in the stream. It also limits the ability of local people to use the river for recreation and well-being.



Commentary on scenario 3 decision making:

Both groups struggled with this scenario and felt uncertain about the problem(s) and causes.

One group found it hard to agree on which solutions were actually addressing the problems identified. They couldn't agree on whether bathing water or improving the environment more generally was a priority. Bathing water was considered important by some because of the perceived negative knock on effect on local businesses if there were signs up on the beach warning against swimming. In the end the group opted for improvement 5 on that basis.

After some discussion the other group decided to opt for improvement 2. This was because it was felt that it would encompass the benefits of improvement 3 but without being restricted to new developments, which participants felt would be limiting. They did not opt for improvement 5 as there was some feeling that water companies should already be cleaning the waste to a high standard without requiring further input.

The decision making process

Back in plenary, after sharing and comparing outputs, both groups were asked 'What would have made it easier to make decisions?'. They commented that they would have liked a lot more information e.g. about the size of the towns and their economies in order to work out the significance of various factors and the balance between industrial/domestic and urban/rural factors. They also made the simple but significant observation that bigger budgets, in this case more Groats, would have made the process easier.

Finally there was a mention of the subjective nature of some decisions based on perceived importance e.g. of jobs versus environmental impact, and the fact that some decisions would be dictated by legislation, including EU Directives.

Open Session

In the last session of the day Dave Baxter from the EA took the opportunity to discuss any last questions arising from the day or previous sessions.

He commented that he was heartened by the fact that members of the public are able and willing to understand and grapple with the issues under discussion. There was general agreement that whatever solution is reached for various issues, individuals will have to 'foot the bill in one way or another', but people felt it was important for the money spent to be benefitting the environment and not increasing profit within the private sector.

The workshop ended with one of the themes which was prevalent at all the dialogue sessions held during this project – awareness raising. Though it was acknowledged that water companies did send information out with water bills, people felt that a wider scale campaign through the media and schools would be important in raising awareness and encouraging more discussion and action about these important water management issues.

Dave Baxter closed the day by thanking all the participants for their effort and interest.

For queries or more information regarding the project and/or workshops please contact:

Emma Collyer (Project Manager) emma.collyer@environment-agency.gov.uk

*'Independently designed and delivered by 3KQ and Ipsos MORI as part of a series of public dialogue workshops'

"The Sciencewise Expert Resource Centre (Sciencewise-ERC) is the UK's national centre for public dialogue in policy making involving science and technology issues."

Appendix 5
Recruitment criteria

Environment Agency: SWMI Public Dialogue

Additional information on recruitment of participants for the dialogue workshops

Social grade definitions:

	Occupation of Chief Income Earner
AB	These are professional people, very senior managers in business or commerce or top-level civil servants. Middle management executives in large organisations, with appropriate qualifications. Principle officers in local government and civil service. To management or owners of small business concerns, educational and service establishments. Retired people, previously grade A or B, and their widows..
C1	Junior management, owners of small establishments, and all others in non-manual positions.
C2	All skilled manual workers and those manual workers with responsibility for other people. Retired people, previously grade C2, with pensions from their job. Widows, if receiving pensions from their late husband's job.
D	All semi-skilled and un-skilled manual workers, apprentices and trainees to skilled workers. Retired people, previously grade D, with pensions from their job. Widows, if receiving a pension from their late husband's job.
E	All those entirely dependant on the state long-term, through sickness, unemployment, old age or other reasons. Those unemployed for a period exceeding six months (otherwise classify on previous occupation). Casual workers and those without a regular income. Only households without a Chief Income Earner will be coded in this group.

Exclusionary questions:

By agreement people were excluded if they or any immediate family members worked in particular organisations or had water-based hobbies, these were the questions and the answers that would exclude someone (answers that wouldn't exclude someone are not included) – see below.

Q5. Do you or any members of your immediate family work in any of the areas or organisations shown on this card, either in a paid or unpaid capacity?

- Your local council
- The water industry e.g. a water company, Ofwat, Water UK or Consumer Council for Water
- Department of Energy and Climate Change (DECC)
- Department for Environment, Food or Rural Affairs (Defra)
- The Environment Agency
- The Met Office
- Natural England
- Forestry Commission
- National Farmers Union
- Highways Agency
- Salmon and Trout Association
- Shellfish Association
- The Rivers Trust
- Another environmental charity or pressure group e.g. National Trust, RSPB
- UK Major Ports Group
- Association of Drainage Authorities
- British Waterways
- Confederation of British Industry (CBI)
- Country Land and Business Association
- Royal Yachting Association
- Environmental journalism/ media
- Environmental Science
- Market research

Q6. I would now like to ask you about what you do in your spare time. Which, if any, of the activities or hobbies shown on this card do you do regularly? Just read out any numbers that apply.

- A water sport (e.g. kayaking, boating)
- Fishing/angling
- Volunteer for an environmental organisation
- Help a political party
- Don't know

Appendix 6

Questionnaire used in Omnibus survey

Environment Agency – SWMI Project
I:Omnibus Questionnaire
Final V2
30.01.2014

Key:
BLUE TEXT - Scripting instructions
SA - Single code question
MA - Multi-code question

ALL QUESTIONS TO BE ASKED ONLY OF RESPONDENTS IN **ENGLAND**

FOLLOWING SECTION WILL BE ASKED AT BEGINNING OF SURVEY

ASK ALL
QA
Generally speaking, how dissatisfied or satisfied are you with your life?

Please use the 1 to 7 scale below, where 1 is completely dissatisfied and 7 is completely satisfied.

Please select one answer.
SA
REVERSE LIST (DK TO REMAIN AT BOTTOM)

1 - Completely dissatisfied
2
3
4
5
6
7 - Completely satisfied
8 Don't know

ASK ALL
QB
As you may know, the government is reducing the overall level of public spending as part of the process of reducing borrowing.

Which two or three, if any, of the following areas do you think the UK Government should cut the most money from?

Please select up to three answers
MA UP TO THREE EXCLUDING DK
ROTATE LIST (DK AND OTHER TO REMAIN AT BOTTOM)

1. The NHS/Healthcare
2. Benefit payments
3. Defence and armed forces
4. Overseas aid
5. Social services

6. Air pollution
7. State pensions
8. Schools
9. Local authority services
10. Police and criminal justice
11. Care for the elderly
12. Water pollution
13. Public transport
14. Other
15. Don't know

IIS DP: FOLLOWING SECTION WILL BE ASKED AFTER OTHER MODULES ON OMNIBUS.

ASK ALL
Q1
Please read the list of statements below. Which, if any, best describes how you feel about protecting the environment?

Please select only one answer
SA
REVERSE LIST (DK AND NONE TO REMAIN AT BOTTOM)

1. Protecting the environment is so important that action needs to continue being taken to achieve this, regardless of cost

2. Protecting the environment is important so action needs to continue being taken as long as it is not too costly

3. Protecting the environment is not very important and so we should only spend a small amount of money on this

4. Protecting the environment is not at all important and so we should not continue to spend any money on this

5. None of these

6. Don't know

NEW SCREEN
The following section is about England's water environment. This includes types of water such as lakes, rivers, canals, estuaries and the water around the coast.

ASK ALL
Q2
The water environment includes types of water such as lakes, rivers, canals, estuaries and the water around the coast.

How often, if at all, do you visit any part of the water environment around England?

This might be to go fishing, boating or swimming, to take part in a water sport or simply to go walking along a river, canal, around a lake or on a coastal path.

Please select only one answer
SA
REVERSE LIST (DK TO REMAIN AT BOTTOM)

1. At least a few times a week
2. A few times a month
3. A few times a year
4. Every few years
5. Never
6. Don't know / can't remember

ASK ALL
Q3
There are some things that individual households can do to help protect the quality of water environments across England.

To what extent, if at all, would you personally consider doing each of the following things in order to help protect England's water environments?

Please select only one answer per statement.
SA PER STATEMENT
ROTATE STATEMENTS. REVERSE LIST (DK TO REMAIN AT RIGHT OF GRID)

DOWN SIDE OF GRID
1. Purchase products that do not contain certain chemicals (for example particular cleaning products)

2. Make sure that the pipes in your home (for example at the back of your washing machine) connect to the sewage system correctly

3. Remove particular plant and animal species from your home and garden (for example those that are growing or living outside their natural location and may be damaging to people, property and habitats)

4. Check belongings, such as clothes, bikes or boats for particular plant and animal species immediately after going walking, cycling, swimming or on a boat (for example those that are growing outside their natural location and may be damaging to people, property and habitats)

5. Use a lot less water at home and in the garden

6. Dispose of certain liquids carefully rather than pouring them down the drain

7. Volunteer to take part in helping restore natural habitats, remove harmful plant species or help educate people about the water environment

ALONG TOP OF GRID
1. I would definitely consider doing this
2. I might consider doing this
3. I would not consider doing this
4. I do this already
5. Don't know

ASK ALL
Q4
How effective, if at all, do you think each of these actions would be for helping to protect England's water environments?

Please select only one answer per statement.
SA PER STATEMENT
ROTATE STATEMENTS. REVERSE LIST (DK TO REMAIN AT RIGHT OF GRID)

DOWN SIDE OF GRID
A. Purchasing products that do not contain certain chemicals (for example particular cleaning products)

B. Making sure that the pipes in your home (for example at the back of your washing machine) connect to the sewage system correctly

C. Removing particular plant and animal species from your home and garden (for example those that are growing or living outside their natural location and may be damaging to people, property and habitats)

D. Checking belongings, such as clothes, bikes or boats for particular plant and animal species immediately after going walking, cycling, swimming or on a boat (for example those that are growing outside their natural location and may be damaging to people, property and habitats)

E. Using a lot less water at home and in the garden

F. Disposing of certain liquids carefully rather than pouring them down the drain

G. Volunteering to take part in helping restore natural habitats, remove harmful plant species or help educate people about the water environment

DOWN SIDE OF GRID
1. Very effective
2. Fairly effective
3. Not very effective
4. Not at all effective
5. Don't know

ASK ALL
Q5
Please think about the quality of the water environments you have visited across England. By this we mean any lakes, rivers, canals, estuaries or water around the coast that you have personally visited.

Overall, how would you rate the quality of England's water environment? When answering, please think about the water environments you have visited.

Please select only one answer
SA
REVERSE LIST (DK TO REMAIN AT BOTTOM)

1. Very good
2. Fairly good
3. Fairly poor
4. Very poor

5. Not applicable – I have never visited any water environments in England
6. Don't know / can't remember

ASK ALL
Q6
Which, if any, of the following best describes how you feel about the quality of the water environments across England?

Please select only one answer.
SA
REVERSE LIST (OTHER, NONE OF THESE, DK TO REMAIN AT BOTTOM)

1. The quality of water environments across England is worse than it should be
2. The quality of water environments across England is about right
3. The quality of water environments across England is better than is really necessary
4. None of these
5. Not applicable – I have never visited any water environments in England
6. Don't know

ASK ALL
Q7
Which, if any, of the following do you think are the most important reasons for protecting England's water environment? You can select up to three reasons.

Please select up to three options
MA UP TO THREE
ROTATE ORDER OF STATEMENTS

1. For households to use (for example for drinking, cooking and washing)
2. To support farming (for example for crops and livestock)
3. For businesses and public services to use (for example to make goods, dispose of waste, produce energy)
4. To enable goods and people to move around (for example from ports and harbours)
5. To support commercial fishing
6. So people can enjoy it
7. For wildlife (for example to maintain habitats and support a wide range of animals and plants)
8. To ensure future generations can enjoy these landscapes
9. To reduce the impact of floods and droughts on homes and businesses
10. None of the above reasons are important to me
11. Don't know

ASK ALL
Q8
The list below sets out some of the risks to water quality in England's rivers, canals, lakes and coastal waters.

How concerned, if at all, are you about each of these risks?

Please select only one answer per row.
SA
ROTATE LIST (OTHER, NONE OF THESE, DK TO REMAIN AT BOTTOM, AND KEEP STATEMENTS B AND C TOGETHER)

DOWN SIDE OF GRID

A. Pollution from homes (for example from products containing chemicals being poured down drains, or from waste water pipes being misconnected)

B. Pollution and sediment from farms (for example chemicals from fertilisers and pesticides, soil erosion of farmland)

C. Pollution from other businesses, apart from farms (for example use of chemicals when making or disposing of goods, from vehicles transporting material)

D. Removing water and changing the flow of rivers, lakes and groundwater to meet the needs of homes, businesses and farms (for example building flood defences, weirs and dams or straightening river channels)

E. Plant and animal species that have been introduced into areas outside their natural location through human action (for example signal crayfish, Japanese knotweed)

ACROSS TOP OF GRID

1. Very concerned
2. Fairly concerned
3. Not very concerned
4. Not at all concerned
5. Don't know

ASK ALL

Q9

It will not be possible to protect the water quality in all the water environments across England to the highest level. Therefore difficult decisions have to be made about where to protect and to what level of quality.

Which, if any, of the following best describes the principle on which you think we should decide which water environments to protect?

Please select only one answer

SA

REVERSE LIST (OTHER, NONE AND DK TO REMAIN AT BOTTOM)

1. The same level of protection should be given to all water environments, even if this means each water environment can only be protected to a certain level

2. Protection should focus on the highest quality water environments to maintain them for the future

3. Protection should focus on the moderate quality water environments to bring them up to the highest standards

4. Protection should focus on the lowest quality water environments to bring them up to a more moderate standard

5. Protection should focus on the most commonly visited water environments

6. Protection should focus on the most economically valuable water environments for example those used for transporting people and goods or used to make goods.

7. I do not think there is a need for protection of the water environments

8. None of these
9. Don’t know / can’t remember

Appendix 7

Report of Omnibus Survey

Overview – Ipsos MORI i:Omnibus survey

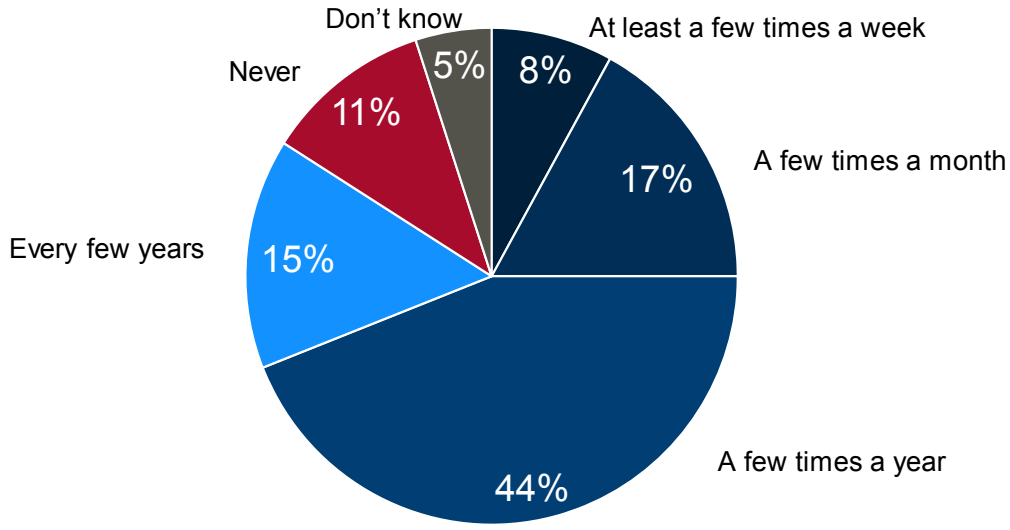
An omnibus survey was conducted on behalf of the Environment Agency to add context to, and aid interpretation of, the qualitative findings produced through the SWMI public dialogue being carried out by 3KQ and Ipsos MORI.

The survey was carried out on Ipsos MORI's i:Omnibus vehicle between 31st January and 4th February 2014. 867 panellists from Ipsos MORI's Online Access Panel were interviewed; all respondents were aged from 16 to 75 and from England. The questionnaire used is contained in Appendix 6, which will guide the interpretation of the findings discussed below. Also included as Appendix 8 is a guide to interpreting the findings, including information on sampling tolerances, statistical reliability and weighting.

1. How often people visit the water environment

Visiting the water environment was described to respondents as going fishing, boating or swimming, taking part in a water sport or simply walking along a river, canal, around a lake or on a coastal path. Almost seven in ten people (69%) visit England's water environment at least a few times a year, with a quarter (24%) visiting up to a few times a month. Just over one in ten (11%) said they never visited the water environment.

Q: How often, if at all, do you visit any part of the water environment around England? This might be to go fishing, boating or swimming, to take part in a water sport or simply to go walking along a river, canal, around a lake or on a coastal path.



Base: All respondents (867 unweighted base size) - Adults aged 16 to 75 in England from Ipsos MORI's Online Access Panel . Results have been weighted to reflect a nationally representative profile of Adults aged 16 to 75 in England.

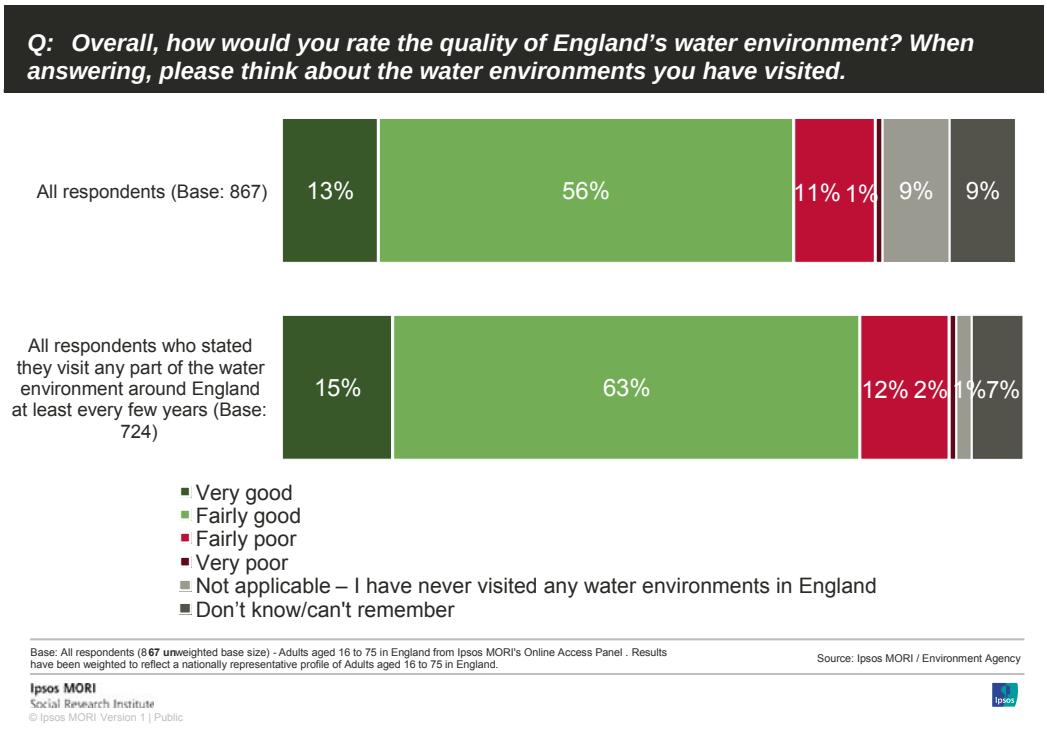
Source: Ipsos MORI / Environment Agency

The following groups are more likely to have **never visited England's water environment**:

- People with **no formal qualifications** (21% vs. 11% overall)
- **25 to 34** year olds (21% vs. 11% overall)
- Those in **lower social grades (C1C2DE)** than those in **social grades AB** (13% vs. 6%).

2. Absolute quality rating of the water environment

A majority consider England's water environment to be of a good quality – of those who have visited England's water environment. [1] Almost eight in ten (78%) rate the overall quality of England's water environment to be either very or fairly good; only around one in eight (13%) consider it to be very of fairly poor. However, most consider the quality to be fairly (63%) rather than very (15%) good. Nevertheless, few are overly critical, with just one per cent considering the quality to be very poor (12% consider it fairly poor).



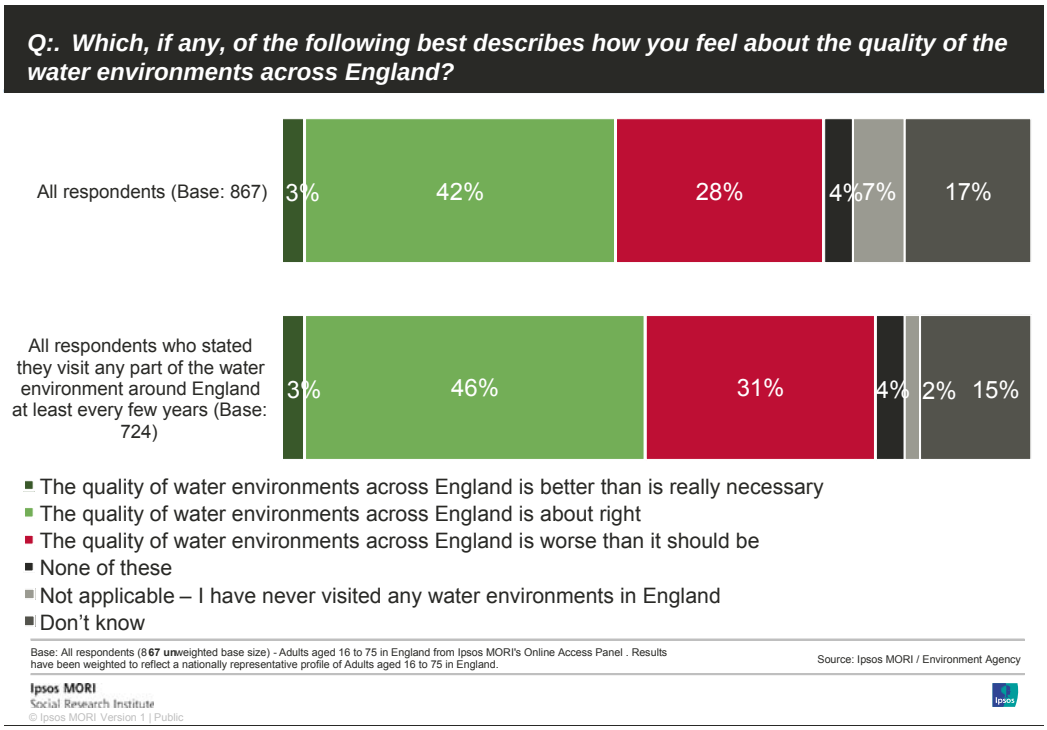
The following groups are more likely to consider the overall quality of England's water environment to be either very or fairly good:

- Those in **aged +45** compared to those aged 16 to 44 (85% vs. 71%).
- Those who **visit some part of England's water environment at least a few times a year** (83%) compared to those who only visit every few years (57%)

[1] Of those respondents who stated they have not visited any part of the water environment around England at least every few years at Q2 (i.e. those stating Never or Don't know at Q2 have been removed).

3. Relative quality rating of the water environment

Of those who have visited England's water environment, over four in ten (46%) people consider the quality of water environments across England to be about right.[2] Only a few (3%) think the quality is better than is really necessary. Nearly a third (31%) feel that the quality of water environments across England is worse than is should be.



Those who visit the water environment **a few times a week** are more likely to consider the quality water environments across England to be **worse than it should be** (46% vs. 31% overall).

Men are more likely to consider the quality of water environments across England to be about right than women (53%Q vs.39%), as are those aged 55-75 compared to 15-24 (55% vs. 42%)

4. Attitudes to cost and protecting the environment

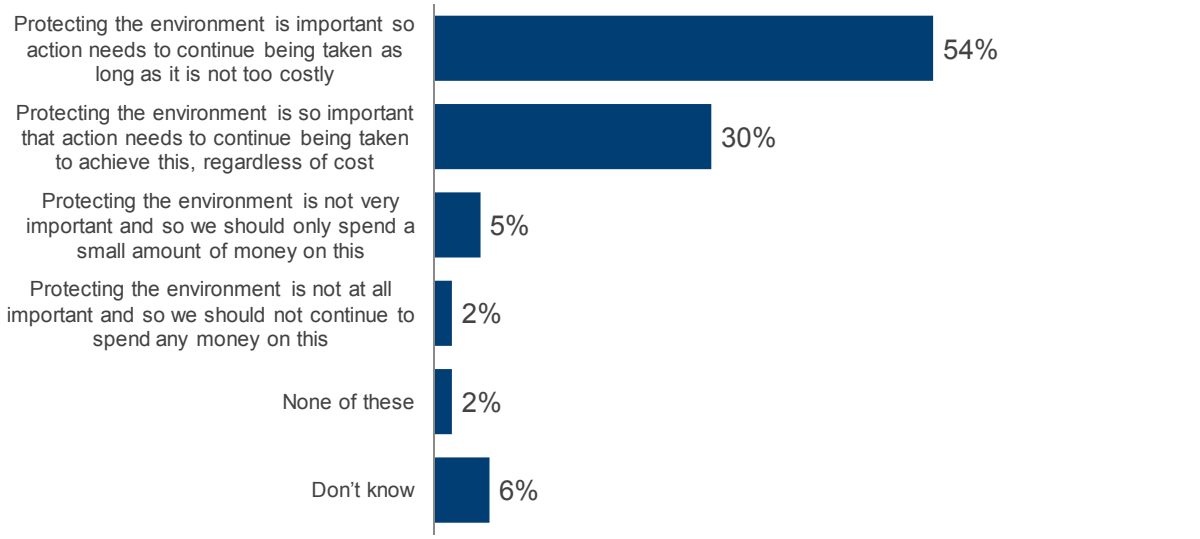
Overall, a great majority consider protecting the environment to be important. Over eight in ten (84%) consider protecting the environment is important, compared to just seven per cent who consider it either not very important or not at all important.

However, the statements show that difference of opinion lies in how much action should be taken. Over five in ten (54%) feel that protecting the environment is important so action needs to continue being taken 'as long as it is not *too costly*', whereas three in ten (30%)

[2]2Of those respondents who stated they have not visited any part of the water environment around England at least every few years at Q2 (i.e. those stating Never or Don't know at Q2 have been removed).

consider action should continue '*regardless* of cost'. Very few (2%) think that protecting the environment is not at all important so we should not continue to spend money on this.

Q: Please read the list of statements below. Which, if any, best describes how you feel about protecting the environment?



Base: All respondents (**867 un**weighted base size) - Adults aged 16 to 75 in England from Ipsos MORI's Online Access Panel . Results have been weighted to reflect a nationally representative profile of Adults aged 16 to 75 in England.

Source: Ipsos MORI / Environment Agency

Ipsos MORI
Social Research Institute

The following groups are more likely to think that action needs to continue to protect the environment *regardless* of cost:

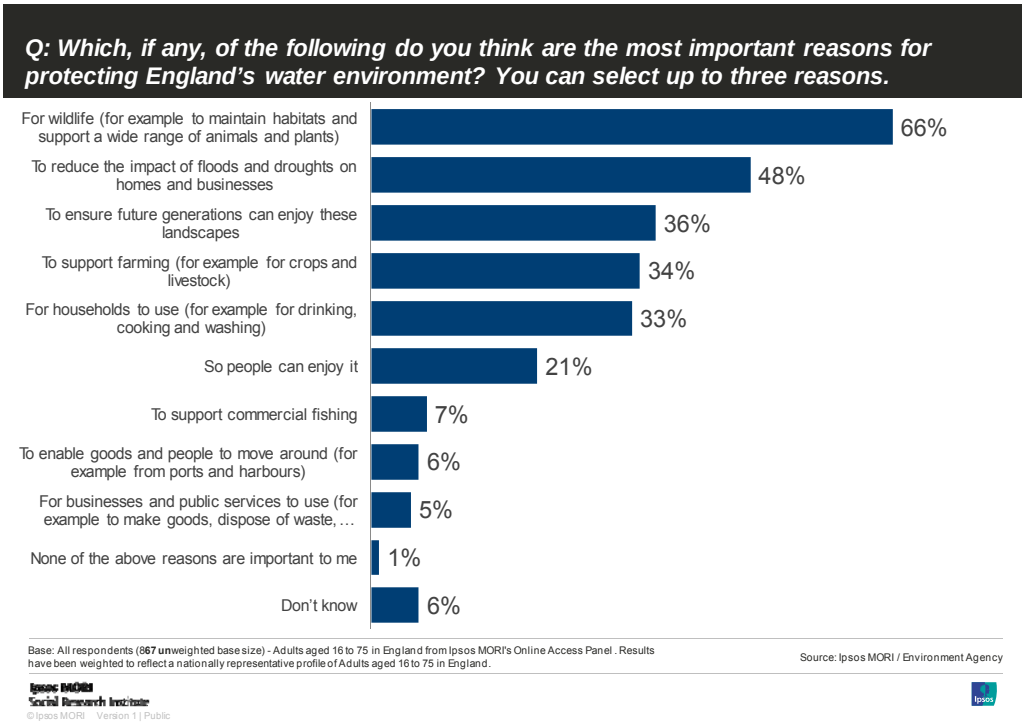
- Those who have **visited England's water environment a few times a week or a few times a month (45%)** as opposed to those who **visit a few times a year or every few years (28%)** and those who have **never visited (16%).**

- Those who think that England's water environment is **worse than it should be** (50% vs. 30% overall)

5. Most important reasons for protecting the environment

Over six in ten people (66%) said that consideration of wildlife was one of the most important reasons for protecting England's water environment. Nearly half (48%) identified reducing the impacts of floods and droughts as being important, and around a third mentioned ensuring enjoyment for future generations (36%), supporting farming (34%)and household use of water (33%).

Just one per cent said that none of the reasons suggested were important to them. However, the figure is higher (7%) amongst those who had never visited the water environment.



People who visited the water environment at least a few times a week and older people (aged 55 to 75) were more likely to express an interest in reducing the impact of floods and droughts (63% and 58% respectively vs. 48% overall).

Those aged 55 to 75 also identified support for farming more frequently than those aged 16 to 44 (42% vs. 29%).

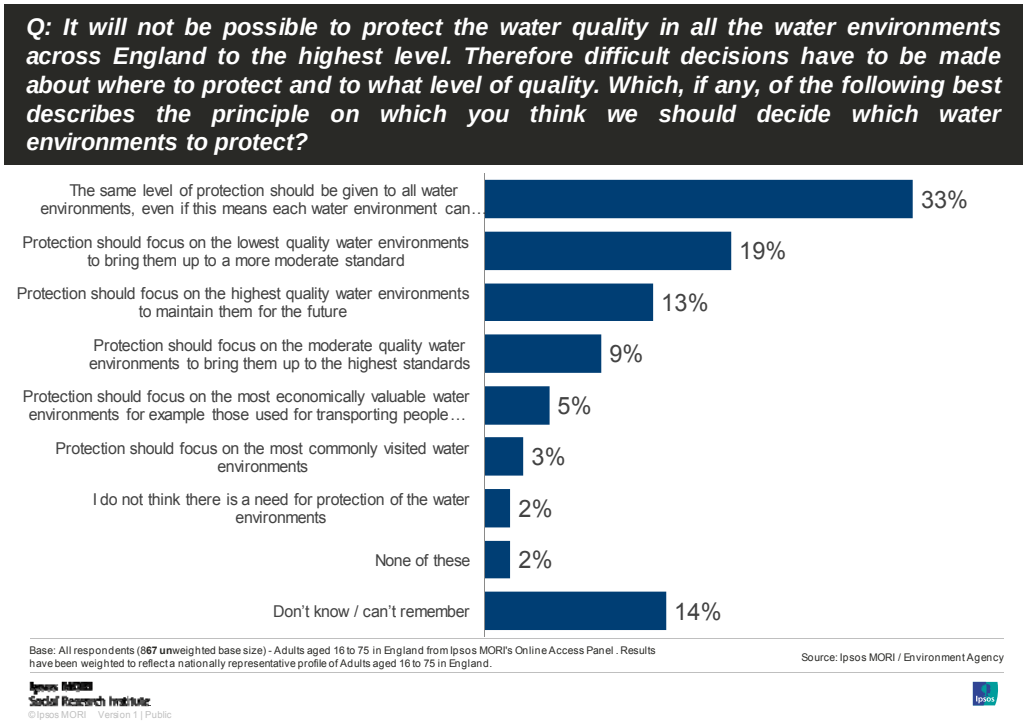
These results contrast with discussions in the dialogue workshops where household use was often cited as one of the most important benefits derived from the water environment and wildlife was cited much less frequently.

During the dialogue the two particular benefits considered less important were commercial fishing and transport, and similar results are shown in this survey (7% for *supporting commercial fishing* and 6% *to enable goods and people to move around (for example from ports and harbours*). However, use for business and public services including disposal of waste, which is given low priority by survey respondents (5%), was considered more important by public dialogue participants. This could well be as a result of greater understanding of the function of the water environment in relation to industry and waste disposal as a result of workshop discussions.

'*For people to enjoy it'* was identified by just over a fifth of respondents (21%) as being of importance. This corresponds with discussions in the dialogue workshops, where people felt that although 'active leisure' couldn't be prioritised over household use or wildlife the beneficial effect of the water environment for wellbeing still needed to be considered as valuable.

6. View about levels of protection for different water environments

A third of respondents (33%) felt that '*the same level of protection should be given to all water environments, even if this means each water environment can only be protected to a certain level*'. Just under two in ten (19%) felt that it was right that '*protection should focus on the lowest quality water environments to bring them up to a more moderate standard*'. Few thought that protection should focus on the most economically valuable (5%), the most commonly visited water environments (3%) or that there was no need to protect the water environment (2%)

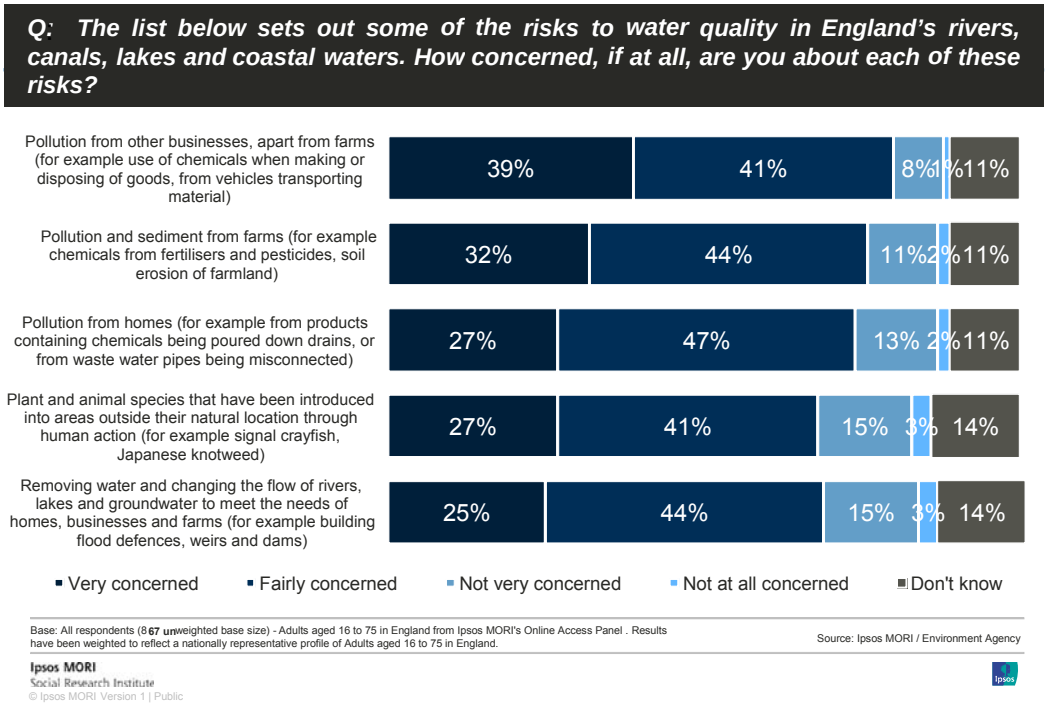


People who visited the water environment most frequently (a few times a week) were more firmly of the opinion that the same level of protection should be given to all water environments, even if this means each water environment can only be protected to a certain level (50% vs. 33% overall).

Those aged 16-34 and those who have never visited the water environment were more likely to answer don't know (20% and 28% respectively vs. 14% overall).Those who have never visited the water environment in England were also the most likely to say that they didn't think there was a need for protecting it (4% vs. 2% overall).

7. Concern about risks to water quality in England's rivers, canals, lakes and coastal waters

A range of risks facing England's water environment were listed for respondents (see chart below). For each risk, around seven in ten considered they were either very or fairly concerned about the risk. Similarly, with each risk, less than two in ten people said they had little or no concern. People who never visit the water environment were more likely to say they didn't know, or to express less concern about the risks.



Pollution from businesses other than farms was the risk that concerned the most people, with just under four in ten people (39%) identifying it as something they were very concerned about and a further four in ten (41%) saying they were fairly concerned. Those aged 55-75 were *more* likely to be either very or fairly concerned (92%), with those aged 16-34 (66%) *less* likely (vs. 80% overall).

Pollution and sediment from farms was the next most concerning issue,, with over three quarters of people (76%) being either very or fairly concerned. People who visited England's water environment at least few times a month (86%) and those aged 55-75 (91%) were more likely to be concerned about pollution from farms (vs. 76% overall)..

Nearly three quarters (74%) are either very or fairly concerned about **pollution from homes**. Those who have visited England's water environment at some point are more likely to be *very* concerned than those who have never visited (30% vs. 11%). Nearly six in ten (57%) retired people said they were *very* concerned (vs. 32% overall).

The likelihood of being *very* concerned about pollution from homes increases steadily from the youngest age group of 16 to 24 year olds (17%) to the oldest age group aged 55 – 75 years (47%).

Two thirds (67%) expressed concern about **plant and animal species being introduced** into areas outside their natural location. Concern was higher amongst those who visited the water environment most frequently and retired people. Around four in ten retired people (39%) and of those who visit the water environment a few times a week (42%) said they were *very* concerned about it, compared to the average of just under three in ten people (27%). Those who have never visited the water environment were more likely to be *not at all* concerned (8% vs. 3% overall).

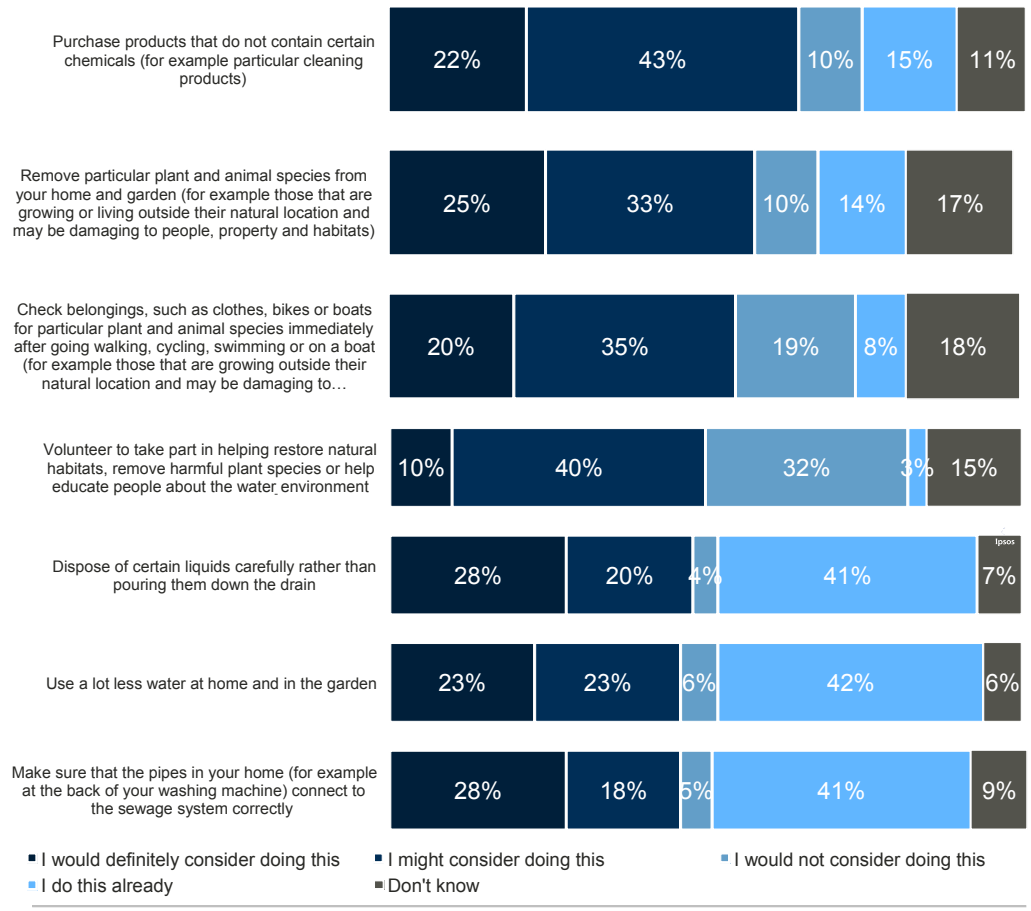
In terms of **removing water and changing the flow of rivers to meet the needs of homes, businesses, and farms,** nearly seven in ten people (68%) said they were very or fairly concerned. People who visited the water environment in England at some point were more concerned than those who have never visited (72% vs. 42%).

The public dialogue participants identified 'chemicals', 'faecal indicator organisms and sanitary pollutants' and 'phosphates and nitrates' as being of most concern. It is interesting to reflect that these broadly align with the concerns expressed by survey respondents about pollution from businesses, farms and homes.

8. Willingness to consider household measures to protect the quality of the water environment

Respondents were given examples of things that households can do to help protect the quality of the household environment. Three measures mentioned have already been put in place by over four in ten people- using a lot less water (42%), disposing of certain liquids carefully rather than putting them down the drain (41%), and making sure that pipes in the home are connected correctly to the sewerage system (41%).

Q: There are some things that individual households can do to help protect the quality of water environments across England. To what extent, if at all, would you personally consider doing each of the following things in order to help protect England's water environments?



Base: All respondents (8 **67 un**weighted base size) - Adults aged 16 to 75 in England from Ipsos MORI's Online Access Panel . Results have been weighted to reflect a nationally representative profile of Adults aged 16 to 75 in England.

Source: Ipsos MORI / Environment Agency

The following points about those already undertaking certain measures are of interest:

- People aged **55-75** are nearly twice as likely (50%) to say that they **already dispose of liquids carefully** than of **16-34 year olds (29%)**.

- Nearly four in ten (39%) of those who **visit the water environment at least a few times a week** said they **would definitely check pipes that are properly connected** to the sewage system against lower figures (18%) for those who **never visited the water environment**.

- **Households with one or two people** are more likely to **already be using a lot less water** in their homes (44% and 48% respectively), compared to households with three people (34%) or four people and over (33%).

- People who **visit the water environment at least a few times a month** are more likely to definitely consider **volunteering than** those who only visit every few years (15% vs. 5%)

Some measures are much **less** likely to be implemented currently, including checking belongings for particular plant and animal species (8%) and volunteering to restore natural habitats (3%).

Interestingly, people who frequently visit the water environment a few times a week were more likely to say they **would not consider using a lot less water in the home** than other groups (16% vs. 6% overall). Retired people were more likely to say they did this already (53%vs. 42% overall).

Over **four in ten people** said they would **definitely consider** or **might consider** each of the seven measures, with the highest proportion, over **six in ten people** (65%), saying they would **definitely consider or might consider purchasing products that do not contain certain chemicals.**

Those more likely to definitely consider buying products without certain chemicals are:

- **Women** (26%) as opposed to **men** (18%)

- Those with a gross household **income above £35,000** per year (27%) as opposed to those with an **income less than £19,999** (18%)

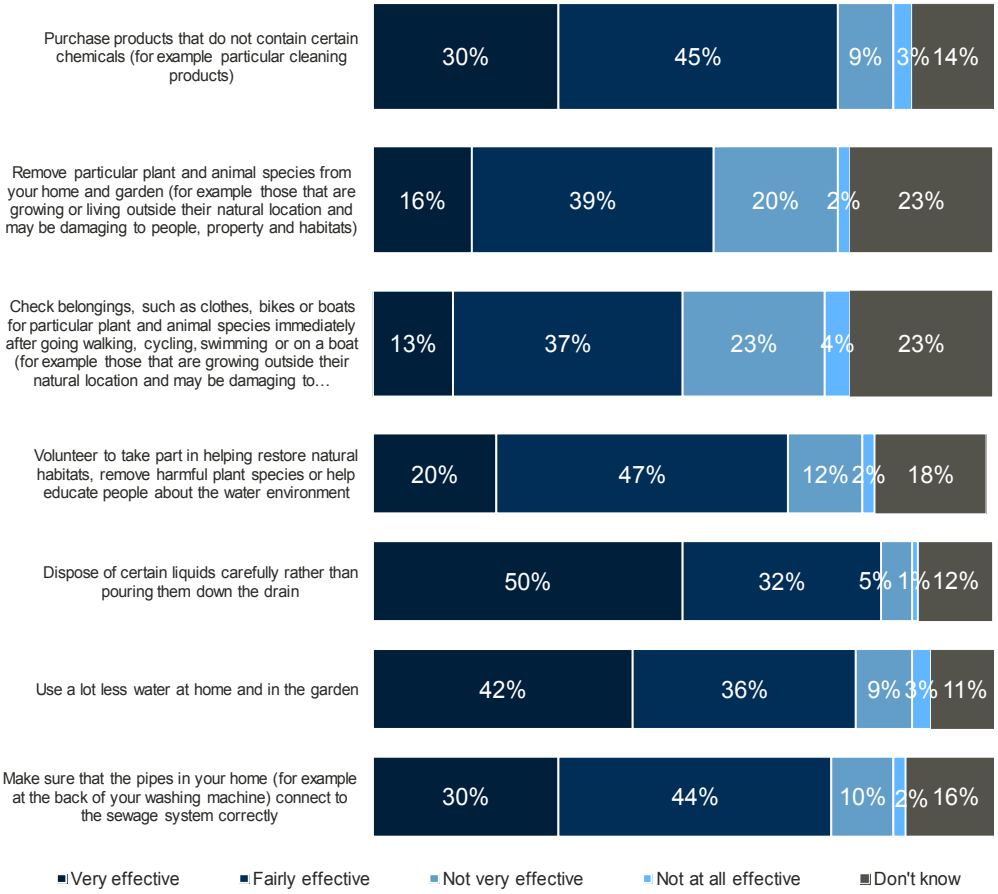
Across all categories of measures, people who never visited the water environment were more likely to answer **don't know** when asked to consider the options put before them.

9. Opinion on effectiveness of various measures to protect the water environment

Members of the public were most likely to feel that disposing of certain liquids carefully rather than pouring them down the drain (50%), using less water (42%), purchasing products that do not contain certain chemicals (30%) and checking pipes for misconnections (30%)

were actions likely to be *very* effective in helping to safeguard England's water environment. They were more sceptical about the value of removing particular plant and animal species which are growing or living outside their natural location (16% considering it very effective), and checking belongings for particular plant and animal species (13%).

Q: How effective, if at all, do you think each of these actions would be for helping to protect England's water environments?



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Source: Ipsos MORI / Environment Agency

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Across all the actions, people who said they never visited the water environment are consistently more likely than other groups to say they 'don't know' whether an action could be considered effective or not.

Retired people were more likely than others to expect the following issues to be *very* effective as follows:

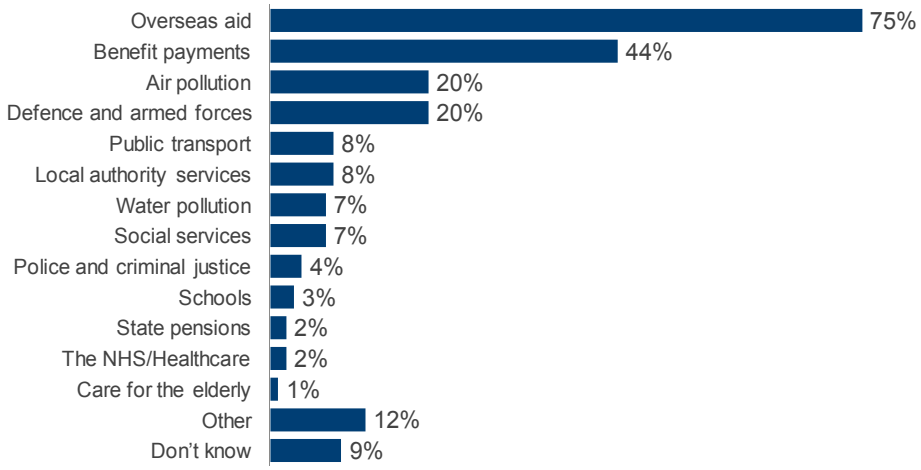
- Purchasing products that do not contain certain chemicals (45% vs. 30% overall)
- Checking pipes at home (54% vs. 30% overall)
- Removing plants (29% vs. 16% overall)
- Checking belongings (20% vs. 13% overall)
- Using less water (57% vs. 42% overall)
- Disposing of certain liquids carefully (64% vs. 50% overall)

The only issue which retired people did not expect to be as effective as others was the idea of volunteering to help restore natural habitats (19% vs. 20%), but it was considered to be a very effective option by those who visited England's water environment a few times a month (36% vs. 20% overall).

10. Views about which sectors respondents think public spending cuts should come from

Overseas aid is clearly the sector that people feel most willing to see affected by public spending cuts (75%), with cuts being seen as least desirable in terms of care for the elderly (1%), the NHS (2%) and state pensions (2%). Water pollution is identified by just seven in a hundred (7%) people as being an area they think the UK Government should cut the most money from. This relatively low figure could be because they feel the water environment should be protected, though it could also reflect a belief that overall spend on the water environment is not as significant as other sectors and that there are therefore less potential savings to be made.

Q: As you may know, the government is reducing the overall level of public spending as part of the process of reducing borrowing. Which two or three, if any, of the following areas do you think the UK Government should cut the most money from?



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Source: Ipsos MORI / Environment Agency

Ipsos MORI Social Research Institute

Those who never visit the water environment are more likely to identify water pollution as an area for cuts (12% vs.7% overall). There were no other groups which showed a marked difference from the average.

This was one of the issues that participants at the public dialogue workshops had a chance to discuss at the end of the day. A common reaction was for people to say that prior to attending the dialogue workshop they would have considered the protection of the water environment a lower priority than they did after having taken part in the discussions.

Appendix 8

Guide to interpreting the quantitative findings

customer service line
03708 506 506
www.environment-agency.gov.uk

incident hotline
0800 80 70 60

floodline
0845 988 1188

Ipsos MORI

Environment Agency: SWMI Public Dialogue

Guide to interpreting the quantitative findings of the Omnibus survey

Overview

An omnibus survey was conducted on behalf of the Environment Agency SWMI public dialogue carried out by 3KQ and Ipsos MORI. The omnibus survey was carried out after the fieldwork, analysis and reporting of the public dialogue events was completed. The findings from the omnibus survey have been included as a final chapter of the public dialogue report.

The purpose of the quantitative research has been to add context to, and aid interpretation of, the extensive qualitative findings that have been produced through the public dialogue. The quantitative findings should be used with due care and consideration in any other context

The survey was carried out on Ipsos MORI's i:Omnibus vehicle between 31st January and 4th February 2014. 867 panellists from Ipsos MORI's Online Access Panel were interviewed; all respondents were aged from 16 to 75 and from England.

When using the data tables, please refer to the questionnaire contained in Appendix 1 as a guide to interpreting the findings, as well as the guide to the crossbreaks in Appendix 2.

Omnibus Survey Details

Data Collection Method: The omnibus survey was carried out online, on Ipsos MORI's i:Omnibus vehicle.[1]

Sample: The i:Omnibus interviews a nationally representative sample of 1,000 adults aged 16 to 75 across Great Britain bi-weekly. However, for this survey, our questions were only asked of those in England. To assist in aiding the representativeness of the data, the sample is drawn to be representative of the offline population to ensure it is not skewed to a demographic of the online population.

Weighting: The results are weighted to the known England profile population, offline. The i:Omnibus uses a system which weights to Eurostat (2012) defined profiles for age, social grade, region, main shopper, and working status - within sex. Because of the quota system used on Ipsos MORI's Access Panel, weighting efficiency is very high (in this survey it is around 97%).

Fieldwork: Fieldwork was conducted between 31st January and 4th February 2014. It must be remembered that the survey was conducted after, and through, sustained media and political interest in flooding in the UK. It is important to remember the contexts that respondents were completing the questionnaire.

Questionnaire Development

[1] For more details see: http://www.ipsos-mori.com/researchareas/omnibusservices/onlineomnibus.aspx

The questionnaire was originally developed by Ipsos MORI after an initial scoping document and discussion was had with the SWMI Public Dialogue Project Team. The questionnaire went through several iterations of review with the team. The finalised questionnaire was then sent to the Reference Group for comment; comments were only received from Sciencewise-ERC. The questionnaire then went through Ipsos MORI's Polls for Publication process, before being signed off by the Environment Agency's SWMI Public Dialogue Project Team.[2]

Interpreting the findings

Sampling Tolerances

Because a sample, rather than the entire population of England, was interviewed the percentage results are subject to sampling tolerances. This means that we cannot be certain that the figures obtained are exactly those we would have if everybody had been interviewed (the 'true' values). We can, however, predict the variation between the sample results and the 'true' values from knowledge of the size of the samples on which the results are based and the number of times that a particular answer is given.

The table below illustrates the predicted range for different sample sizes and percentage results at the '95% confidence interval' – i.e. the confidence with which we can make this prediction is 95%, that is, the chances are 95 in 100 that the 'true' value will fall within a specified range (the 'margin of error').

The tolerances that may apply in the computer tables are given in the table below. Strictly speaking the tolerances shown here apply only to random samples, however, in practice, good quality quota sampling has been found to be as accurate.

Overall statistical reliability			
Size of sample on which survey result is based	Approximate sampling tolerances applicable to percentages at or near these levels		
	10% or 90%	30% or 70%	50%
	±	±	±
867 (total sample)	2	3	3

For example, with a sample of 867 people where 30% give a particular answer, the chances are 19 in 20 that the 'true' value (which would have been obtained if the whole population had been interviewed) will fall within the range of plus or minus 3 percentage points from the sample result.

[2]. Any questionnaire developed for a study where the results may be published is reviewed through Ipsos MORI's "Polls for Publication" process. The process exists to protect Ipsos MORI's reputation for authoritative, objective and independent research, as well as to protect the reputation of our clients who will present any of Ipsos MORI's findings publically. It enables us to meet the guidelines of various industry bodies (MRS British Polling Council, ESOMAR).

Comparing different samples: significant differences

Based on the theories and practices above, we can calculate whether the difference between two percentages or samples are statistically significant - that is they represent a true difference in the population, or if they are potentially just a result of interviewing a sample (as opposed to the entire population). For instance, it enables us to consider whether the results between those in social grades AB and DE are statistically significant (at a 95% confidence interval). The table below outlines exemplar differences required for significance.[3]

Comparing different percentages and samples			
Size of samples compared (examples)	Differences required for significance at or near these percentage levels		
	10% or 90%	30% or 70%	50%
	±	±	±
Males (429) vs. Females (438)	4	6	7
Social grade AB (225) vs. DE (202)	6	9	10

Other notes:

- Where results do not sum to 100%, this may be due to computer rounding, multiple responses or the exclusion of “don’t know” categories.

[3] Strictly speaking the tolerances shown here apply only to random samples, however, in practice, good quality quota sampling has been found to be as accurate.

For queries or more information regarding the project and/or workshops please contact:

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Independently designed and delivered by **3KQ** and **Ipsos MORI** for the Environment Agency

3KQ THREEKEYQUESTIONS

Ipsos MORI

Funded by **Sciencewise Expert Resource Centre** (Sciencewise-ERC)

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