House of Commons

Environment, Food and Rural Affairs Committee

Climate Change, Water Security and Flooding: Government Reply to the Committee's Report

Second Special Report of Session 2004–2005

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The Environment, Food and Rural Affairs Committee

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The current staff of the Committee are Matthew Hamlyn (Clerk), Fiona McLean (Second Clerk), Jonathan Little and Dr Antonia James (Committee Specialists), Marek Kubala (Inquiry Manager), Louise Combs and Jim Lawford (Committee Assistants) and Anne Woolhouse (Secretary).

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SECOND SPECIAL REPORT

The Environment, Food and Rural Affairs Committee reported to the House on *Climate Change, Water Security and Flooding* in its Sixteenth Report of Session 2003–04, published on 16 September 2004 as HC 558. The Government's Reply to the Report was received on 24 November 2004.

Government response

Introduction

The Government welcomes this report. It has raised awareness of the need to carefully plan for the effects of climate change on future water supplies and flooding. These have become becoming increasingly important issues and the report highlights the importance of global action in order to tackle climate change, the need for more challenging water efficiency requirements for new houses and the need to plan for long term flood risk. The Government shares the Committee's concern about the distress sewer flooding causes to those affected and attaches a high priority to its reduction.

Addressing the causes of climate change

Recommendation 1

Some degree of climate change is inevitable. However, concerted global action to reduce greenhouse gas emissions could curb climate change and limit the consequent increased flood risk. It is imperative that the Government continues to put every effort into achieving global action to address the causes of climate change. (Paragraph 5)

The Government recognises the need for action on a national, regional and international basis to tackle climate change. Climate change has been identified as one of the key priorities for the UK's presidencies of both the G8 and EU in 2005.

With the entry into force of the Protocol, the EU and others can start to demonstrate the economic and technological as well as environmental benefits of early action on climate change. Combined with continued efforts to collaborate at US State level (where much of the innovative work is being done), and through non-governmental groups and businesses, this may lead to re-engagement of the US in the longer term. We believe there are already a number of areas for fruitful exchange with the US such as sharing our experience on the early action that business can take; showing that action to tackle climate change need not be costly and may actually enhance competitiveness; and, exchanging views on technological development and climate change science. We remain hopeful that the US will re-engage with the more binding targets set by the international

climate change process in the future, and that we can continue to build on common ground through the G8 process.

Under the UK Climate Change Programme, the Government has introduced a comprehensive set of policies and measures to reduce emissions of greenhouse gases across all sectors of the economy in order to ensure the UK meets its Kyoto Protocol target of reducing emissions by 12.5% below 1990 levels by the period 2008-2012. These include the climate change levy package, targets to provide 10 per cent of the UK's electricity from renewable sources of energy by 2010 and at least double the capacity of combined heat and power by 2010, measures to improve energy efficiency in the domestic sector and European Union voluntary agreements with car manufacturers to improve fuel efficiency.

On 15 September 2004, Defra announced the Terms of Reference for a review of the UK Climate Change Programme,[1] with a formal consultation exercise to follow later this Autumn and the publication of a revised programme in the first half of 2005.

Recommendation 2

We strongly support the world class climate research being conducted by the Met Office and many other organisations and individuals in the United Kingdom. It is clear that a great deal of further research is necessary and we urge the Government to support such work. We recommend that, in addition to scientific publications, the Government and climate change scientists publish regular reports that aim to further public understanding of climate change and its impacts. (Paragraph 9)

Government continues to support climate change research. The Government is funding a research project to assess the impact of climate change on the management of water resource zones, and existing water infrastructure. The project will provide an improved understanding of the potential impacts and adaptation strategies related to climate change and water resources and develop practical guidance on how to manage water resources in a changing climate. The project is part of a broader cross-regional research programme aiming to assess the impacts of climate change on different regions of the UK.

In 2003, Defra published its science and innovation strategy covering the period from 2003-2006, which identified research needs on climate change. Defra is also currently consulting on its science forward look report "Evidence and innovation: Defra's needs from the sciences over the next 10 years", which sets out the Department's views of the increasingly prominent role of climate change science over this period. The Science and Innovation Framework for 2004 -2014, published in July, set out the Government's ambition for UK science and innovation over the next decade. Sustainable earth systems (including issues of climate change) and sustainable energy are two key themes. The

[1] http://www.defra.gov.uk/news/2004/040915b.htm

Office of Science & Technology will review Departmental Science and Innovation Plans for their quality and effectiveness following the spending round negotiations and assess the extent to which these align to wider Government priorities.

Defra publishes an annual report summarising all current climate change scientific research projects and recent findings. The full-length version is available only on the Defra website; hard copies of the summary are sent to all parties known to be interested in our research programme.

Defra strongly encourages its contractors to disseminate as widely as possible the findings of the research we commission. Indeed, they are contractually obliged, and paid, to do so. For instance, the Hadley Centre produces annually a booklet for distribution at the Conference of the Parties to the United Nations Framework Convention on Climate Change. This is given out to conference delegates and supports a presentation by Hadley Centre scientists at the Conference.

The Defra-funded UK Climate Impacts Programme produces publications targeted specifically towards its stakeholder audience. While the remit of this programme does not extend explicitly to cover the general public, a number of publications have found a particularly high take-up, and the programme-office staff respond regularly to enquiries from the public and from national and regional news and information media.

Particularly note-worthy findings are brought to the attention of the general public through the press, using press notices or press briefings. Also our contractors frequently appear on radio or television in both news and documentary programmes.

Alongside the Prime Minister's 14 September 2004 speech on climate change, Defra published a paper on its website reviewing the evidence for climate change, its human causes, projections for future climate change, its likely impacts and related adaptation issues, and the scientific issues surrounding stabilisation of greenhouse gases in the atmosphere. General information about the science of climate change, in non-technical language, is also available through the Defra website.

Water availability

Recommendation 3

There is a pressing need for wider public understanding of the way that climate change may affect water use. We recommend that water companies, Government and the Environment Agency take the lead in raising awareness about the value of water and the potential for water scarcity if it is not managed wisely. The current price review round offers a good opportunity to inform the public about these issues. (Paragraph 13)

The Government agrees with the recommendation that there should be greater awareness and understanding of the way that climate change affects water. As part of the

current Periodic Review of Water Price Limits,[2] the Government took the opportunity to raise awareness of climate change effects on water resources by asking water companies to include assessments of the effects it would have in their water resources plans. The Government is pleased that in response to its guidance, nearly all companies made an estimate of the impact of climate change and factored this into future supply provisions. However, plans will need to be updated as our understanding of climate change develops.

Improving awareness about water efficiency now will help to mitigate the future effects of climate change. Since 1996 all water companies have been under a legal duty to promote the efficient use of water by their customers. In fulfilment of this duty they provide a range of advice and assistance to help their customers use water wisely, including educational programmes for schools. Changes brought about by the Water Act 2003 will lead to further water efficiency activity by water companies.

Additionally, the Water Act 2003 placed water conservation duties on water companies, Defra and the National Assembly for Wales and public bodies, as well as a new duty on the Environment Agency to secure the efficient use of water resources. The implementation of these duties will help to increase awareness about the value of water, water efficiency and the effects of climate change on water.

The Environment Agency, through its Water Demand Management team, currently carries out a wide range of activities to improve public awareness of water efficiency. These have included poster and radio campaigns, producing and disseminating literature and advice, and the Water Efficiency Awards.

Recommendation 4

The present system of charging people for water on the basis of the old rateable value of the property they live in is outdated. Over time, we must move towards more rational use of water: linking the cost to the amount used is an important step towards this goal. At the same time, it is important that everyone is able to afford enough water to meet their basic needs. The Government should produce a report evaluating alternative water pricing mechanisms that relate the costs of usage more directly to the consumer. A cost-benefit study of metering should form part of the report. At the same time, the Government should consider carefully the impact of such proposals in order to protect vulnerable people from water poverty. (Paragraph 20)

The Government last reviewed the system of charging for water in a series of papers published in 1998-99. This review considered and consulted on issues including alternative methods of unmeasured charging, metering and the protection of vulnerable customers, and included published modelling of the effects of potential policies on

[2] Referred to as the 'periodic review' throughout the rest of the text.

customers' bills.[3] The outcome was the Water Industry Act 1999, which introduced new measures including the statutory free meter option, the right to remain on an unmeasured charge and the Vulnerable Groups regulations.

The Government agrees that metering, with carefully designed tariffs, is the long-term answer as a method of water charging. The policies put in place in 1999 have allowed the continued growth of household metering, with the benefits recognised by the Committee, while retaining some customer choice and protecting those most vulnerable to the effects of metered charging. It is true that former rateable values are outdated and result in some anomalies. However, household customers who find rateable value based charges unfair have the option of switching to a metered charge. The Government remains open to proposals for alternative bases of unmeasured charges for the reducing (though still substantial) number of households who remain unmetered, but any proposals must address the issues of transition and the problems which could be faced by those who would have to pay more, especially among those least able to pay. So far no satisfactory alternative has been put forward.

The Government is reviewing the existing ways in which lower income households are helped with their water and sewerage charges. The results of that review will be published later this year.

Recommendation 5

We recommend that, with the Office of the Deputy Prime Minister, Defra develop specific proposals to develop and promote products and services that increase household water efficiency. In particular, we recommend that the Government examine ways, including the role of local authority powers, of facilitating the use of rainwater and grey water for non-potable purposes. (Paragraph 22)

The Government recognises the importance of improving household water efficiency in the face of increasing pressure on resources from factors such as new housing development, the trend towards lower household occupancy and greater affluence, as well as climate change.

In recent years there have been a number of improvements in the water efficiency of some domestic products. The Water Supply (Water Fittings) Regulations were introduced in 1999 and set the maximum consumption for certain water fittings. For example, the Regulations reduced the maximum permissible flush volume of toilets by 25 per cent (to 6 litres) and permit more efficient dual-flush models. The EU Energy Labelling scheme has also played a part in reducing the water consumed by domestic washing machines and dishwashers by requiring manufacturers to provide information to consumers about the water consumed by these appliances on the EU Energy Label. As well as enabling consumers to make an informed choice about the appliances they

[3] '*The Incidence Effects of Charging for Domestic Water and Sewerage Services*', product code 98EP0244.

purchase by identifying efficient appliances this also encourages manufacturers to consider water consumption as part of their design process.

These measures are driving progress in the right direction, but there remains more that can be done to facilitate greater household water efficiency. Water metering and tariffs have a role to play, within the existing regulatory framework, and are expected to make a more significant contribution to demand management as the proportion of households on a metered supply increases. The Government's Market Transformation Programme is defining performance standards and benchmarks for a range of water using products, which will inform the consideration of new regulatory requirements and the feasibility of introducing a labelling scheme to promote the most efficient products. The Environment Agency has also initiated a feasibility study into a water saving trust, and will report its conclusions by the end of January 2005. This will review existing water efficiency activity and develop possible models for the operation and funding of such a trust.

Rainwater harvesting and greywater systems offer considerable potential to reduce demand on mains water, although there remain issues around their acceptability in terms of maintenance, water quality and cost. The current review of Part G of the Building Regulations will consider whether it is appropriate to place requirements for these systems in legislation. In its response to the report of the Sustainable Buildings Task Group in May 2004, the Government undertook to develop a Code for Sustainable Buildings. This will set best practice standards for energy, water, waste and other environmental issues, which go beyond the minimum standards in Building Regulations. The Code is currently being developed in consultation with industry and, subject to a Regulatory Impact Assessment and demonstrations in the Thames Gateway is due to be complete by the end of 2005, with national rollout in early 2006.

Recommendation 6

Housing developments built now will be in place for up to 100 years: it would be foolish to plan them in the future without an eye to their future water security. Planning guidance to local authorities should require that water availability be taken into consideration. We recommend that building regulations require greater water efficiency and that the Government consider ways to encourage manufacturers of domestic water-using appliances to develop more water efficient designs. (Paragraph 23)

The Government considers it essential that new development is designed and built to make the best use of existing water resources. The extent to which additional resources will be needed in future will be influenced by customer demand for water. The recommendations of the Sustainable Buildings Task Group included a range of measures to improve the water efficiency of new and existing buildings, including tightening regulations on water fittings and introducing a Code for Sustainable Buildings, which the Government is actively taking forward.

Defra liaises closely with ODPM on the development of planning guidance, for example to ensure that it addresses water resource and availability issues. In that context it is also essential that regional and local planners engage early with the Environment Agency and water companies to ensure that development plans are factored into companies' 25 year water resource plans.

The whole issue of natural resource protection, including water supply will be dealt with in the review of PPG 1 on *General Policy and Principles.*[4] ODPM has recently published *The Planning Response to Climate Change: Advice on Better Practice,*[5] which states:

> Planning authorities need to take water resources and quality seriously as a material consideration in their development plan or framework and development control decisions.

Planning Policy Statement 11 (*Regional Spatial Strategies*) and Planning Policy Statement 12 (*Local Development Frameworks*) were published in September. These documents concentrate on the process of drawing up the new forms of regional and local plan, but policy-orientated annexes highlight water supply as an issue authorities must have regard to when drawing up plans. Both Regional Spatial Strategies and Local Development Frameworks will also be subject to a mandatory Sustainability Appraisal (which will include a Strategic Environmental Assessment) that involves assessing water issues. Guidance on conducting a Sustainability Appraisal is currently out for public consultation.

The Water Supply (Water Fittings) Regulations 1999 set the maximum water consumption for certain water fittings. Under the Building Regulations appliances that use water are dealt with in Part G, Hygiene. The regulatory provision and the technical guidance, the Approved Document, relating to Part G are currently under review. The scope of this review has been expanded to consider the more efficient use of water by fittings including toilets, taps and showers, as well as methods of collecting and distributing non-potable water.

Some manufacturers already design and market their products on the basis of water efficiency. This is something the Government would like to see more widely replicated. The Market Transformation Programme is facilitating the identification and ranking of water efficient products, which will be used to inform consumer choice and future policy, and so should also act as a spur to manufacturers to develop more water efficient products.

[4] PPG1 has been reviewed as Planning Policy Statement 1. The consultation draft which is being reconsidered in the light of consultation responses is at the following website:
http://www.odpm.gov.uk/stellent/groups/odpm_planning/documents/page/odpm_plan_027494.pdf

[5] http://www.odpm.gov.uk/stellent/groups/odpm_planning/documents/page/odpm_plan_032088.pdf

Recommendation 7

Water companies need to do more to reduce leakage. We are particularly disappointed with Thames Water's leakage record and would expect it to improve before the next price review. The first step all companies should take is to make best use of existing resources. (Paragraph 27)

The 'twin-track' approach to water resources management requires water companies to consider demand management alongside resource development to achieve a sustainable balance between supply and demand for water. In guidance to the Director General of Water Services, as part of the periodic review, the Government stated that:

> Only where a demand management approach [including leakage control] was clearly insufficient or unjustified in terms of cost should they look to the development of new resources.

The water industry has made considerable progress in reducing leakage from its supply network since the Water Summit in 1997, such that the majority of water companies are now at their Economic Level of Leakage. This is the level at which it would cost more to make further reductions than to produce the water from another source. Ofwat sets companies annual leakage targets with the aim of reducing leakage to its economic level, where this has not already been achieved, and then maintaining it at that level. The Government expects companies to continue to manage leakage within Ofwat's economic framework and to exploit opportunities to reduce leakage further as they arise. The Economic Level of Leakage is dynamic and will change over time, which is expected to facilitate further reductions. For example, factors such as new leak detection and repair technologies, improved management practices, as well as increased pressure on water resources will all change the economics of leakage control. While there is technically scope to reduce leakage below its economic level this would incur additional costs on water customers that would require justification. The Government expects water companies to establish and manage leakage within the economic level established at a resource zone level rather than company-wide basis. This should permit further improvement of leakage performance within the existing economic framework.

The performance of Thames Water on leakage has been a matter of concern for a number of years. In 2001 Ofwat suspended the company's leakage target in favour of an action plan to improve its leakage monitoring and control activities. Leakage reduction targets for the three areas of Thames' operation were re-imposed in 2003, which, if met, would bring leakage to its economic level by 2006-07. Defra have requested Thames Water to provide them with quarterly reports on their supply-demand balance. There is evidence that the company is now making some progress towards its targets, but its North London area remains a particular problem. In its draft determination for the periodic review Ofwat allocated Thames Water funding for a substantial programme of mains replacement and water resource enhancements to improve security of supply. In

addition to these longer-term measures, Government expects Thames Water to take all necessary steps now to reduce leakage in line with Ofwat's targets.

Recommendation 8

Reservoirs should not be seen as an alternative to demand management measures. Nevertheless, it seems likely that some new capacity will be necessary. Water companies, the Environment Agency and environmental groups should engage in an open and frank discussion of the environmental and economic consequences of providing greater reservoir capacity. (Paragraph 31)

The Government agrees that demand management has a crucial role to play and advocates a twin track approach of managing water demand and developing sustainable new resources where needed.

In their water resources plans, which form part of their overall business plans under the periodic review, most water companies have forecast an increase in household demand for water over the next 25 years. This in turn has led them to predict the need for the development of new resources including reservoirs and de-salination plants. As the Government made clear in the Final Guidance on the periodic review, it wants to see demand management measures making a greater contribution to meeting the supply-demand balance, alongside the development of new resources.

The new reservoir building programme proposed by water companies in the periodic review will be subject to public scrutiny and debate via the planning process. Any planning inquiries will need to assess the necessity of the planned resource and the environmental and economic effects. Stakeholders such as environmental groups will be able to make their contribution to the arguments at that stage.

However, the Government recognises that there needs to be debate on such important matters before the planning inquiry stage. The next set of water resources plans, which will inform the periodic review in 2009, will become subject to more public scrutiny. Under the provisions of the Water Act 2003, draft water resources plans will be consulted upon and may be the subject of public hearings.

Flooding

Recommendation 9

We warmly welcome the Foresight report's approach to examining long term flood risk and congratulate those involved on their work. It is now up to the Government to take this work forward and ensure that it is well prepared for the increased flood risk that climate change is likely to bring about. We recommend that the Government publish a white paper that offers a candid assessment of the implications of the Foresight report for flood protection and planning. It should contain a clear statement of the Government's strategy for dealing with increased

flood risk and of the resources needed to implement that strategy. Defra should ensure that the scenarios on which the Foresight report is based are updated periodically. (Paragraph 34)

The Government also welcomes the Foresight *Future Flooding* report,[6] which considers the likely changes to flood risk over the next century. An Action Plan which explains how Government will take forward the findings of the report was published in April 2004. Moreover, Defra launched the *Making space for water* consultation exercise in July 2004,[7] which seeks views on proposals for a new long term Government Strategy for flood and coastal erosion risk management in England. We intend that the new Strategy will address the messages in the Foresight report and reflect lessons learned from the flood events in the recent past. It will shape the direction of flood and coastal erosion risk management over the next 20 years, with commitments for regular review. In particular it will address the challenges and pressures we are facing from factors such as climate change, development pressures and rising levels of risk and cost. It will build on existing work to incorporate the principles of sustainable development and to reflect the Government's other priorities, taking an integrated and holistic approach to looking at all flood and coastal erosion risks.

Following the end of the consultation period on 1 November 2004, we shall be considering the responses carefully in working towards developing the final Strategy, which we hope to publish in Spring 2005. As explained in the *Future Flooding Action Plan*, the Strategy will therefore be a key part of the response to the Foresight report and the Government do not consider at this stage that a White Paper is required on the subject. We will, however, continue to ensure that the Foresight report is considered in our future long term planning and that the scenarios in the report are updated as and when required.

Recommendation 10

The Foresight report on future flooding has alerted us to the possible magnitude of future flood risk. In its response to this Report, the Government should tell us how and when it will decide what further flood protection is needed. It should also tell us how it is preparing for the upgrading and eventual replacement of the Thames barrier. (Paragraph 37)

The Government recognises the need to take forward both the collection of flood risk data and its analysis. Major strides have been made in recent years. We have commissioned and published reports including the *National Appraisal of Assets at Risk*

[6] Foresight Flood and Coastal Defence Project (2004). *Future Flooding,* Office of Science and Technology www.foresight.gov.uk

[7] Defra (2004), *Making space for water: developing a new Government strategy for flood and coastal erosion risk management in England: a consultation exercise*. PB 9792 www.defra.gov.uk/environ/fcd/policy/strategy

(NAAR), and the *National Appraisal of Defence Needs and Costs* (NADNAC) which are available on the Defra website.[8]

The 'high level methodology' for national flood risk assessments, used in both the NADNAC and Foresight studies, as well as the Environment Agency's National Flood Risk Assessments (NFRA), was developed in the joint Defra/Environment Agency R&D programme. The NAAR report provided an understanding of flood risk on a national scale and considered how investment requirements might be influenced by climate change. NADNAC built on this and considered investment needs over a fifteen year period from the year 2000. Both reports informed spending reviews as well as providing information to enable better management of flood and coastal erosion risk. The 2004 NFRA used an improved high level methodology incorporating newly available datasets to provide a more accurate assessment of flood risk. The *Making space for water* consultation exercise seeks views on proposals to move over time to a strengthened, more consistent risk-based framework which takes account of a wider range of economic, environmental and social costs and benefits when deciding what flood and coastal erosion risk management measures are needed. The outcome of this consultation exercise, together with the results and other research and analysis, will help formulate the new Government strategy, which will provide further details of how we will assess and manage risks in the future.

In terms of identifying areas at risk of flooding, the Environment Agency published a new Flood Map on 7 October 2004. This map is more sophisticated than the earlier generation of indicative flood plain maps and includes data from the 2004 NFRA, showing the likelihood of flooding (as significant, moderate or low) taking into account the location, type and condition of defences.

The future of flood risk management on the Thames estuary, including the future of the Thames Barrier, is currently being considered by an Environment Agency led review entitled Thames Estuary 2100. The initial report of this Group is expected in 2007. The Barrier was designed in the 1970s with conservative allowances for climate change and other factors to give protection from flooding against a 1 in 1,000 probability storm event by 2030. Taking account of current estimates of climate change this standard is likely to be exceeded. In addition it should be noted that the original design allowed for some adaptation to cope with additional sea level rise and it is part of a relatively flexible control system whose effectiveness could be further enhanced by developments such as improved real time surge and river flow modelling.

[8] http://www.defra.gov.uk/environ/fcd/policy/naarmaps.htm

New developments

Recommendation 11

Planning policy guidance should take account of the likely future flood risk as well as present-day risk. The Environment Agency should now be a statutory consultee for flood risk assessments. Any new developments that are built in flood-prone areas should be designed to be as resilient to the effects of flooding as possible. (Paragraph 42)

In parallel with the *Making space for water* consultation, the Government is currently considering what, if any, changes might be appropriate to Planning Policy Guidance Note 25 (PPG25, *Development and Flood Risk*). We therefore welcome the Committee's comments and recommendations as a timely contribution to this consideration.

The Government has recently reviewed the role of statutory consultees under the General Development Procedure Order 1995. The Office of the Deputy Prime Minister (ODPM) intends to consult on extending the Agency's statutory consultee role in relation to flood risk on certain developments. This will ensure that the Agency has the opportunity to make any necessary representations. Currently there is no universal consultation in such cases although PPG 25 advises that it should take place. The creation of the statutory duty responds to this.

Making space for water also discusses and seeks views on the ways in which the risk to both new and existing buildings from floodwater can be managed both by resistance and resilience. Resistance measures are aimed at keeping water out of a building or at least minimising the amount that enters whilst resilience measures are aimed at facilitating the recovery of buildings following a flooding event. There is a range of resistance and resilience techniques, including those mentioned in the Committee's report and we fully intend that these will form a key part of our future Strategy in terms of delivering future sustainable flood management.

A research programme has been commissioned that, over the next two years, will evaluate the relative benefits of flood resistant and resilient construction. In the light of the results, the Government is committed to reviewing the current Building Regulations to ensure that appropriate flood risk management measures are incorporated.

The Government's response to the Sustainable Buildings Task Group report *Better buildings—better lives,*[9] also gives details about how a number of recommendations in relation to flood resilience will be taken forward.

[9] http://www.dti.gov.uk/construction/sustain/govres.pdf

Recommendation 12

Sewer flooding is particularly hazardous and distressing for those affected. The Government, water companies and the regulators should work together to ensure that the risk of sewer flooding is minimised, both for new and existing developments. For new developments, sewers should be designed to cope with the likely future volume of flow. For existing developments, water companies should upgrade existing sewers where possible and Ofwat should include the expense of doing so in the price limits it sets. The Government should encourage the use of sustainable drainage systems to reduce the pressure on sewers during periods of high rainfall. (Paragraph 43)

The Government shares the Committee's concern about the distress sewer flooding causes to those affected and attaches a high priority to its reduction.

Sewer flooding and more general flooding are closely connected. The Government has been working with water companies and the regulators in order to approach all sources of flooding in a more holistic manner. The *Making space for water* consultation looks at all sources of flooding and in particular how drainage planning and management can be integrated in built-up areas, a theme highlighted by the Foresight *Future Flooding* report. Integrated drainage management should not only bring benefits to flood management, including sewer flooding, but to water resource management and water quality as well.

As *Making space for water* highlights, any consideration of integration arrangements should include how to facilitate appropriate use of new and more sustainable approaches to drainage and in particular sustainable drainage systems (SUDS). An Interim Code Of Practice for SUDS was published in July 2004 which provides a set of core standards and model agreements between those public organisations with statutory or regulatory responsibilities relating to SUDS. The Government will consider carefully the responses to *Making space for water* and undertake a detailed review of the issues raised.

The Government is committed to working with Ofwat to improve the co-ordination of approaches to address all types of future flooding risk in the most cost effective manner. The Department for Environment, Food and Rural Affairs published the *Protocol on Design, Construction and Adoption of Sewers in England and Wales* in April 2002, which gives guidance to all those involved in new sewer construction. The Protocol should help to ensure that new sewers are built to cope with likely future volume of flow (and to a standard that will enable them to be adopted by the sewerage undertaker). The Government will keep the Protocol's use under review.

Water Companies have proposed and customer representatives have supported major programmes to increase the rate at which they are tackling sewer flooding. The Government welcomes the allowance made by Ofwat within its draft price

determinations for sewer flooding schemes and notes that Ofwat have invited comments on their specific proposals. It is the Government's view that as many properties as possible should be protected within the five year programme covered by the current review, while also ensuring that the costs to customers more widely are proportionate to the benefits.

Insurance

Recommendation 13

We welcome the insurance industry's Statement of Principles on flood cover. However, we are concerned that some areas may become uninsurable should flood risk increase as the result of climate change. We recommend that the Government identify which areas will face the greatest problems in getting insurance. The Government should then explore alternative ways in which people in these areas can manage their flood risk. (Paragraph 46)

We also welcome the insurance industry's Statement of Principles and maintain regular contact with the Association of British Insurers (ABI) on their achievement. The Government and the Environment Agency will continue to work with the insurance industry on developing and refining understanding of flood risks, including updating the new Flood Map as new information becomes available. This will include work during 2005 to develop an understanding of the sensitivity of the Extreme Flood Outline map to the potential impacts of climate change.

The Government has also made significant increases in investment in flood and coastal management in recent years, and total expenditure is set to rise to at least £564 million in 2005-06. However, all parties recognise that it is not sustainable—economically, technically or environmentally—to defend every community against flooding through the use of conventional defences. It is, however, possible to adopt a range of alternative approaches which will mitigate flood risk, including addressing the consequences rather than the likelihood of flooding.

Flood warning arrangements allow risks to life to be minimised and flood damage mitigated by allowing valuable items to be moved upstairs away from advancing flood waters. The Environment Agency has made major investments in flood warning in the last decade or so and this will be enhanced by its current investment strategy which in England will see expenditure of £226 million to 2012/13. The Agency's annual public awareness campaigns also help ensure that members of the public are aware of flood risks and what action they can take to reduce these.

Temporary, demountable defences, such as those used to good effect in Ironbridge in early 2004, can provide solutions in some situations where conventional defences are not possible.

Increasing the resistance and resilience of buildings, as discussed above, not only reduces the risk of flood waters entering but can also reduce restoration costs after flooding. There is a range of devices available to protect individual buildings and a number of these are now 'kite marked' following an extensive research programme led by the Environment Agency. As part of the Government's consultation on *Making space for water*, the ABI is hosting a workshop jointly with National Flood Forum setting out how householders can obtain better advice on flood protection at the property level, and how to overcome some of the barriers to the uptake of property-level measures.

As noted above, the Government is also reviewing PPG25 which is intended to ensure that inappropriate development does not take place in flood risk areas.

While we accept that the insurance industry cannot guarantee that all communities will continue to receive flood cover on standard terms, we believe that a competitive market, coupled with measures such as those above, will help ensure that cover remains readily available to the vast majority of households. Currently, insurers will use best efforts and take a case-by-case approach to examine how insurance can be maintained in areas of high flood risk, eg through the use of 'kite marked' flood protection products.

Recommendation 14

Ofwat, the Government, the environmental regulators and the water companies should together devise a way to plan adequately for long term expenditure, such as that required in the light of climate change. We are surprised that, with very few exceptions, Ofwat has not begun to allow companies to include the cost of managing the impacts of climate change in the current price review. (Paragraph 47)

The Government agrees that water policies require long-term planning by all the stakeholders. The Government set out its long-term policy framework for water in *Directing the Flow* in 2002. Existing regulatory systems have proved capable of delivering long-term programmes not constrained to the five-yearly periodic review cycle. For example, a 20 year programme for the improvement of drinking water mains will be completed by 2010. In the same way, action to meet European requirements such as the Urban Waste Water Treatment Directive and the Habitats Directive is extending across more than one periodic review. The Water Framework Directive offers the opportunity for a new approach, both longer term and more integrated. Government, regulators, the industry and other stakeholders will work together on how the Directive interacts with the periodic review.

As noted in our response to Recommendation 3 above, the majority of water resources plans do consider the impacts of climate change. But climate change is only one of the factors considered in plans. It is the totality of all factors affecting supply and demand that govern the need for funding.

How water companies fund the measures that are required is settled between the companies and Ofwat. Long-term programmes need to be defined before they can be funded. The Government recognises that Ofwat will expect companies to define, justify and cost clear programmes of work before making allowance in price limits. Co-operative efforts within the Water Framework Directive and in other policy areas need to be directed at turning general policy objectives into specific programmes of work.

Ofwat has indicated that it will conduct a review of the price review process. Defra will contribute to that review. Defra will also consider from its perspective the lessons to be learned and the implications for the future of developments.

Recommendation 15

Water customers should not necessarily have to meet the costs of mitigating the impact of climate change on water resources. For example, where a certain level of water flow is needed to protect freshwater ecosystems in an area, there is an argument for meeting the cost of doing so through central Government expenditure rather than through water bills. (Paragraph 48)

The Environment Agency will need to ensure that flows to protect freshwater ecosystems are maintained through its operation of the abstraction licensing system. That may require reductions in licensed abstractions in a given area, and in turn to a liability for the Agency to pay compensation where a reduction leads to loss or damage.

The question of whether Government expenditure should be used to cover the costs of compensation was consulted upon in *Economic Instruments in Relation to Water Abstraction: A Consultation Paper*. The Government responded to the consultation in *Tuning Water Taking,*[10]and concluded that as licence holders continue to derive a benefit from the water they abstract, that it is appropriate that they should contribute towards safeguarding the resource and their own security of supply. Therefore the costs of protecting freshwater ecosystems will be borne by abstractors.

Government planning for climate change

Recommendation 16

Planning needs to start now, both for the way we want to approach development, flood defence and water resources in the light of climate change, and for the necessary expenditure. The Government must take further action now. In particular it must ensure that new housing planned now will still be fit for use in 50 years' time or more; this means taking account of the way climate change will affect water supplies and flooding. (Paragraph 49)

[10] *Tuning Water Taking—Government decisions following consultation on the use of economic instruments in relation to water abstraction*, June 2001. Available from: http://defraweb/environment/water/resources/tuning/index.htm

Our responses to the previous recommendations address most of these points. We have explained how we are reviewing PPG25 which will include consideration of the Committee's Recommendation 11 that the guidance needs to take greater account of future flood risk. In response to Recommendation 10 we explain the work that we have done to assess future expenditure needs for flood risk management, which includes assessment of the impacts of climate change. Our response to Recommendation 13 sets out the work that we are doing to help improve the resistance and resilience of buildings to flooding. Overarching all of this work is the Government's new long term Strategy for flood and coastal erosion risk management, fundamental to which is the need to address the challenges and pressures we face, including those from climate change.

With regard to water supplies our response to Recommendation 6 sets out the steps the Government is taking to ensure that new development makes the best use of existing water resources, such as through water efficiency requirements in building regulations and the development of the Code for Sustainable Buildings.

Recommendation 17

We welcome the work of the UK Climate Impacts Programme in helping organisations to assess how climate change might affect them and how they might adapt to it and we recommend that the Government consider how it could educate the public about the changes that are likely to occur and what steps individuals could take to prepare for them. (Paragraph 50)

UK Climate Impacts Programme data, tools and publications are available either through their website or in the case of reports, in hard copy, which are made available free of charge through Government sponsorship of the Programme.

UK Climate Impacts Programme publications are targeted towards particular groups in its stakeholder audience. While the remit of this programme does not extend explicitly to cover the general public, a number of publications have found a particularly high take-up, and the programme-office staff respond regularly to enquiries from the public and from national and regional news and information media.

The Government funds a number of other organisations that communicate the climate change message to both journalists and members of the public during the course of their work. These bodies include the Energy Saving Trust, the Carbon Trust, the Tyndall Centre and the Hadley Centre.

In August 2004, the Defra-chaired Climate Change Communications Working Group issued an invitation to tender for the development of an evidence-based, short to

medium-term communications strategy for climate change. The work was awarded to Futerra Sustainable Development Communications.[11]

The project has two key aims: i) to identify ways to consolidate the effectiveness of existing climate change communications from Government, its agencies and NDPBs and ii) to consider the potential role, impact and methodology for additional communications activity.

Futerra are working closely with representatives from relevant Government Departments, Agencies and NDPBs, and a range of key stakeholder groups to formulate their conclusions. Their strategy proposals will be presented to the Working Group on 5 November 2004.

Department for Environment, Food and Rural Affairs
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[11] http://www.defra.gov.uk/news/2004/040820a.htm