



# Consultation Response

September 2000



# ENVIRONMENT AGENCY

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# Executive Summary

The Environment Agency is developing new strategies for the sustainable management of water resources in England and Wales. These strategies are expected to contribute towards sustainable development, protecting and enhancing the water environment while facilitating economic growth and higher living standards.

As the first stage in the development of these strategies, a wide range of groups with an interest in water resources was consulted on some controversial issues. We received a large number of detailed responses from many different sectors, including representatives from national and local government and other statutory bodies, water companies, industrial and agricultural users of water, environmental groups and individual members of the public. This report summarises the responses.

The responses strongly emphasised the importance of securing adequate water resources to both protect the environment and meet human needs. Unsurprisingly, the views of our consultees differed on many issues but all held a common desire to see the environment protected and water, as a limited resource, used wisely and allocated fairly. Many constructive comments about the future management of water resources were made.

The Agency is using the views from the consultation in the development of the strategies. We are considering the many conflicting demands and uses for water, the suggestions and proposals for alternative approaches and criticisms of the existing system (both positive and negative). We will publish one national strategy, which will deal with policy and national issues and eight Regional strategies to provide a regional focus and show options for reconciling the needs of the environment with those of water users.

# 1. Introduction

In October 1999, the Environment Agency launched "Sustainable Water Resources for the Future: Values and Challenges". This consultation document was the first stage in developing new water resources strategies for England and Wales. The strategies will look some 25 years ahead, and will provide a framework for the sustainable management of water resources.

The Environment Agency's aim in water resources is to protect the long-term future of the environment while encouraging sustainable social and economic development. Water links different parts of the environment: an action in one place may have an effect far away. The availability of adequate supplies of water is essential both for natural life and for human use.

"Sustainable Water Resources for the Future: Values and Challenges" sought views on a series of issues that we need to consider in the development of our water resources strategies. Many of these were controversial. By facing these issues directly, we believe that we can bring added transparency to the development of our strategies.

While our approach was not universally welcomed, we received a large number of detailed responses. We sent out around 3000 copies of the consultation document, and received about 270 responses. This is a good response for this type of consultation. The source of these responses is shown in Figures 1 and 2.

On average, each response was about 11 pages long; in total, the responses make up around 3000 pages of text. Dealing with this quantity of information is difficult. We have developed a database that holds the full text of each response, so that we can ensure that we have not overlooked any views. The database will provide an important and durable reference source for all of those involved in the development of our strategies.

This response document represents a further phase in the development of the strategies. In the pages that follow, we have tried to summarise the range of responses that we received on each issue. In doing this, we have tried hard not to misrepresent any views. We have considered each response in some detail in preparing this document, although we have not been able to present every facet of every argument. However, we hope that we can provide respondents and others with a good idea of the range of views and opposing arguments that have been put forward.

We have arranged this document in the same way as the original consultation document. Where possible, we have added to each issue the Agency's present view on the matter.

Apart from the Anglian Region area, from where we received 61 responses, we received an average of 21 responses per Region. This is not sufficient for us to draw any conclusions about regional differences in views on the national issues. Instead we have considered all the responses together in this report. The Regions will consider the views of their respondents on local issues during preparation of the Regional strategies.

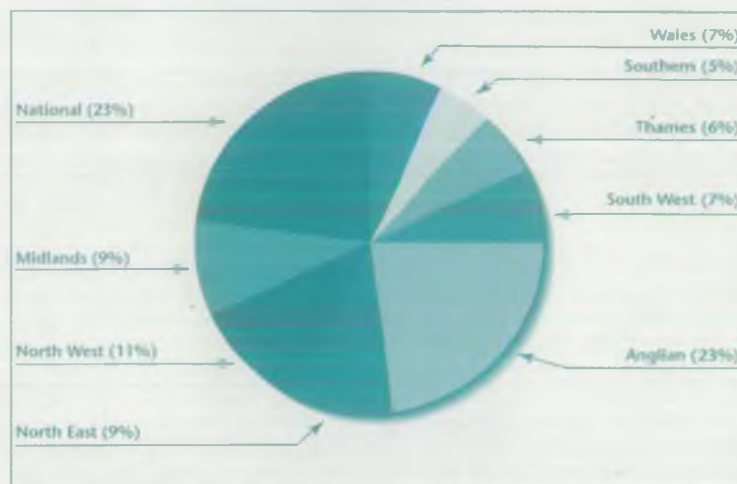


Figure 1. Respondents by Region

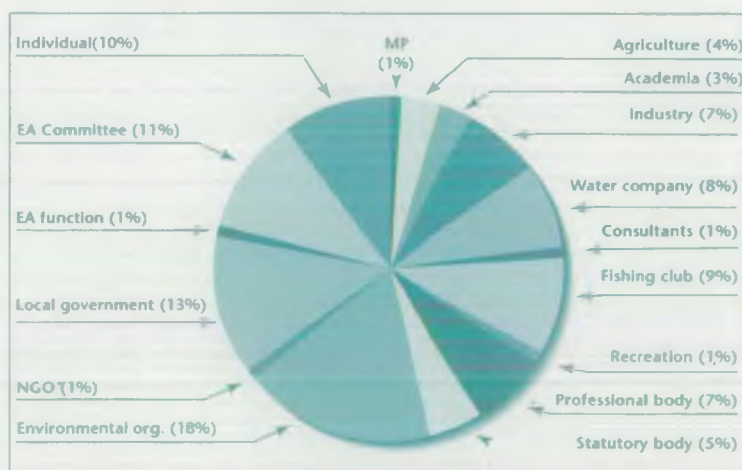


Figure 2. Respondents by Sector

## 2. The Issues and Responses

### A What environment should we protect?

Many respondents identified this as the key issue in water resources management. The range of responses received showed that there is no simple answer to this question, but many respondents provided views that were intended to illuminate the difficult decisions that have to be faced.

#### A1 Should we try to protect the water and water-related environment as it exists today?

Without exception, respondents said that protecting the water and water-related environment is essential. Different views were expressed about how we should go about determining the basis of this protection. Many respondents pointed out that in some places the water environment today is unacceptable, and that we must work to improve this. Local environmental and fisheries groups put forward examples of locations where such improvement is required. Many pointed out that environmental protection should not be aimed solely at designated sites such as SSSIs but should also be afforded to other locations. A few respondents pointed out that the water environment should be seen in its entirety and that such holistic management would help not only with environmental protection but also in ameliorating the effects of flooding and low flows.

Some respondents suggested that today's environment represents a minimum standard. A few asked for the restoration of the environment of previous times; some looked to the first half of the twentieth century while one or two suggested that we should aim to return to conditions from before the industrial revolution.

Respondents from different sectors (environmental groups, academia and the water industry) distinguished between preservation (maintaining static conditions) and conservation (maintaining biodiversity and individual species through appropriate management.) Some agricultural and industrial respondents suggested that environmental protection, while important, should be viewed in the context of social and economic development and the associated costs and benefits.

#### A2 Should we try to enhance the water and water-related environment at some locations, even at the expense of others?

This question proved controversial. Some environmental groups gave an unequivocal "no", suggesting that the environment should be improved everywhere. A few local environmental groups put forward a case for the particular merits of their area of interest, suggesting that its protection should be paramount.

Many respondents from all sectors were uncomfortable with the idea of enhancing some areas at the expense of others. Some warned of the difficulties of understanding the implications of all actions and the dangers of a piecemeal approach, while others pointed out the difficulty of obtaining consensus on the relative merits of different sites. However, there was some recognition from environmental groups and others that in practice the designation of sites under the Habitats Directive or as SSSIs effectively offers them priority, potentially at the expense of others.

A few respondents suggested that we should consider the question of enhancement at a scale beyond individual sites, and that within each catchment we should look for no net loss of environmental quality. Some water companies suggested that enhancement of some sites at the expense of others is inevitable and that it is better to have some enhanced sites rather than some degradation everywhere. Water companies and some farmers pointed out the potential costs associated with environmental enhancement.

**A3 How can we ensure that the water and water-related environment continues to provide for the needs of navigation and active or quiet recreation?**

Those with an interest in fishing told us that proper protection of the natural environment also protects their interests. Navigation groups emphasised the need to maintain levels in navigable rivers and the need to feed water to canals. Some respondents commented that canals can require large volumes of water and that this can have a significant impact on the natural environment. Others commented on the direct water pollution that boats can cause.

Environmental groups commented that most quiet recreation has little negative impact on the environment, but that where conflict occurs, the environment should be considered first.

**A4 To what extent should we take a precautionary approach to water resources management?**

Most respondents agreed with taking a precautionary approach; however, different groups define this in different ways. Some environmental groups interpret it to mean that if there is any possible hazard to the environment the proposed development should not be permitted. Other environmental groups and some farmers pointed out that the precautionary approach should not be an excuse for prevarication. For example, if further monitoring is required, this should be put in place.

Water companies suggested that the precautionary approach should not be applied only to the environment but should also be used to ensure that there is adequate water supply at all times. Some farmers suggested that the precautionary approach should be balanced against the social and economic costs of its application.

## **AGENCY POSITION**

*Present legislation allows us to impose conditions on licences that are aimed at protecting the environment. We will continue to use these to safeguard the rivers, wetlands and estuaries.*

*We will continue to commission research to help us to understand the water requirements of the environment. They are not simple; but we will aim to apply the results of this research.*

*We will continue with our programmes to restore sustainable levels of abstraction at sites where over-abstraction is known to be damaging the environment.*

*Our strategies will aim to ensure that all abstraction is sustainable in the longer term. We will work to return the abstraction regimes of all catchments currently considered to be unsustainable to a sustainable level. No other catchments will be allowed to develop abstraction regimes that are unsustainable by today's standards.*

## **B How should we respond to climate change?**

### **B1 How should we plan strategically for the longer term in the face of uncertainty about climate change?**

Many respondents acknowledged that dealing with the uncertain effects is an important aspect of coping with climate change. Some pointed out the importance of strategies that minimise climate change, for example by reducing emissions of greenhouse gases. Most respondents believe that long term planning for climate change is necessary. Some urged the Agency to think fifty to one hundred years ahead when considering appropriate responses. Most respondents agreed that there was a need for more research on climate change, and many picked out the issue of the frequency and magnitude of extreme events as a subject requiring further work.

Many respondents thought that the potential for wetter winters and drier summers means that more storage of winter water will be necessary. This view was taken not only by water companies but also by some environmental groups, who see this as an opportunity to protect some environmental sites. Some environmental groups in the south called for further development of transfers of water from the wetter north.

Most respondents advocated the efficient use of the water that we have already, although some cautioned that demand management might be reaching its limit, and that we should not delay development of new resources if this is necessary. Some respondents addressed the issue of planning using scenarios; many water companies and some others suggested that we should plan for the worst of these, because there is a real possibility that the worst scenario may occur. Others suggested either phasing of schemes or the development of flexible strategies that can cope with the worst extremes if these occur. Some respondents also identified the need for good drought management plans.

### **B2 What monitoring do we need to put in place to ensure that we understand the effects of climate change on water resources?**

Most respondents believe that monitoring is important. Many believe that the existing network of raingauges, groundwater monitoring boreholes and river flow gauges is probably adequate, although one or two respondents believe that the Agency has not paid enough attention to changes already apparent in these records. Some respondents suggested more monitoring of evaporation is necessary, and many pointed out the need for good quality ecological and biological records. Some respondents identified the difficulty involved in seeking long-term trends in a variable system, and suggested that monitoring programmes need to be designed to deal with this problem.

### **B3 Should farmers and other abstractors expect a greater allocation of the available summer water, or should they adapt to the new climate?**

Most respondents from all sectors (including farmers) told us that some degree of adaptation would be necessary. Most conservation organisations and other abstractors can see no reason why farmers should expect more summer water, pointing out that farmers should save winter water in reservoirs if they need more. Some respondents suggested that farmers would need to grow new crops that are more tolerant of hot, dry conditions. A few respondents stated that present farming practices are unsustainable and that the UK should move towards different practices that work with the weather. Others pointed out that climate change may have a significant effect in parts of the world from which we presently import crops, and that we should make sure that agriculture and the food industry in the UK can adapt to such changes.

Farmers generally agreed that some adaptation will be necessary. They identified some appropriate measures, such as the efficient use of existing water and the development of new crops. However, some pointed out the importance of farming as a source of employment and revenue in their local areas. Farmers were generally in favour of the principle of storing winter water, but pointed out that the cost of farm storage reservoirs can be prohibitive, and that farmers would need assurance that abstraction licences would remain in force for long enough for the reservoir to be worthwhile. Some called for incentives to store winter water. Some farming groups also pointed out that some short-term allowances would have to be made in the allocation of water to farmers so that they would have time to make longer-term adaptations.

**B4 How can we identify and manage the risks to water resources availability of climate change?**

Many respondents dealt with this question in their answers to questions B1 and B2. Most respondents identified the need for the Agency to involve itself fully in climate change research, taking a long-term view of research needs and seeking the advice of the UK Climate Impacts Programme (UKCIP). Some respondents pointed out that planning for a worst case would in itself deal with the risks to water availability.

**B5 How should climate change impact on the way that we use water?**

Many respondents made the point that the threat of climate change should encourage all users to be responsible in their use of water, but that this would be prudent even without climate change. Some water companies and local authorities said that this would be a good reason to introduce compulsory water metering, although one or two noted that this would require work on the acceptance of metering to domestic customers. Some environmental groups made a case for tariffs that would encourage society to move towards minimising adverse effects on the environment.

**B6 If climate change reduces summer flows, should we manage resources to protect the existing water environment, or accept that some sites can no longer be maintained?**

This question produced widely differing responses. Some environmental groups told us that any reduction in environmental protection would be unacceptable. One or two environmental groups said that no further impact on the environment was acceptable until all possible water transfers from wetter areas had been exhausted. Others pointed out that the water environment should not be considered as a series of sites but as a single, interconnected environment. Some environmental groups said that we could not protect all nature conservation sites from every climatic hazard, but identified the need to distinguish between the effects of climate change and the effects of abstraction. Some environmental groups said that pumping water to maintain levels in some special sites would be necessary, while others pointed out that in the long term this is itself an unsustainable way to manage water resources. Some groups suggested that we need to buy time to allow sensitive species to migrate to suitable locations.

Many water companies, abstractors and local authorities took a different view. Some said that change is inevitable and that to try to reduce its impact would be unreasonable. Water companies and others tried to identify ways that the environment could be protected from climate change while still allowing abstraction. Schemes to store rapid runoff and to encourage habitat development in rivers were among those suggested by these groups. Most of this group shared a view that some sites should be protected in the face of climate change, but that prioritisation would be necessary.

## **AGENCY POSITION**

*The Agency takes climate change very seriously. Our overall approach includes the regulation of industries producing gases that contribute to the greenhouse effect, and we are developing an integrated approach to climate change that involves mitigation as well as adaptation.*

*In our strategies, we will consider all of the potential effects on water availability and demand. We will prefer solutions and strategies that allow flexibility in the face of the uncertainty of climate change and will encourage water users to adapt to climate change over time.*

## **C Should we prioritise access to water resources?**

### **C1 Does the current "first come, first served" principle provide an appropriate balance between different needs for water and protecting the environment?**

Many respondents told us that the "first come, first served" principle does not provide the best balance between different needs for water and protecting the environment. Some said that the allocation of water resources should ideally be based on the need and importance of the water to society, with consideration given to planning issues. However, many respondents recognised that the present system is pragmatic and allows users some degree of long term planning. Some responses said that the system works by accident, since current allocation reflects historic preferences with priority given to the health, economic and social needs of society.

Environmental groups and statutory bodies saw the "first come, first served" principle as an unacceptable approach with insufficient consideration of environmental protection; in perpetuity rights were seen to be particularly inappropriate.

Many respondents raised concerns about how a different system might work. For example, as a consequence of moving away from a "first come, first served" policy, decisions would need to be made as to how much water to reserve for different future demands without knowing what these might be. This would lead to unused resources when these judgements are proved wrong, as water allocated for one purpose would remain reserved even if another applicant had a legitimate demand for it.

Some suggested that "first come, first served" in conjunction with time-limited licensing could be a viable option, but could prove controversial if a licence is withdrawn to be offered for an alternative higher priority purpose. Under these circumstances full compensation would need to be paid. Where water is held in reserve, trading of licences could be applied but it should be based on willingness to pay rather than being enforced.

### **C2 Does the "first come, first served" principle provide sufficient encouragement for environmentally sustainable uses of water, such as hydropower?**

Most respondents agreed that the "first come, first served" principle does not provide sufficient encouragement for environmentally sustainable uses of water. Some respondents suggested that the Agency should advise on which uses of water are the most environmental and/or economically sustainable. Where allocation of water between conflicting uses is controversial, the Agency should consult stakeholders on options.

Some respondents were concerned by the impression inadvertently given by the Agency that hydropower was an unquestioned example of an environmentally sustainable use of water. In sustainable development there are no absolute "good" and "bad" practices, and each option has to be evaluated against its specific application. Hydropower or other "sustainable" water uses should not be automatically afforded priority for water allocation; this should be made on the basis of achieving the greatest good for the greatest number.

**C3 Can a hierarchy of water allocation be identified? If so, how should water be allocated? Should this differ in different locations?**

Most respondents agreed that in principle it is possible to establish a hierarchy. Public supply and the environment are suggested as priorities by environmental organisations; water companies emphasised public supply. Practicalities are more difficult but various suggestions for suitable schemes were made. Some suggested that hierarchies should be agreed on a regional basis and link with the forthcoming review of licences. Most were in agreement that allocation should be determined at a local level based on consultation and the environmental capacity of the resource.

Many respondents recognised that it is desirable to prioritise water uses that genuinely reflect a sustainable future.

**C4 Should access to water be controlled by market forces? Is willingness or ability to pay a good way of allocating it?**

There are many views on the benefits of trading licences and introducing market forces into water resources. Some suggest that the only way that the use of water can be ranked is on the basis of the marginal economic value it has to the community being served. Others are very concerned that the ability of some sections to pay, for example water companies, would limit the access of others, such as farmers, to water resources. Separate consultation is being undertaken on economic instruments by the DETR and the results of this consultation exercise will be used to inform the Agency's response.

**C5 Should water to maintain navigation have priority over some other uses?**

Most respondents expressed the view that there is no reason why navigation should have priority over other uses. All sectors agreed that navigation should compete either in the market place or within any hierarchical scheme of priorities along with other users. Many made the distinction between recreational and commercial navigation, with commercial use prioritised as an environmentally friendly form of transport.

## **AGENCY POSITION**

*The Agency understands the concern felt by many respondents that the existing "first come, first served" principle is unfair. The Government is currently considering modifications to the licensing system. We will incorporate these developments in our strategies as they arise. We will report on our recent consultation on Catchment Management Strategies early next year.*

## **D Should water resources and supplies be a consideration in the planning system?**

### **D1 Should the availability of water resources be a constraint on development?**

Many respondents, including many from local government, took the view that a lack of available water resources should act as a constraint on development, but that this constraint should not necessarily be absolute. Other respondents suggested a more flexible approach where water should not be seen as a limiting factor, allowing market forces to prevail. Most environmental organisations agreed that water resources availability should constrain development, particularly for larger scale new development, for example new towns.

Some local planning authorities have pressing reasons for encouraging development where water resources are stretched. It is suggested the water companies should be involved early in the local planning stage to allow new source development to be included in the water companies' Asset Management Plan (AMP) process. Except during the construction period for water resource developments, the availability of water resources should not be an absolute constraint.

### **D2 How should water resources issues affect the timing or phasing of new developments?**

Local government and statutory bodies suggested that consideration should be given to phasing development at the planning stage. There was also a suggestion made that application of the "precautionary principle" should mean that development should only be allowed to go ahead if the water can be supplied without harm to the environment.

Many respondents wanted the Agency to take a greater role in identifying the potential water resource issues from new development when the Regional, Structure and Local Plans are being formulated. The water resource issues could then be fully considered, together with other infrastructure issues in accordance with Planning Policy Guidance Note No. 12 - Development Plans.

### **D3 Can technological innovation, such as water recycling and water efficiency, deal with all the problems of water availability that we face?**

Technical innovation was actually seen as contributing to the problems of water availability, rather than as a solution. A few respondents identified that the planning system only offers limited indirect scope to influence the demand for water. Greater influence will be achieved by changing water regulations to make more water efficient appliances a requirement, for example low flush toilets and waterless urinals.

It was recommended that water recycling, including grey water reuse and rainwater harvesting, be considered as an option for all major new developments but many respondents urged caution. They pointed out that at present there are issues, related to health, the need for chemicals and the current limited cost-effectiveness for domestic use.

Many respondents referred to the importance and opportunities of "sustainable urban drainage systems" which reduce the amount of surface water drained from a site and instead, use porous pavements and soakaways to allow infiltration to groundwater.

**D4 Should the water company duty to supply water to new domestic customers be reviewed?**

Most water companies do not see a need to review their duty to supply water to new domestic customers. A few commented that the water companies' relationship with the planning system should be formalised; some sought the status of statutory consultees while others suggested that Government should issue a policy guidance note on water issues. Some local authorities expressed the view that reviewing this duty was a priority. Most environmental organisations also felt that this obligation should be reviewed.

There was a concern however that relaxation of the duty to give discretionary power to refuse to supply could prejudice housing/economic development programmes and transfer significant power to water companies. Relaxation of the duty would give companies a potentially biased influence over patterns of development by not having to respond to requisitions by developers. On balance it seems most respondents think the existing duty of water companies should remain, particularly as they can recover the costs of infrastructure provision, provided there is adequate consultation on water resource issues and opportunities for the companies to include any necessary source development in their Asset Management Plans.

## **AGENCY POSITION**

*The Agency will continue to offer advice to planning authorities on the water resource implications of any proposed new developments. We will work with planning authorities and central Government to consider the need for a specific Planning Policy Guidance Note on water resources. For our strategies, we will assume that the proposed growth in housing will be planned sufficiently far in advance to allow it first to be placed in locations where infrastructure will not be a control on development. Subsequently, we will work with local government to advise on the water resources implications of major developments.*

## **E What are the main dependencies between rural land-use and water resources?**

### **E1 Should irrigation water be seen as a special priority in agricultural areas?**

Irrigation improves the yields, quality, consistency and reliability of crops. Farmers and their representatives emphasised that irrigation is of great importance to rural economies: the farmers and growers, the food industry and other up-stream and down-stream industries involved with farming.

Responses from environmental groups suggested there should be a distinction between types of crops, with those receiving CAP (Common Agricultural Policy) subsidies not included for priority treatment, as well as between trickle and spray irrigation (which is seen by many as particularly wasteful).

Farming is likely to change radically over the next 15 years if production subsidies are withdrawn and result in changes to rural landscapes. Some of these changes will be dependent on the availability of water resources and the need for irrigation.

A number of respondents recommended better links to agri-environment schemes. These are schemes supported by the Ministry of Agriculture, Fisheries and Food (MAFF) to encourage environmentally friendly farming. The schemes are voluntary and offer payments to farmers who agree to manage their land for the positive benefit of wildlife, the landscape, resource protection, historic features or public access.

### **E2 How should the impact of rural land-use change on water resources be considered? For example, should afforestation be controlled if water resources are under stress?**

Environmental groups considered it more important to reform agricultural management techniques and modify development pressures, than to consider land-use changes. However, afforestation, for example, should be taken in the context of broader environmental gain including improvements to biodiversity and erosion control and combating of global warming, and not just its impact on water resources.

Historic land drainage practices such as over dredging of rivers are also criticised by some respondents as contributing to flash floods and reducing groundwater recharge. Excessive widening and deepening of rivers has led to increased run-off rates exacerbating flood problems, and drainage of wetlands with damage to ecology. Maintaining and restoring a more natural river environment, with the reintroduction of pools, meanders and riffles where appropriate and better source control to reduce surface water run-off will have benefits for biodiversity, water quality and flood defence, as well as water resources.

**E3 To what extent should the impact of water resources developments on landscapes be considered in our national and Regional strategies?**

Environmental groups recognised the need for the Agency's strategies to consider landscape, but did not in general address whether this should be at a regional or national level. Most local authorities however, suggested regional water resource developments should be considered at a national level irrespective of actual location. The impact of specific development should then be considered at a local level. Water resource development is generally interpreted as relating to new reservoirs, although responses to this issue also expressed concerns about the impact abstraction can have on wetlands and rivers. The landscape impacts of development are recognised as a material consideration under the Town and Country Planning Act. Many respondents pointed out that some reservoirs have become landscape attractions whilst others, for example in West London, appear from the ground as high rectangular embankments. Careful attention needs to be paid to the siting and design of new reservoirs, including farm reservoirs. Some respondents pointed out that it may be beneficial from the wildlife, landscape and economic point of view to have fewer but larger farm reservoirs, with the possibility of incorporating landscape and wildlife features.

Looking to the future, River Basin Management Plans required under the European Union Water Framework Directive should provide the Agency with greater control over land-use.

**E4 Should the Agency take a lead role in the provision of storage for spray irrigation?**

Farming groups believe the Agency should take a strong lead role in encouraging provision of on-farm storage. They emphasised that in many areas, water is not available for abstraction from rivers or groundwater in the summer and that winter storage may be the only way they can have a reliable supply of water. The Agency could be more proactive in setting up and helping local groups of growers to work together to assess optimal reservoir management strategies. These groups could provide advice and guidance on reservoir linkage, siting and maintenance etc.

Concerns were expressed that there could be a potential imbalance between the length of time-limited licences and the payback period associated with building reservoirs; generally farmers need use of the reservoir for at least 25 years to ensure a return on their capital investment.

Environmental groups were strongly opposed to the idea of the Agency financially supporting any development of irrigation water storage, although many acknowledge that if designed well, reservoirs can become an attractive habitat for wildlife.

## **AGENCY POSITION**

*The Agency recognises the significant links between various historic and current land-use management practices and the water environment. Agriculture is an important part of rural land-use and the national economy.*

*Water for irrigation is a priority for farmers in some areas. The Agency will continue to support the provision of storage for efficient irrigation where that is appropriate but does not plan to promote or finance such works.*

*The Agency will be aiming to maintain and enhance the rural landscape. For example, we will encourage where appropriate new areas of habitat, such as wetlands and reedbeds. New forests can have many environmental and economic benefits but in certain locations can reduce the recharge to groundwater aquifers. We will work to understand the implications of new forests.*

*The Agency will continue to work with MAFF, farmers, English Nature, Countryside Council for Wales and others to promote environmentally sound agricultural practices that benefit water resource management.*

*In our water resource strategies, we will consider likely demand for irrigation, and identify the different possibilities for dealing with this.*

## **F Is water “undervalued”?**

### **F1 Should the cost of water reflect its importance in sustaining life, the economy and the environment?**

Most respondents considered that in principle, the cost of water should reflect its importance in sustaining life, the economy and the environment and that in comparison, the cost of water in the UK is currently low. This may result in water being undervalued. Most see this as a problem of public perception arising from current charging mechanisms and the determination of Government and Ofwat to drive down prices. Also in the absence of compulsory metering, there is currently no means by which raising the price of water could change this. The rise in price would have to be substantial to influence consumption.

There was some concern over artificially increasing prices beyond the cost of provision, since it effectively becomes a tax. Some respondents suggested it is more appropriate in the short term for the Agency's abstraction charges to continue to recover the costs of its work, whilst including adequate funding to resolve problems caused by excessive abstraction and maintain sustainable abstraction. A change in legislation would be required to enable the Agency to incorporate environmental or other such costs. In addition, if the majority of abstraction is sustainable, the true cost is already reflected through present charging approaches.

### **F2 Should more actions be taken to make users understand the link between their use of water and its impact on the environment?**

There was general agreement that more action should be taken, by the Agency and water companies in particular, to make users understand the link between their use of water and its impact on the environment. However, even in today's more aware society, “getting the message across” in an effective way is extremely difficult. The development of the national Water Resources Strategy will be a useful opportunity to draw out the relative impacts and costs of the various issues and options.

Some respondents suggested education and awareness campaigns can be particularly effective during droughts when images of the environment under stress are clearest. Campaigns need to be linked with incentives and penalties to reinforce the need for individual responsibility.

It was also suggested that the Agency should be proactive and work with relevant groups, such as the water companies, English Nature, RSPB and the wildlife trusts to raise awareness of the link between water use and the potential damage to wildlife habitat and amenity uses of rivers and wetlands. Promotional campaigns should be arranged to make people aware of how they can “do their bit”.

### **F3 Can education and awareness campaigns alone deliver efficient water use?**

Education and awareness campaigns alone were not considered sufficient to deliver efficient water use. Respondents emphasised the need for water regulations to control the type and use of appliances, water using products and industrial processes. The importance of development of standards, and best practices in the industrial and commercial sectors was stressed. Respondents pointed out the strong link between water use efficiency and energy and waste minimisation and suggested a holistic approach should be taken. For domestic use, the extension of metering was seen as essential to provide an incentive to the public to take up water saving initiatives identified from education and awareness campaigns.

**F4 Might there be situations where an extension of charging by water metering becomes of critical importance in water resources management?**

Most respondents (from environmental interests and statutory bodies, to local government, agriculture and professional bodies) saw metering as an essential demand management tool for the future. Some were wary of universal metering, as the cost of metering is very high and is probably only justified where resources are scarce.

It was also noted that increased prices and metering do not always reduce usage, since customers then feel they are entitled to use as much as they want.

Some respondents felt that only when universal metering has been completed will water companies be able to send direct messages to

their customers. These could reflect the effect of abstraction on the environment and the cost of meeting peak demands at a critical time of the year. Intelligent tariff structures and comparative analysis of water use can be used to control demand in a very precise way whilst preserving the rights and privileges of responsible customers. Concerns were related to health implications and low income families, with many suggesting a tiered charging system incorporating a free or subsidised basic minimum and sharply increasing scales after this.

A clear lead on metering from the Agency was requested by the voluntary sector, with mixed messages and inconsistencies a theme throughout responses to this issue. It should be noted that the responses cannot be regarded as a mandate for universal metering given that consultees were not chosen to comment on issues relating to health or social equity but for their interest in water and the environment, and are not representative of broader society.

## **AGENCY POSITION**

*The Agency notes the comments on the benefit of education and awareness campaigns. The Agency welcomes the general support for metering when combined with carefully designed tariffs that minimise social impacts and maximise environmental benefits. Metering can lead to a better understanding of how customers use water and provides the opportunity for users to manage their own water consumption.*

*In the water resource strategies, the Agency will encourage support for education and awareness campaigns and will consider policies on metering and its role in the 'twin track' approach to water resources management.*

## **G Are customer restrictions an appropriate and effective way of saving water?**

### **G1 Should water be available at all times for watering gardens and other uses such as car washing?**

The general view was that completely unrestricted use of water, irrespective of the prevalent water resource situation is not appropriate.

Many people are extremely proud of their gardens and wish to use hoses and sprinklers during dry periods to keep their lawns green and plants thriving. Most respondents recognised that a balance had to be struck to maintain essential supplies through all droughts whilst accepting that in exceptional droughts some uses, such as garden watering, would need to be restricted.

### **G2 Are customer restrictions an appropriate drought management tool?**

Restrictions on non-essential use, such as bans on hoses and sprinklers, were considered to be legitimate drought management tools. Restrictions need to be considered as part of a wider package of drought measures, of which information and customer awareness are a major part.

Customer restrictions are an invaluable way of saving water when resources for public supply and the natural environment are under acute pressure. Some respondents said water companies were unlikely to impose hose bans and other restrictions except as a very last resort. Some water companies indicated that many of their customers take the view that if they are paying for water they want access to it at all times and are prepared to pay an increase in charges, rather than have restrictions imposed.

### **G3 If hose bans and other non-essential use bans are acceptable, how frequently, on average, should they be applied?**

There was a very mixed answer to this question, varying from never, to up to four months each year if necessary. A number of respondents felt the frequency of bans on the public will primarily be a matter for water companies to decide following transparent, publicly accountable consultation with customers. The consultation should consider the cost of infrastructure improvements and the willingness of customers to pay for greater security.

In general respondents felt that water companies should not promise unlimited supplies to consumers without regard for the prevailing circumstances. Bans on non-essential use should be introduced earlier than they currently are to preserve essential supplies for longer without having to resort to Drought Orders.

Control of hose use need not be amount to a complete ban given the proven effectiveness of other restrictions, such as use on alternate days. Many respondents suggested an average ban frequency of around one in ten years.

### **G4 The Agency has powers to ban spray irrigation in drought conditions. Should these powers be extended to other users of water?**

There were mixed views on this; many water companies said that the Environment Agency should not be given powers to ban other users of water. Where a water company abstraction is causing or likely to cause permanent damage to a valuable habitat the Agency can seek a Drought Order to reduce the company's abstraction. This may lead to restrictions on customers if the company does not have a resilient network of sources.

Other respondents, particularly from environmental groups, considered that the Agency should have further powers. It was suggested for instance that the Agency might ban consumptive uses of water such as landscape watering, or divert abstractors where resources are at risk and there is a threat to the environment.

**G5 Are there other ways of persuading customers to reduce water use in dry periods?**

Education was advocated by many as a means by which to promote water conservation using voluntary means; this could be achieved by advertising or by direct contact with customers and schools.

Another recommendation for reducing water use was metering with appropriate tariffs such as rising block, peak and off-peak both daily and seasonal. This could be instrumental in changing customers' patterns of use, and helping to manage peak demands in droughts.

Agricultural respondents held that the Agency should continue to work with spray irrigators and give advice on the availability of water during a drought. It is better to work with abstractors to secure voluntary agreements to reduce those abstractions that are likely to cause environmental problems and only impose formal restrictions as a last resort. The Agency must recognise the importance of water supply for crops and be sympathetic to the economic implications for growers.

**G6 Should all significant abstractors and major users of water develop drought plans?**

It was agreed almost unanimously that all significant abstractors and major users of water should develop drought plans. All water companies have now prepared drought plans and agreed them with the Environment Agency. Businesses should be considering the impact of drought on their business functions and plan accordingly. Industries that abstract water directly are probably more vulnerable to drought than those that are supplied by the public supply network. It was also suggested that environmental bodies responsible for the conservation of wetlands and rivers should plan for the possible impacts of drought.

## **AGENCY POSITION**

*The Agency expects water companies to meet the reasonable needs of their customers through all but the most extreme droughts. The Agency agrees with respondents that restrictions on non-essential water use, such as washing cars and watering gardens using sprinklers and hosepipes are appropriate during drought periods to protect resources for the essential needs of people and the environment.*

*Through the licensing and the Drought Permit application processes the Agency will ensure that the essential needs of the environment are protected. All major water users and regulators should develop drought plans; these have already been prepared by water companies.*

## H Is our individual use of water sustainable?

### H1 Is it reasonable to expect individuals to manage their use of water? Or should they have an expectation that they can buy and use as much water as they like and can afford?

Nearly all respondents felt it was reasonable to expect people to manage their use of water and that ability to pay should not be a criteria for water demand. However, it was generally recognised that it is very difficult to manage the consumption of a good unless the user knows how much is being used. Some cited metering as a solution but a few respondents sounded a note of warning that metering might cause people to purchase their way into profligate and unsustainable use.

There were many advocates for price differentiation of water; this would allow people to obtain a limited amount of water for essential use at a low tariff and would charge higher prices for water use over this level. Several respondents also suggested the implementation of so-called multi-systems that enable potable and non-potable water to both be supplied to properties for different uses.

Some respondents referred to the recent reduction in water prices and expressed concern that this will lead to a devaluing of water and potentially to an increase in per capita consumption.

### H2 What role should the Environment Agency seek in influencing the use of water by individuals?

The Agency was seen as having a key role in influencing individuals' use of water while water companies were seen as having a conflicting interest between their duty to promote water efficiency whilst competing to supply more water. A number of responses suggested that the main contribution from the Agency should be to provide an educational service. Others felt the Agency should influence the legislative and planning procedure and/or take an enforcement role. It was felt that there is an educational need to stress to people the impact that their water use has on the natural environment. Several respondents felt that people struggled to fully appreciate this link.

The Agency was also identified by some as having a role to promote better and more co-ordinated thinking between Ofwat, DETR, water companies and other players in water resources, as well as supporting Research and Development in water efficiency.

## AGENCY POSITION

*The Agency agrees that it has a role to play in educating consumers about the opportunities and benefits of wise water use and indeed is already active in this area. Other parties, for example water companies, also have a significant part to play; we will continue to co-operate and discuss towards this end. We appreciate that many consumers may find it difficult to connect their use with the natural environment; many do not know the source of the water they drink or may feel that there are surplus quantities of water in their area. The Agency will look for ways to demonstrate and communicate this link to the public.*

## I Water Efficiency - Should the Agency set targets for all users?

### 11 How proactive should the Agency be in promoting water efficiency?

There was a general view again, in responses to this issue, that the Agency should be more active in promoting water efficiency. People envisaged the set up of partnership programmes with local government, regional assemblies, environmental groups and local Agenda 21 groups to educate the public about the need for water efficiency and cost effective ways to achieve savings.

Some respondents cautioned that the perceived level of savings needed to be tempered with realism about what was possible in practice. For example, some respondents said that promotion of new water efficient goods and systems was likely to be more effective and economic than a reactive response such as retrofitting.

Local authorities recommended water efficiency should be part of the planning process and the Agency should be increasingly proactive in working with others to develop and influence regulations, planning developments and manufacturers. There are parallels with the energy sector and energy efficiency requirements. The incorporation of water efficiency and conservation requirements in new developments and regeneration projects could lead to substantial water savings.

### 12 Should quantitative water efficiency targets be set?

There was general agreement that targets should be set and some felt that they should apply to all water users (not just water companies) and should be tailored to each water sector.

Respondents explained that it is difficult to measure savings that arise from some water efficiency initiatives and until measurement techniques improve, it will be difficult to set efficiency targets. Many respondents suggested that applications for new abstraction licences should be expected to demonstrate that required quantities are based on "reasonable" use. The Agency should define and promote "best practice" in efficient water use by industry, commerce, agriculture and at home, and use these values as the norm for defining the quantities of water required.

### 13 Who should be responsible for setting such targets?

This question again elicited responses that referred to mixed messages from regulators and Government. Ofwat were seen as having the primary responsibility for setting water efficiency targets for water companies with the Agency as a key consultee. Comparisons were made with the UK energy sector where the industry regulator sets the targets. It was also suggested that the Agency should set efficiency targets for direct abstractors in consultation with the abstractor and relevant groups.

### 14 What incentives are there, and could there be, for saving water?

It was suggested by some respondents that financial incentives, either by tax or tariff structures, may help to encourage water efficiency. Nevertheless, where the cost of water remains low in comparison with other charges, then the effects would be limited. The role of pricing and by implication metering, was a common theme in the responses. Many respondents commented on the difficulties of devising incentives for domestic consumers, and the need to protect those on low incomes.

## AGENCY POSITION

*Ensuring that water is used sensibly is a key element in the sustainable management of water resources. The Agency will continue to promote water efficiency by industry, commerce, agriculture and in the home; it will continue to work with Government, Ofwat and the water industry to identify and agree good practice.*

## **J How might competition in the water industry affect sustainable water resources management?**

### **J1 What are the gains and risks arising from competition in the water industry for water resources management and the natural environment?**

While some respondents told us that they had no clear view on the impact of competition, others were very interested in the issue. Many addressed the more general question of the benefits or disadvantages of competition in general. Widely differing views were apparent, with some supporting competition in principle while others strongly objecting to it.

Some respondents could see little benefit from competition for water resources management and the natural environment. These respondents, including some local authorities, water companies, and environmental groups, suggested that long term planning would suffer and that competition might encourage increased water use by customers.

Other respondents did identify potential gains. Some said that water companies would use water more efficiently because there would be an economic incentive to save water and sell it elsewhere. Some suggested that water companies would diversify to add value to their water sales, for example by helping large users save money by using less water. It was also suggested that competition would encourage innovative technology that would lead to better water use.

Many respondents identified risks. Some said that the environment might suffer in any attempt to reduce costs. Others were concerned that competition might discourage long-term investment in assets such as underground pipes. Some pointed to the difficulty in promoting co-operation between companies, and also to potential difficulties in managing and controlling abstractions. Others were worried about the potential impact of the concept of "supplier of last resort", where existing water companies would have ultimate responsibility for water supply in the event of failure of a new entrant.

Most respondents agreed that firm regulation by the Environment Agency would be necessary to ensure that the environment does not suffer as a result of competition.

### **J2 How should new entrants demonstrate a genuine need for water resources?**

Many responses reflected the difficulties associated with demonstrating a genuine need for water resources. Customers would be reluctant to agree to a contract with a new supplier unless they were sure that the supplier had water to sell, but suppliers would be unable to demonstrate need without customers.

Some water companies suggested that draft or preliminary contracts with potential customers would be necessary. Other respondents said that demonstrating customer interest would be sufficient. Some water companies and other respondents said that any proposal should be accompanied by a detailed business plan that should be made available to the public. Some respondents from environmental groups and local government said that new entrants should demonstrate that their proposal would be more sustainable than that of the existing water supplier. Some respondents made the point that new companies should have comprehensive water resource and drought plans.

### **J3 Might the introduction of competition in public water supply restrict the availability of water to other potential users?**

This question also drew out a range of answers. Some respondents argued that competition would lead to more efficient use of water, hence making more water available to other users. Some of these went on to argue that this will mean that water will be used by those who value it most highly, ensuring that its allocation is efficient. Other respondents pointed out the difficulty associated with speculative applications for abstraction licences and the issue that the supplier of last resort might need an allocated right to water that should never be needed. Some water companies told us that potential fragmentation of the water industry could leave the existing companies with isolated assets that they would be unable to operate efficiently.

## **AGENCY POSITION**

*The Agency's role in the development of competition is limited but we see competition as a potential threat if implemented with the wrong framework. It should be noted that water is very different from electricity and gas. We will work to ensure that any developments in competition in the water industry are managed so that the environment and other users are not adversely affected or put at risk. In our strategies, we will consider the demand of water users, looking for effective ways to meet these whatever the structure of the industry.*

## **K How far should leakage control be pursued?**

### **K1 How could best practice in leakage control be defined?**

Many respondents considered that best practice means achieving the economic level of leakage. However, there were concerns that it is difficult to properly calculate all the costs and benefits, particularly environmental ones. Some suggested the Agency should undertake the determining of the environmental costs and benefits.

A few respondents referred to various studies undertaken for or by the water companies. Respondents were keen that companies share best practice on leakage reduction technology and reduction techniques.

Although percentage figures were used quite frequently when referring to targets or levels, there was general recognition that they are not a good measure of leakage performance. With regard to the cost of leakage reduction measures, it was noted that finance is required not only to achieve incremental reductions in leakage but also to maintain existing levels.

Some respondents noted that although leakage is a waste of energy and unnecessary abstraction, at least the water seeps back through the ground to reach the rivers and aquifers. In that sense it is not "lost" and in some areas is probably keeping trees in urban streets alive by providing them with water they would not otherwise receive due to the non-porous nature of pavements and roads.

A few respondents recognised that the economic level of leakage will vary over time. Technical innovation for example, can make leakage control more cost-effective relative to other resource options. Equally, diminishing availability of resources can make increased leakage control more cost-effective relative to development options that are likely to be increasingly more expensive.

### **K2 How could incentives for further leakage control be developed?**

It was pointed out that companies with high leakage levels will often have an economic incentive to reduce their leakage levels, particularly if they have a tight margin between supply and demand and are considering new resource development. Ofwat has set targets for company leakage levels and achievement of these provides a strong incentive supported by the Government. Many respondents considered that the greatest incentive for the companies was good publicity; a company with low leakage levels is more highly regarded than companies with high leakage, almost regardless of the economic issues.

Many respondents noted that a high proportion of leakage occurs on consumers' premises and is not under the direct control of the water company. Companies, which offer a free supply pipe repair service to their customers, have been able to reduce total leakage significantly.

Further incentives for lower leakage levels that were suggested included a rebate on abstraction charges and greater support for new development options if needed.

### **K3 What expectations of further leakage reductions should the Agency have when formulating its Regional and national water resources strategies?**

Most respondents suggested the Environment Agency should expect water companies to achieve the economic levels of leakage in its Regional and national strategies, but not assume leakage below this level. The Agency and Ofwat must be consistent in the target that they set and regulate and this should be a transparent process that is open to audit.

Others commented that the Agency should expect leakage below the economic level to take account of environmental uncertainties and set an example for other users. Replacement or relining of old cast iron pipes also gives water quality improvements and this was suggested as a further reason for expecting lower leakage levels in some areas.

## **AGENCY POSITION**

*The Agency expects water companies and other abstractors to strive to achieve and maintain control of leakage, and as a minimum to achieve Ofwat targets. It will encourage the water industry and others to share "best practice" in leakage control, especially with regard to proven innovative solutions.*

*The Agency will work with the water industry and others (especially Government and Ofwat) to help establish public scrutiny of economic levels of leakage, and to ensure the methodology includes environmental costs and benefits.*

*The Agency will expect best practice leakage control to be the norm for defining the quantities of water required when considering new abstraction licences, and will expect water companies and others to maintain leakage containment programmes, when new supply schemes are promoted.*

## **L Should water resources be developed locally?**

Most respondents stated that, all other things being equal, development of local resources is more environmentally sustainable than development on a wider scale. Several respondents note that there are inherited water resource systems and the historic development of major industrial cities depended on transfers of water from distant reservoirs.

Suggestions in the responses included making use of low quality river water and groundwater for non-potable use to alleviate the pressure on available water resources in areas where the balance between supply and demand is tight. A couple of respondents also identified that the excavation of minerals created a water resource, suggesting that guidelines would be helpful on the role this may play in water supply.

### **L1 Should the Agency produce general rules about the relative benefits of local resource development, or should we treat each case on its own merits?**

Most respondents considered that new water resources developments are unique and should therefore be treated on their own merits. These are opportunities for local consideration with publication of proposals and, if need be, accountability at public inquiry. General rules about relative benefits for local resource development were therefore not seen as necessary by most.

Some water companies and other abstractors suggested they tend towards local developments because they are perceived as being easier to implement and because it does not require co-operation between several different companies or bodies. However, larger inter-regional schemes may be both cheaper and less environmentally damaging. Respondents suggested the Agency should consider the wide issues to ensure local developments are tested against inter-regional developments and the widest possible range of interests is met, including consideration of issues such as local economic growth.

## **L2 Would further development towards a fully national water grid be compatible with principles of sustainable development and local accountability?**

There was a wide spectrum of responses on the issue of development of a national water grid. Some groups said that a national water grid, capable of transferring water to drier parts from wetter northern areas is an essential development sooner or later. As current climate change predictions harden, so it becomes more imperative that action along these lines receives serious consideration. The groups recognised there will be negative impacts; pumping and construction costs will be high and must be paid for by Government, the water industry and customers. In return there would be a secure nation-wide supply that would relieve pressure on the environment in drier parts of the country.

Water companies considered that options for transfers were legitimate but they would need to be properly considered on cost, quality and environmental grounds. There were also some strongly expressed views that a national water grid would not be sustainable development of water resources and could be an environmental disaster. Any bulk transfer of water consumes energy, primarily generated by the consumption of fossil fuels. Whilst attractive as a concept, a national grid would require the consumption of vast quantities of energy. Concerns were expressed about the environmental impact of mixing water from different catchments with different chemistry and the potential spread of pathogens and invasive animal and plant species.

### **L3 Does local accountability affect the extent to which efficient use of water should be expected?**

There was a strong prevailing inference in the responses to this and other questions that few customers know where their water comes from. This may be because truly local supply zones are now increasingly rare. Many thought that local accountability might not therefore be a significant factor in accounting for efficient use of water.

It was felt important to inform people what the effects of their water use are and if possible link this to a local issue such as a river or wetland drying up to press the point home. However there was a view that in general, people do not care about the effect and think they have a right to use as much water as needed. The incentive to use less water should be financial as well as environmental. An increase in water transfer schemes and the simultaneous removal of local accountability may result in the feeling of false security about water resources and a consequently less responsible attitude, resulting in careless use.

**L4 How can water users be made aware of the impact they have on the water environment, both locally and further away?**

A number of respondents noted that the Agency initiatives for Local Environment Agency Plans (LEAPS) and Catchment Abstraction Management Strategies (CAMS) might present opportunities for water users to be made more aware of the consequences of their water use on the environment, both locally and further away. Others suggested more information could be provided in customers' bills and local and national publicity could be arranged at appropriate times in order to reduce usage. Education, of schools, business and industry was a recommendation of many respondents with explanation of the water cycle and fundamental environmental issues included as a cross-curricular element in the national curriculum.

**L5 Should wet areas with adequate water resources look to profit from selling water to areas with limited resources?**

The suggestion that wet areas could profit from selling water to areas with limited resources generated some strong responses with opposite views. Some felt water was a natural good and trading was fundamentally wrong. There were also concerns that defining areas with adequate resources could be fraught. Under drought conditions, even so called wet areas could be affected.

Many groups were uncomfortable about people making a profit from transporting water but recognised that costs such as pumping and compensation must be paid. Water companies suggested that those operating efficiently should expect to earn a reasonable return on any investment they make in assets and infrastructure to support inter-regional transfers and bulk supplies. They emphasised there should be no cross subsidy so the full costs are borne by the receiving company, and there should not be any geographical or political pressure.

Respondents suggested that this issue is closely related to Government plans to encourage competition in the water industry. Water companies with surplus water could be encouraged to either sell it to a neighbouring company, or sell the abstraction licence. They further suggested that it may be more practical in the short term than the implementation of common carriage or development of a national grid.

## **AGENCY POSITION**

*Many of our existing residential and industrial developments already depend on water from distant sources. The integrated network of pipes and sources that water companies now use often extend over large areas and often cover a number of catchments. This makes it increasingly difficult to attribute a specific area of use to a particular source of water.*

*The Agency believes that there is no simple answer to whether local options are better than inter-basin developments although demand management options do have the desirable characteristic of the user taking responsibility rather than simply passing on the impacts. All options, including demand management options, should be considered on their merits to identify the most sustainable option, taking into account issues such as social equity, economic growth, environmental protection and prudent use of natural resources.*

*In future, the Agency's development of Catchment Abstraction Management Strategies is expected to help provide important information on local availability of water resources.*

## **M How should we work out which water resource options are most acceptable?**

### **M1 Is it feasible to give a monetary figure to the environmental and social impacts of a scheme?**

Many of the respondents appreciated that applying a price to the social and environmental impacts of a scheme could be a beneficial tool in the decision making process. The vast majority also recognised that determining an absolute monetary value is fraught with difficulty. Some respondents thought that it would be possible and cited developments in environmental economics. Most, however, were ill at ease with how meaningful the results might be with so much room for improvement in methodologies.

A number of respondents felt that to ensure that environmental and social interests are properly protected they should be considered in the same manner as other decision-making factors. It is therefore essential to work towards a realistic procedure of applying a monetary value that will enlist the confidence of all parties. It was suggested that current methods of assessing value could be used cautiously to inform the decision making process.

Many environmental groups and other respondents thought that allocating a value to environmental and social impacts would rely on too many assumptions and subjective values, and therefore was not realistic. A value would tend to give an impression of objectivity that is not justified by any current cost and benefit methodology. Some responses expressed a preference for more qualitative approaches such as multi-criteria approaches and sustainable development indicators.

### **M2 Do such approaches afford adequate long-term protection for the environment and encourage sustainable development?**

All respondents agreed the importance of protecting the environment and promoting sustainability. However, the views of the

respondents digressed when considering whether monetary figures could afford this protection and encouragement. Some acknowledged that it could be possible but included caveats calling for a well defined and evaluated approach to be developed and used in conjunction with sound judgement.

Others felt that such an approach would leave the environment and sustainable development aspirations at risk and reiterated that giving a monetary figure to environmental and social concerns involved too many relative values that are likely to change over time. Some suggested a more integrated approach to ensure environmental protection. The precautionary approach was referred to as being a key approach.

### **M3 How can we place a value on good stewardship of infrastructure?**

There was an extensive range of suggestions for how we might place a value on good infrastructure stewardship. Many respondents suggested that abstraction licences should be linked to demonstrations of increased efficiency. Water companies generally held that good stewardship is an integral component of good asset management and that it is already achieved as far as possible.

### **M4 How should we determine whether to try to reduce demand or increase the available resource?**

Most respondents were aware that reducing demand and increasing available resource are not mutually exclusive water resource options and suggested implementing a range of solutions rather than looking for ways to determine the most appropriate method. Environmental organisations, along with some other respondents, felt strongly that demand reduction was the option most compatible with the principles of sustainability. Water companies stressed that there must be a combination of demand reduction and increase in available resource. Some also emphasised that the precautionary principle is often used too rigidly where there is no clear evidence of risk. This is unnecessary, as time-limited licenses should act as the ultimate control where there is a degree of uncertainty.

## **AGENCY POSITION**

*The Agency feels that efficient use of water is a key issue in promoting sustainable management of water resources. Similarly it recognises that best use should be made of available water resources before developing new schemes. However the Agency will encourage development of new water resource schemes in appropriate circumstances and will favour those that meet the widest interests and improve the environment.*

*The Agency agrees that achieving the right balance between water resources and demand should take account of social and environmental costs and is aware of the difficulties associated with the assessment of these. In our strategies, we will take this into account by using Sustainability Appraisal to ensure that we consider all of these aspects.*

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