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Foreword

Floods Review: Independent Chair's opening letter

25 June 2008

Dear Secretaries of State,

You asked me to undertake a comprehensive review of the lessons to be learned from the summer floods of 2007. This is my Final Report.

Over the last 10 months the Review Team and I have examined over 1000 written submissions, consulted widely, considered the experiences of other countries and visited the communities affected by flooding. We have observed at first hand extraordinary hardship. Even now many thousands of families are still living in some form of temporary accommodation. Throughout, we have given priority to the interests of the victims of the floods, whether they are residents, business owners or farmers, and this report is written with them firmly in mind.

The floods of last year caused the country's largest peacetime emergency since World War II. The impact of climate change means that the probability of events on a similar scale happening in future is increasing. So the Review calls for urgent and fundamental changes in the way the country is adapting to the likelihood of more frequent and intense periods of heavy rainfall. We have searched for practical solutions to highly complex problems and thought carefully about the public interest. Our recommendations are challenging and strong national leadership will be needed to make them a reality.

- We believe that there must be a step change in the quality of flood warnings. This can be achieved through closer cooperation between the Environment Agency and Met Office and improved modelling of all forms of flooding. The public and emergency responders must be able to rely on this information with greater certainty than last year.
- We recommend a wider brief for the Environment Agency and ask councils to strengthen their technical capability in order to take the lead on local flood risk management. More can be done to protect communities through robust building and planning controls.
- During the emergency itself, there were excellent examples of emergency services and other organisations working well together, saving lives and protecting property. However, this was not always the case; some decision making was hampered by insufficient preparation and a lack of information. Better planning and higher levels of protection for critical infrastructure are needed to avoid the loss of essential services such as water and power. There must be greater involvement of private sector companies in planning to keep people safe in the event of a dam or reservoir failure. Generally, we must be more open about risk.
- We can learn from good experience abroad. People would benefit from better advice on how to protect their families and homes. We believe that levels of awareness should be raised through education and publicity programmes. We make recommendations on how people can stay healthy and on speeding up the whole process of recovery, giving people the earliest possible chance to get their lives back to normal.

Finally, I would like to thank again everyone who has helped us with the Review and given so generously of their time. This includes the expert members of the Science and Engineering Panel who provided vital technical support and advice. Also, it has been a privilege chairing the Review Team who have worked hard and remained committed throughout. Their ideas, policy analysis and focus on the best interests of the public have all been outstanding. We reached agreement on all matters, although the ultimate responsibility for the contents of this Report rests entirely with me.

Yours sincerely,



Sir Michael Pitt
Independent Chair

Reducing the risk
of flooding and its impact

Knowing where
and when it
will flood

Being rescued
and cared for during
an emergency



**Lessons from
the 2007 Floods:
what people need**

Staying healthy
and speeding up
recovery

Maintaining power
and water supplies
and protecting
essential services

Better advice and help
for people to protect their
families and homes

Executive summary

The events of summer 2007

ES.1 Last summer's flooding was exceptional. We witnessed the wettest summer since records began, with extreme levels of rainfall compressed into relatively short periods of time. Readers of this report will be familiar with the pictures on television and in newspapers – striking images of Tewkesbury Abbey, reporters standing knee deep in water in empty housing estates and shots of flooded infrastructure.

ES.2 The hard facts are even more compelling. 55,000 properties were flooded. Around 7,000 people were rescued from the flood waters by the emergency services and 13 people died. We also saw the largest loss of essential services since World War II, with almost half a million people without mains water or electricity. Transport networks failed, a dam breach was narrowly averted and emergency facilities were put out of action. The insurance industry expects to pay out over £3 billion – other substantial costs will be met by central government, local public bodies, businesses and private individuals.

ES.3 To put the events into context, there were over 200 major floods worldwide during 2007, affecting 180 million people. The human cost was more than 8,000 deaths and over £40 billion worth of damage. But even against that dramatic back-drop, the floods that devastated England ranked as the most expensive in the world in 2007.

The thing that really freaked everyone out with this last flood was that it happened in the summer ... and it just came so quickly, before anyone could really act.

(Householder, West Oxfordshire)

It happened really quickly, it just came. It was like a river coming down the street.

(Householder, West Berkshire)

ES.4 Some areas were particularly badly affected. In June, the focus was on South Yorkshire and Hull. In July, it was Gloucestershire, Worcestershire and the Thames Valley. Many more areas were affected to a lesser but still significant degree.



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The biggest civil emergency in British history

Gloucestershire was one of the regions most affected by the summer floods. The loss of Mythe water treatment works left 350,000 people without mains water supply for up to 17 days. Castle Meads electricity substation was shut down leaving 42,000 people without power in Gloucester for up to 24 hours. Some 10,000 people were left trapped on the M5, and many other commuters were left stranded on the rail network. The impact of the floods rendered thousands of people homeless.

“In terms of scale, complexity and duration, this is simply the largest peacetime emergency we’ve seen.” – Chief Constable Tim Brain

ES.5 Moreover the problems did not go away quickly. Tens of thousands of people were rendered homeless, and businesses were put out of action for months on end. Even now thousands of people are still out of their homes – a situation which is worrying and perplexing a year after the original events.

How the Review has reached its conclusions

ES.6 The Review began in August 2007. The Government asked that the process should

be both thorough and independent; a fair assessment of what happened and what we might do differently. This final report is positive where it can be, but demanding where change is needed.

ES.7 Four principles have guided the Review and the conclusions we have reached. First, and most importantly, **we start with the needs of those individuals and communities who have suffered flooding or are at risk.** What we now do must make a real difference on the ground, improving the quality of people’s lives. Our recommendations reflect this determination. Second, **change will only happen with strong and more effective leadership across the board.** At the national level, this will ensure that our recommendations are driven through, at the local level, this will improve the way we deal with the immense challenges faced by communities before, during and after flooding. Third, **we must be much clearer about who does what.** Our recommendations will ensure that people and organisations are held to account, structures are simple and outcomes are more certain. Fourth, **we must be willing to work together and share information.** We recognise there are issues of commercial confidentiality and security, but we firmly believe that the public interest is best served by closer cooperation and a presumption that information will be shared. We must be open, honest and direct about risk, including with the public. We must move from a culture of ‘need to know’ to one of ‘need to share’.



ES.8 These principles have been translated into recommendations through a rigorous and extensive evidence gathering exercise. The original call for evidence and formal briefings generated a wealth of material. This was supplemented by visits to the areas affected, and discussion with key organisations at a national level.

ES.9 The interim conclusions were published in a report in December, and views were sought during a consultation exercise lasting three months. We held conferences in every region, with well over 1,000 professionals from relevant fields attending to share their views. Public meetings took place in affected areas and national seminars were addressed. More visits took place, and discussions were broadened and deepened.

ES.10 External analysis has also been vital. We commissioned social research and took scientific and engineering advice from the world's leading experts. And we have visited a number of countries in order to draw on best practice from overseas.

ES.11 The result is one of the widest ranging policy reviews ever carried out in the UK, backed up by an extensive body of evidence, advice and independent thought. This evidence is captured in the full Report which accompanies this summary, along with a range of supporting technical material.

Knowing where and when it will flood

Taking an overview of risk

ES.12 The scale of the problem is, as we know, likely to get worse. We are not sure whether last summer's events were a direct result of climate change, but we do know that events of this kind are expected to become more frequent. The scientific analysis we have commissioned as part of this Review (published alongside this Report) shows that climate change has the potential to cause even more extreme scenarios than were previously considered possible. The country must adapt to increasing flood risk. As the Stern Report outlined, adaptation is crucial to deal with the unavoidable impacts of climate change to which the world is already committed.

'Adaptation is the only response available for the impacts that will occur over the next several decades before mitigation measures can have an effect.'

Stern Review: The Economics of Climate Change.

ES.13 One of the tasks for the Review has been to take the ideas set out in Stern and translate them into practical actions. We see some examples of this already, such as changes to the way the Highways Agency is building roads or the choices developers are making about flood defence and drainage.

ES.14 As a country, we are well-placed to adapt with both the resources and the capability. But direction must come from Government. It is difficult for any single organisation, even those as large as the major infrastructure companies, to interpret the volume and complexity of the technical data involved. Even if they can, the choices any individual firm makes will not always reflect the true costs and benefits to society as a whole. So the Government should drive adaptation forward, facilitating and regulating the pace of change.

Updating Foresight: Future Flooding

The *Foresight: Future Flooding Study (2004)* provided an assessment of flood risk in the UK over a 30 to 100 year timescale to help inform long-term policy. The Review commissioned work to update this study as part of our evidence gathering.

The key message from the update is that the effects of climate change may be more extreme than had previously been estimated. In particular:

- the potential increases in rainfall volume and intensity, and temperature, are greater; and
- there is a greater risk of extreme sea-level rise.

The update also highlighted the increased risk that we will face from surface water flooding in the future and how land use is an important tool in managing that risk. With the uncertainty associated with a changing climate, the update recommended that strong governance and investment will be required to tackle the increased risks.

ES.15 This government leadership must extend to a coherent operational approach. Perhaps the most significant feature of last summer's events was the high proportion of surface water flooding compared with flooding from rivers. Currently, no organisation is responsible for overseeing and planning for surface water flooding, creating problems which were particularly evident in places like Hull and parts of Sheffield. There are no warnings for this type of flooding, which can occur very rapidly, and people, including the response organisations, were not well prepared.

ES.16 Surface water flooding is complex and affected by many factors, such as the capacity of the sewerage/drainage system, saturated ground and high river levels that prevent the system from discharging. The responsibilities for certain drainage assets remain unclear, a situation that frustrated the public during the summer 2007 floods. This lack of transparency in ownership and the complexity involved could be reduced by having a single national organisation with an overarching responsibility for all types of flooding. That is why we believe that government leadership should be supported by clear oversight of all flood risk management activity and the Environment Agency's risk management responsibilities extended accordingly.

RECOMMENDATION 1: Given the predicted increase in the range of future extremes of weather, the Government should give priority to both adaptation and mitigation in its programmes to help society cope with climate change.

RECOMMENDATION 2: The Environment Agency should be a national overview of all flood risk, including surface water and groundwater flood risk, with immediate effect.

Forecasting, modelling and mapping

ES.17 Science and engineering is crucial to understanding flood risk and will become even more significant as we adapt to the increased risk that climate change will bring. Last summer's floods demonstrated that the UK has come a long way in terms of weather forecasting and flood prediction, but there is further to go. Predicting where flooding will occur and the potential consequences is vital if managers, emergency planners and responders are to reduce risk and the effects of flooding.

ES.18 The UK's understanding of the risk of



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flooding from rivers and coasts is advanced – the Environment Agency has well-developed maps and models to assess and predict this risk – but information relating to surface water (and groundwater) flood risk is limited. Both the weather forecasts and the warnings given during the June floods were less accurate than those for July. This was due to the nature of the weather system that caused the extreme rainfall during June, and the fact that a significant proportion of the flooding was surface water.

ES.19 We welcome the commitment shown by the Environment Agency to improve the tools and techniques that are currently available for predicting and modelling river flooding in order to cover a wider range of events. The Review considers that the greatest advances are needed in areas of greatest risk – significant depths and high velocities. Six inches of fast-flowing water can knock someone off their feet and two feet of water is enough to float a car. As well as posing a specific risk to individuals, the depth of the flood water hampered rescue efforts, making evacuations dangerous for both the evacuee and the emergency services.

ES.20 The Environment Agency’s proposed strategic overview role means that it will be better placed to provide a warning system to cover surface water flooding. It will need to work with its partners – especially with the Met Office – to develop the tools and techniques required. It is vital that the Environment Agency also engages with those responsible for different aspects of the drainage and sewerage system – including local authorities, water companies, internal drainage boards, highways authorities, navigation authorities and riparian owners.

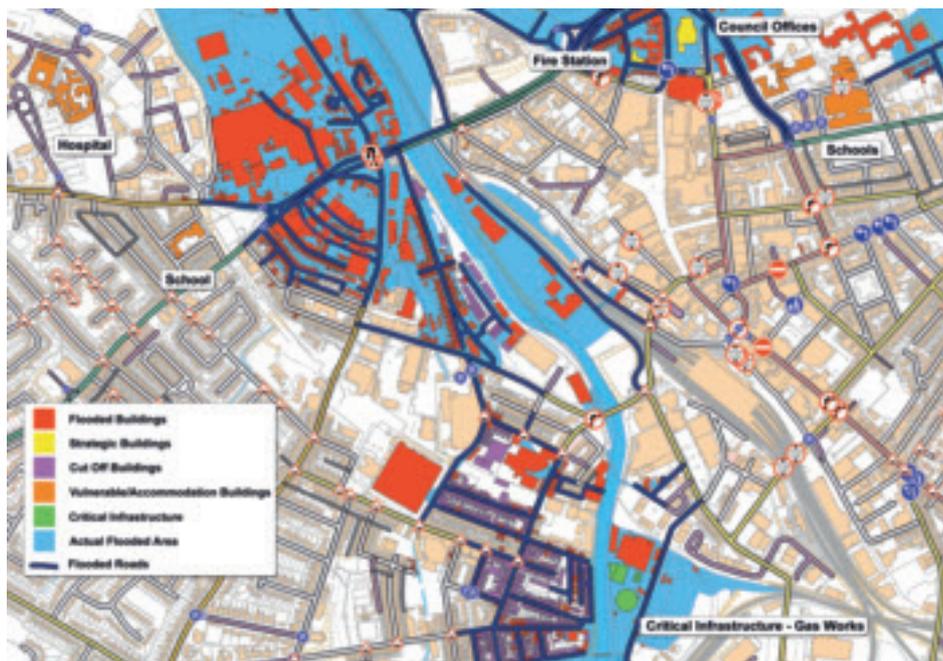
ES.21 The relationship with the Met Office is particularly important. Weather prediction forms a crucial part of flood risk management and the Met Office is a world leader. There is room for improvement, particularly in relation to increased lead times for predicting events, probabilistic forecasting and more accurate local-scale forecasts at a city or town level. Closer working should deliver real changes in technical capability. This will improve the usefulness and reliability of extreme rainfall forecasts and warnings, which are essential for providing effective warnings for rapid response catchments and surface water flooding. We believe this closer working will best be achieved through a joint centre.

The Atlantis project

The Atlantis Programme brings together a number of government organisations, including the British Geological Survey, the Centre for Ecology and Hydrology, the Environment Agency, the Met Office, Ordnance Survey and the United Kingdom Hydrographic Office, in order to improve government’s topographical, geological and hydrological data.

The Atlantis Programme shows that government organisations can work together successfully and deliver better modelling and mapping outcomes as a result.

ES.22 All of these improvements will greatly advance the capabilities of public bodies. The benefits will be seen not only for flood forecasting, but also in defence and the provision of advice on climate change. The Met Office and Environment Agency should engage with Local and Regional Resilience Forums to ensure that these enhancements meet the requirements of emergency responders and manage expectations as to what is feasible and at what cost. Better forecasting and more accurate prediction of where and when flooding will occur are priorities and fundamental to saving lives and protecting property.



Source: Ordnance Survey – Strategic Flooding Document 2007© Environment Agency Licence A809

RECOMMENDATION 3: The Met Office should continue to improve its forecasting and predicting methods to a level which meets the needs of emergency responders.

RECOMMENDATION 4: The Environment Agency should further develop its tools and techniques for predicting and modelling river flooding, taking account of extreme and multiple events and depths and velocity of water.

RECOMMENDATION 5: The Environment Agency should work with partners to urgently take forward work to develop tools and techniques to model surface water flooding.

RECOMMENDATION 6: The Environment Agency and the Met Office should work together, through a joint centre, to improve their technical capability to forecast, model and warn against all sources of flooding.

its impact. The range of measures was tested to the full, and there are important lessons to be learned about their effectiveness. All those responsible for managing the risk of flooding, or those personally at risk, need to be clear about what can be done to manage risk effectively.

Building and planning

ES.24 Many submissions to the Review call for a complete end to building on the flood plain. This is not realistic. The country cannot end all development along the Thames, or bear the costs of siting critical infrastructure, such as water treatment works or power stations, away from the water supplies they need to function.

ES.25 That does not mean that our institutional frameworks should not be stronger. Development control is a central part of the process of managing flood risk, by avoiding development in risk areas where possible and, where such building does take place, by ensuring that risk is reduced both to the development itself and for those living nearby. Planners and developers must pay proper regard to the risks, as should those purchasing properties. We believe that the latest Government guidance – PPS25 – should deliver this, and that it should be strengthened if it does not.

Reducing the risk of flooding and its impact

ES.23 The events of the summer would have been significantly worse had measures not been in place to prevent flooding and mitigate

It is all to do with greed and building. They keep building and building. They don't care about where they build as long as they can get their money.

(Householder, West Oxfordshire)

Stop building on flood plains.

(Householder, Darfield Barnsley)

ES.26 More can be done to protect existing properties. Paving over front and rear gardens is having a significant impact on the natural drainage of surface water in our towns and cities, reducing the volume of water soaking into the ground. There was significant support for the proposal in our interim report to remove the right of householders and business owners to lay impermeable surfaces. Such a move would mean that people would require planning permission if they chose impermeable surfaces, but not if they chose other surfaces such as gravel or permeable paving.

ES.27 The Government announced in February 2008 that householders will no longer be able to lay impermeable surfaces in front gardens as of right. The Review welcomes this. The Government is of the view that there is insufficient evidence that hard paving back gardens and other areas is having as much impact on increasing the rate and speed of surface runoff. We believe that it makes sense to retain as much natural drainage as possible, including back gardens.

ES.28 Developers have an automatic right to connect new developments to public sewers once planning permission has been granted. This places an additional strain on existing sewerage and drainage networks, exacerbating the problems of flooding. The Government is currently considering whether the automatic right should be removed so that developers will have to consider their impact on the sewerage and drainage networks, and make greater use of sustainable drainage systems. Conventional drainage systems were placed under strain during the 2007 floods and we do not consider it sensible to allow new connections of surface water drainage to the sewerage system to take place unchecked.

ES.29 Property-level resistance and resilience can also help minimise damage from floodwaters. Resistance measures are aimed at keeping water out of buildings, or at least minimising the amount that enters by the use of barriers such as door guards to seal entry points. Resilience measures are aimed at minimising the damage when a building is flooded, thereby facilitating the quickest possible recovery.

ES.30 Where development (following the strict application of planning guidance) is allowed on the floodplain, buildings should be made flood resilient. The Government has recently produced guidance to developers on flood-resilient construction. Developers and architects should be incorporating such measures into designs for the future. The simplest way of ensuring that new buildings do incorporate appropriate measures would be to include a requirement in Building Regulations. The Government has indicated that it aims to do this when they are next revised in 2010. The Review welcomes this intention. We also believe that similar standards of construction should be required in properties undergoing major refurbishment in flood risk areas.

ES.31 We recognise that it will take time to incorporate resistance and resilience requirements into Building Regulations for properties in flood risk areas, and would like to see local authorities and social housing organisations take a leading role in increasing uptake. In the meantime, local authorities have



powers to make home improvement grants and duties to promote business continuity which can encourage change immediately. The considerable waste of resources and unnecessary hardship caused by poor planning and the use of inappropriate building methods are serious shortcomings that must be addressed.

RECOMMENDATION 7: There should be a presumption against building in high flood risk areas, in accordance with PPS25, including giving consideration to all sources of flood risk, and ensuring that developers make a full contribution to the costs both of building and maintaining any necessary defences.

RECOMMENDATION 8: The operation and effectiveness of PPS25 and the Environment Agency's powers to challenge development should be kept under review and strengthened if and when necessary.

RECOMMENDATION 9: Householders should no longer be able to lay impermeable surfaces as of right on front gardens and the Government should consult on extending this to back gardens and business premises.

RECOMMENDATION 10: The automatic right to connect surface water drainage of new developments to the sewerage system should be removed.

RECOMMENDATION 11: Building Regulations should be revised to ensure that all new or refurbished buildings in high flood-risk areas are flood resistant or resilient.

RECOMMENDATION 12: All local authorities should extend eligibility for home improvement grants and loans to include flood resistance and resilience products for properties in high flood-risk areas

RECOMMENDATION 13: Local authorities, in discharging their responsibilities under the Civil Contingencies Act 2004 to promote business continuity, should encourage the take-up of property flood resistance and resilience by businesses.

Local flooding and drainage

ES.32 Direction and leadership from the centre needs to be matched at the community level. That is why one of the central themes in this Report is the importance of local leadership.

ES.33 With no clear coordination and structure, responses to flood risk are piecemeal and not necessarily prioritised. Each of the organisations with a responsibility for flood management assets tends to carry out maintenance and improvement work independently, as there is currently little incentive to do otherwise. Investment decisions made in isolation can lead to inefficiencies and can even increase the risk of flooding.

"The authorities weren't making good decisions, it was as if they didn't know what they were doing."

(Business owner, Hull)

ES.34 The Review believes that the role of local authorities should be enhanced so that they take on responsibility for leading the coordination of flood risk management in their areas. Local authorities already have a substantial role because of their responsibilities for ordinary watercourses, drainage, highways and planning. Their place-shaping role and local democratic accountability will help to ensure that the right local action is taken.

Leeds leads

“In principle, the concept of a local authority leading or co-ordinating a statutory-based partnership of stakeholders, each with a role in ensuring that there is an effective, proportionate and funded strategy towards the management of flood risk at the ‘local level’, is something we would welcome and mirrors the situation we are working towards in Leeds.” – Leeds City Council

ES.35 Inaction on local flooding is exacerbated by unclear ownership and responsibilities. Many of the people affected by the events of summer 2007 did not know who to turn to and their problems were passed from one organisation to another. This kind of experience has also been reflected in submissions to the Review from the public and local communities themselves. We believe that local authorities, as part of their leadership role, should investigate these local flooding problems and work with the Environment Agency, water companies, the Highways Agency, internal drainage boards, riparian owners and other relevant parties to establish the source of problems and where the responsibility lies for addressing them. An important decision which government needs to make to support this work is where responsibility for sustainable urban drainage systems (SUDS) should rest.

ES.36 A better understanding of each local authority’s drainage and watercourse system will be central to these improvements. We believe that a local register of all the flood risk management and drainage assets (both underground and overland), including details of their condition and responsible owners, should be compiled by local authorities. The Review also believes that the Environment Agency, as part of its strategic overview role, should work with local authorities and their partners to make the process work.

ES.37 Much of the evidence received by the Review, including from water companies, suggests that voluntary agreements to share information would not work in practice. The Review therefore believes that a duty should be placed on all stakeholders with responsibilities relating to flood risk to record and share relevant information and expertise.

ES.38 However, the last twenty or thirty years have seen the technical departments of local authorities significantly diminished and in some places closed or merged. The tension in the system between demand for housing and risk of flooding is not always properly addressed. Around a quarter of the homes flooded during the summer were built during the last twenty-five years in areas of flood risk.

ES.39 Local authorities need the capability and powers to commission expert advice and to ensure that local communities are properly protected. This means more resource for local authorities, and fits well with the localism agenda. But to be meaningful in practice and make a real difference to the quality of decision making, local government and society must begin to value more highly the importance of technical and engineering skills.

ES.40 Water companies also play a particularly important role given their responsibilities for sewerage. Evidence from the summer demonstrated that insufficient capacity of drainage systems can play a crucial part in surface water flooding – events in Hull showed both the importance of the water companies’ role and the limitations of current standards. It is simply not feasible to increase the capacity of the whole sewerage system, but it is possible to introduce changes and investment choices which avoid making problems worse. In order to incentivise water companies, proper provision needs to be made by Ofwat as the regulator of the industry.



RECOMMENDATION 14: Local authorities should lead on the management of local flood risk, with the support of the relevant organisations.

RECOMMENDATION 15: Local authorities should positively tackle local problems of flooding by working with all relevant parties, establishing ownership and legal responsibility.

RECOMMENDATION 16: Local authorities should collate and map the main flood risk management and drainage assets (over and underground), including a record of their ownership and condition.

RECOMMENDATION 17: All relevant organisations should have a duty to share information and cooperate with local authorities and the Environment Agency to facilitate the management of flood risk.

RECOMMENDATION 18: Local Surface Water Management Plans, as set out under PPS25 and coordinated by local authorities, should provide the basis for managing all local flood risk.

RECOMMENDATION 19: Local authorities should assess and, if appropriate, enhance their technical capabilities to deliver a wide range of responsibilities in relation to local flood risk management.

RECOMMENDATION 20: The Government should resolve the issue of which organisations should be responsible for the ownership and maintenance of sustainable drainage systems.

RECOMMENDATION 21: Defra should work with Ofwat and the water industry to explore how appropriate risk-based standards for public sewerage systems can be achieved.

RECOMMENDATION 22: As part of the forthcoming and subsequent water industry pricing reviews, Ofwat should give appropriate priority to proposals for investment in the existing sewerage network to deal with increasing flood risk.

Flood defence

ES.41 It is not for this Review to consider precise levels of future flood defence spending. The Government has to reach decisions about the investment in this area in light of other priorities. Nevertheless, the Review welcomes the increase in funding announced by the Government in July 2007. Moreover, with the evidence of increasing risks from climate change and the additional challenges identified in this report, we believe it is sensible for the Government to plan on the basis of above inflation settlements in future Government spending rounds.

ES.42 In our interim report, we set out the importance of a long-term approach to expenditure on flood risk management. We recognised that the climate is changing, that flood risk is increasing and that a more sustained and transparent approach to managing the risk is needed. That conclusion has received wide support.

ES.43 A long-term investment strategy should set out the investment needs for flood risk management in England within a policy framework for delivering long-term, sustainable flood risk mitigation measures. It should provide the broad framework for the programme and timetable for investment, with the understanding that more detail will be available for the years most immediately ahead. The approach would be similar to the Government's Building Schools for the Future programme or its ten-year transport funding plan. In their submissions to the Review, the Government and the Environment Agency supported the recommendation and indicated that work had already begun to develop the investment strategy. We believe such a move should and would have cross party support.

ES.44 This long term approach should not simply assume that the costs of flood risk

management will be met centrally. There are direct beneficiaries from flood defence work, and aligning those who benefit with those who pay will bring greater efficiency and greater responsiveness from those carrying out the work.

ES.45 We have seen and heard of many local groups who want to take action to alleviate flood risk in their communities. At the moment, this kind of scheme can end up being too low a priority for the Environment Agency. The Government should be encouraging more local communities to promote innovative schemes, including contributing towards the costs themselves, with appropriate technical support from local authorities and the Environment Agency. Locally funded flood defences should become a bigger feature of this country's flood risk management, not an exception brought about through unusual circumstances as they are now.

ES.46 Funding from all sources needs to be spent effectively. Many of the responses received by the Review have blamed the extent of the flooding last year on rivers no longer being dredged and vegetation and debris being allowed to build up.

ES.47 Our analysis shows that dredging and other maintenance is important, but not the complete answer many people believe. We have no significant evidence that insufficient maintenance had any major impact on last summer's events. The Environment Agency and local authorities make substantial investment in maintenance, and we believe it is generally sufficient to deliver the necessary work.

ES.48 However, we do believe that the work carried out by the Environment Agency is not as transparent as it could be. Many responses stated that they never see the Environment Agency clearing rivers of vegetation or dredging, despite the fact that we know the works have taken place. The Agency should publish its schedules of work, along with internal drainage boards and local authorities, to ensure that the maintenance work that they perform is recognised.

"What I mean is that they knew, so they knew all day it were going to happen, they were expecting so why couldn't we have temporary defences that might have, might not have saved everybody."

(Householder, Darfield Barnsley)

ES.49 'Strategic sandbagging' can be successfully used alongside roads or adjacent to important buildings to prevent them from flooding, but the work needs to be done properly by experts. The Review was unable to obtain any significant evidence that sandbags were particularly effective during the 2007 summer floods in providing protection to individual households.

ES.50 Nevertheless, sandbags are still widely regarded as an important focus for community action and they should not simply be withdrawn. The general provision of sandbags should be phased out in favour of better products such as kite-marked flood boards, air brick covers and other forms of temporary defence.

ES.51 One flood defence measure which has proved to be increasingly successful is use of natural processes such as using farmland to hold water and creating washlands and wetlands. Keeping water away from urban areas and slowing its progress to minimise run-off proved successful in the summer. Natural processes are even more effective for smaller



scale events. However, this activity is most effective and sustainable when there is proper dialogue between the authorities and landowners, and it is carried out in a deliberate and pre-planned way.

RECOMMENDATION 23: The Government should commit to a strategic long-term approach to its investment in flood risk management, planning up to 25 years ahead.

RECOMMENDATION 24: The Government should develop a scheme which allows and encourages local communities to invest in flood risk management measures.

RECOMMENDATION 25: The Environment Agency should maintain its existing risk-based approach to levels of maintenance and this should be supported by published schedules of works for each local authority area.

RECOMMENDATION 26: The Government should develop a single set of guidance for local authorities and the public on the use and usefulness of sandbags and other alternatives, rather than leaving the matter wholly to local discretion.

RECOMMENDATION 27: Defra, the Environment Agency and Natural England should work with partners to establish a programme through Catchment Flood Management Plans and Shoreline Management Plans to achieve greater working with natural processes.

Modernising flood risk legislation

ES.52 The legislative framework for flood risk management is fundamental. The management of flood risk requires concerted action by public and private bodies, and this must be properly supported by appropriate legislation.

ES.53 The statutory basis for flood risk management is contained in several pieces of primary legislation. This body of legislation has developed over time, either to effect changes to primary legislation to meet identified needs or in response to institutional change. The result is a mix of different Acts: a point that is reflected in comments the Review has received about the need to streamline the current laws.

The majority of submissions agree that a single unifying act with 'clear responsibilities and obligations' is a good idea. Essex County Council points out that: *"There is much confusion between partner agencies and the public."*

ES.54 We have considered the present arrangements against the needs of today as set out in our recommendations and, as far as can be foreseen, the future. Current legislation provides for a bygone era of flood defence, not modern flood risk management, and does not deal with other sources of flooding such as surface water. The future framework should, in particular, designate the roles and responsibilities needed for the management of flood risks from all sources. We have noted that the Government's draft legislative programme for 2008/9 includes consultation on a draft Floods and Water Bill. We strongly welcome this, and encourage the Government to make space in the parliamentary timetable for its rapid implementation.

RECOMMENDATION 28: The forthcoming flooding legislation should be a single unifying Act that addresses all sources of flooding, clarifies responsibilities and facilitates flood risk management.



Insurance

ES.55 The insurance industry played a major role in helping the country recover from last summer's floods. They presented the insurance industry with one of its biggest ever challenges, exceeding all events since flood cover became a standard feature. There were at least 180,000 claims as a consequence of the floods, (130,000 home, 30,000 business and 20,000 motor), the equivalent of four years' normal claims. The estimated insurance cost of direct damaged caused by the flooding in June and July 2007 is approximately £3 billion.

ES.56 The Review considers the insurance industry to have generally responded well to the summer 2007 floods, having been presented with one of its biggest ever challenges. As soon as the scale of the floods became apparent, insurers implemented their major event plans. Nevertheless, insurers could have improved their service through better communications, managing expectations and being clearer and more consistent about the claims process. A small but significant number of households did not experience the quality of service received by many. We are clear that the impact on households of poor claims handling can be significant.

"What annoys me is that it's been, what is it now 118 days something like that since the first flood came and we still haven't had anything from the insurance, we've had all the schedules and everything but we've had no response from that at all."

(Householder, Darfield Barnsley)

"My insurance have been fantastic, absolutely fantastic, all my work is finished and I have paid out for everything I've put down they have never said they needed proof or anything..."

(Householder, Darfield Barnsley)

"Our insurance company has been fantastic, but the loss adjustor has been a nightmare, so in the end going up and up in the chain of insurance people I got them to get rid of our loss adjustors and I deal with the insurance company direct."

(Householder, Darfield Barnsley)

Insurance Survey

The Review commissioned a survey on people's experience of insurance in the aftermath of the summer floods.

The majority (72 per cent) were satisfied with how their claims were handled. However, 22 per cent were dissatisfied because homes took too long to repair, it was difficult to get information, and it took too long to get advice and deal with problems.

Over half of the respondents, 56 per cent, have had their claim concluded and of these, 66 per cent were concluded within 6 months of initially submitting their claim. For 10 per cent it took over 9 months.

ES.57 We believe that the insurance industry should develop voluntary guidance to cover reasonable expectations of service performance from insurers. It should include a commitment to provide a plan for each claim, and explain the minimum service standards people can expect. It should help raise standards of service among poor performers and improve the relationship between company and policyholder.

ES.58 Looking more broadly and based on the evidence of the 2007 summer floods, we do not believe that there is a need to change the current system of provision of flood insurance. We support the Statement of Principles which underpins wide availability. The benefits of having insurance are clear. The ability to replace damaged possessions and repair buildings has been crucial to minimising the impact on people's health and wellbeing. Yet there are still many people who do not take up insurance. This needs to be addressed through better public education and publicity.



ES.59 Buying insurance is one of the few times when a household or business will think about risk. It is clear from the Review's work that flood risk is not well understood by most people, unless they have had direct experience. The inclusion of a leaflet or a link to the main flood risk information website is another route to raise awareness of flood risk and will be an effective method for some. In addition, where insurance is provided through a broker there are clear opportunities to draw the attention of customers to flood risk and the measures that they can take. BIBA has indicated to the Review that its members would be happy to help raise awareness of flood issues at renewal.

ES.60 There are particular concerns for low income households. The events of the summer reinforced the message that low income households are least able to recover from the financial impact of flooding and that the cost of insurance is a key factor. Supporting uninsured households has proven to be a significant issue for some areas which were worst affected by the flooding.

ES.61 Schemes for low income households do exist. Premiums can be cost effective, with some policies costing as little as 60 pence per week. *Insurance for all: A good practice guide* gives social housing providers with the information they need to set up and run insurance-with-rent schemes. Wider use and application of these schemes will help to reduce the impact of future flooding events, and should be encouraged.

RECOMMENDATION 29: The Government and the insurance industry should work together to deliver a public education programme setting out the benefits of insurance in the context of flooding.

RECOMMENDATION 30: The Government should review and update the guidance *Insurance for all: A good practice guide* for providers of social housing and disseminate it effectively to support the creation of insurance with rent schemes for low income households.

RECOMMENDATION 31: In flood risk areas, insurance notices should include information on flood risk and the simple steps that can be taken to mitigate the effects.

RECOMMENDATION 32: The insurance industry should develop and implement industry guidance for flooding events, covering reasonable expectations of the performance of insurers and reasonable actions by customers.

“I just want advanced warning from the authorities.”

(Business owner, Hull)

“You look on the internet and you look on three different internet browsers. Three different programmes for weather and all have three different reports but same area and you are like which one, I will look out of window. Do you know what I mean?”

(Business owner, Barnsley)

Being rescued and cared for during an emergency

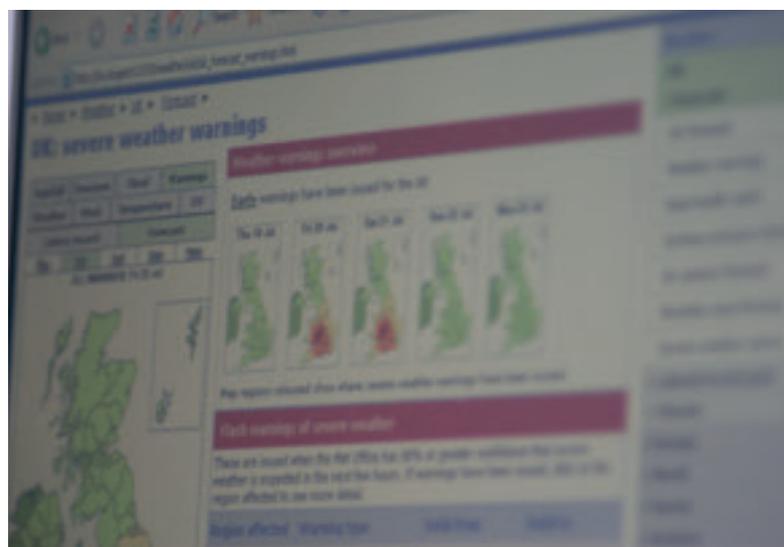
Information provision

ES.62 Organisations with responsibilities for informing and warning the public must also improve their performance. There are weaknesses in the system. Responsibility is split between agencies, notably the Met Office and the Environment Agency. During the floods, people experienced the effects of the lack of joined-up communication across these agencies. There was no single authoritative voice, no proper forecasting and warning system for surface water flooding, and a general need for more accurate, targeted and earlier warnings.

ES.63 Improving technology will allow these agencies to predict and monitor with ever greater accuracy. Once the information is available, it must be shared in a form that can be used. For some organisations, like infrastructure operators, that means tailored site information. For emergency responders, that means earlier but more tentative warnings. Last summer, too much information was given to people without clear explanation or pre-determined triggers for action. The public received technical warnings which they could not interpret or the warnings were too late – in many cases after they had already been flooded. Coherence is a central part of this. Joint warnings, issued by the Environment Agency and the Met Office, should be significantly easier to understand.

ES.64 Interpretation is a challenge for emergency responders as well as the public. During an emergency, local authorities and the police have to cope with large amounts of fast-moving and technical information relating to the scale of the flood. Modern technology can provide a more effective approach, using electronic information and mapping which is already available at control rooms operated by organisations like the Environment Agency and Met Office. The real time mapping and visualisation of flooding is something which should be available at every Gold Command.

RECOMMENDATION 33: The Environment Agency should provide a specialised site-specific flood warning service for infrastructure operators, offering longer lead times and greater levels of detail about the velocity and depth of flooding.



RECOMMENDATION 34: The Met Office and the Environment Agency should issue warnings against a lower threshold of probability to increase preparation lead times for emergency responders.

RECOMMENDATION 35: The Met Office and Environment Agency should issue joint warnings and impact information on severe weather and flooding emergencies to responder organisations and the public.

RECOMMENDATION 36: The Environment Agency should make relevant flood visualisation data, held in electronic map format, available online to Gold and Silver Commands.

RECOMMENDATION 37: The Environment Agency should work with its partners to progressively develop and bring into use flood visualisation tools that are designed to meet the needs of flood-risk managers, emergency planners and responders.

Response frameworks

ES.65 Mutual aid arrangements enabled local organisations engaged in the emergency response to seek urgent support from other parts of the country. There were many examples of effective assistance, including the loan of equipment, such as pumps or boats, and personnel. Well-established and effective arrangements already exist for the provision of mutual aid between police forces and fire and rescue services. Mutual aid was also used by the Environment Agency, which moved staff between offices.

ES.66 However, there were few structured arrangements for mutual aid beyond these organisations. In a few cases ad-hoc mutual aid arrangements worked well; good communications between those involved meant that the necessary resources were received promptly. But, others reported that when their agency had been called upon to help, their personnel were poorly integrated into the response effort. People working in

Silver Commands rotated frequently with little consistency or knowledge transfer and at times the command structures did not know how to make best use of the additional personnel.

ES.67 These weaknesses need to be addressed. We consider it particularly important that Local Resilience Forums, and local authorities, are clear about the capabilities available through mutual aid schemes at a regional and national level.

ES.68 Many organisations carried out flood rescue in the summer, including the Fire and Rescue Service, the Maritime and Coastguard Agency, the Royal National Lifeboat Institution and the Armed Forces. Voluntary organisations were sometimes first on the scene and added significantly to the response efforts. All of these organisations are highly valued by the public and were praised for their dedication and contribution.

ES.69 However, a lack of clarity about who was responsible for carrying out and coordinating flood rescue placed both the public and responders at unnecessary risk. The timeliness and effectiveness of the response were diminished by the absence of common operational and command frameworks. Further, a number of voluntary search and rescue organisations experienced difficulty in engaging with the response effort. Given the multiplicity of coordinating organisations, responders were often unclear about the roles of each of the organisations and who was taking the lead. This caused delays and frustration on the ground in fast-moving and stressful circumstances.

ES.70 The Review believes that clarifying and communicating the role of each of these bodies would improve the response to flooding. However, we are concerned that the systems, structures and protocols developed to support national coordination of multi-agency flood rescue assets remain ad-hoc. We believe that the Fire and Rescue Service should take on a leading role in this area, based on a fully funded capability. This will be most effective if supported by a statutory duty.

ES.71 The loss of Mythe water treatment works left some 350,000 people without mains water for more than two weeks. This created the major challenge of providing large volumes of drinking water. Severn Trent Water's contingency plans were unable to meet the scale of the supply required. An extensive and effective logistical operation for the sourcing and distribution of bottled water was set up to meet the needs of the public. Special arrangements, involving the Armed Forces, had to be established.

ES.72 In accordance with existing regulation, at least 10 litres of water were supplied to each affected person. However, while 10 litres of water may have been acceptable in meeting the immediate and essential needs in the initial stages of the emergency, it was insufficient to meet the longer term needs of the public. There were particular problems for vulnerable groups such as the chronically sick and those with young children.

RECOMMENDATION 38: Local authorities should establish mutual aid agreements in accordance with the guidance currently being prepared by the Local Government Association and the Cabinet Office.

RECOMMENDATION 39: The Government should urgently put in place a fully funded national capability for flood rescue with Fire and Rescue Authorities playing a leading role, underpinned as necessary by a statutory duty.

RECOMMENDATION 40: Defra should amend emergency regulations to increase the minimum amount of water to be provided in an emergency, in order to reflect reasonable needs during a longer-term loss of mains supply.



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“There were policemen and firemen walking up and down Wilson Street and they were bring babies in carry cots out – they were really helpful.”

(Householder, East Riding)

They were in a big rubber boat going round the estate helping people out and my granddaughter and grandson were carrying the old folks out to the centre and doing them beans on toast and all sorts. The local lads have been brilliant and the firemen were marvellous and the Salvation Army were out of this world, they were brilliant.

(Householder, Toll Bar, Doncaster)

The local response

ES.73 The scale of the 2007 floods stretched local emergency response resources to the limit and beyond, and responders in some areas were not well prepared. In part, this can be explained by the unprecedented nature of the events. But it is also clear that, in some areas, there were no agreed protocols between responders setting out responsibilities for assessing the potential impact of such a severe weather event and triggering an appropriate multi-agency response. This gap, crucial to the initiation of an effective emergency response, needs to be filled.

ES.74 Upper tier local authorities are the appropriate organisation to assess the potential impact of local floods based on previous experience, assessments by their staff and advice of other emergency responders. Similarly they are well placed to take the lead for triggering multi-agency arrangements, though where a Gold Command is established, the police should convene and lead the multi-agency response.

ES.75 Commands activated in the summer were effective in coordinating the local response, often with reassuring and high-level visible leadership. However, in some areas, responder organisations had difficulty in engaging effectively with the local response effort, possibly because Silver Commands were activated instead of Gold. This also hindered the involvement of the media, which meant that essential public information did not get through. Although these areas coped, the strategic perspective brought by Gold Command elsewhere improved the way the emergency was handled. Likewise, there were clear benefits where Gold Commands were activated at an early stage on a precautionary basis and this approach should be adopted more widely.

ES.76 The operation of Gold and Silver commands was most effective where high quality emergency response accommodation and facilities were available and this should become the norm. Also, Commands would benefit in the future from the availability of enhanced IT and digital flood visualisation tools, as they become available to multi-agency responders.

ES.77 Other operational matters were important. There were many instances of motorists and rail passengers being stranded in transit due to disruption on the road and rail networks as a result of the flooding.

ES.78 By far the most serious incident on the roads occurred on Friday 20 July, when an estimated 10,000 motorists in south west England were trapped overnight between junctions 10 and 12 of the M5 and on surrounding roads. While emergency responders were able to cope, accommodating a number of people in rest centres overnight, we are concerned that motorists could have

experienced much greater hardship at other times of the year.

ES.79 The Review commends the Highways Agency for their initiative in developing measures to provide emergency welfare support to motorists stranded on the road network. However, these arrangements are still relatively new and need time to bed in. Also, it is clearly preferable, wherever possible, to prevent people from being stranded on the road network in the first place.

ES.80 The disruption of the rail network left many members of the public stranded on trains and at railway stations. At Gloucester railway station on Friday 20 July, about 500 people were stranded after the rail network failed. There was no pre-planned arrangement for providing emergency humanitarian support to rail passengers analogous to that provided by the Highways Agency to motorists. We believe that the rail industry should ensure that the needs of stranded rail passengers are factored into emergency plans.

ES.81 The contribution of the Armed Forces to the emergency response during the floods was universally praised by responders and members of the public. The principle underpinning Armed Forces' involvement in civil operations in the UK is that they should only be available on request as a last resort, for example when the civil authorities have exhausted all alternative sources of capability and there are insufficient resources to cope with an emergency situation. During the flooding, assistance from the Armed Forces was administered centrally and also at the request of Gold and Silver Commands.

ES.82 Armed Forces personnel possess a wide range of leadership skills, expertise and knowledge which were useful to Gold Commanders during the flooding, as well as to local and regional resilience forums and lead government departments. The Armed Forces should never be expected to take the lead for responding to civil emergencies but the Review believes that the Cabinet Office and the MoD should identify how the experience and expertise of Armed Forces personnel could be made more readily available.



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RECOMMENDATION 41: Upper tier local authorities should be the lead responders in relation to multi-agency planning for severe weather emergencies at the local level and for triggering multi-agency arrangements in response to severe weather warnings and local impact assessments.

RECOMMENDATION 42: Where a Gold Command is established for severe weather events, the police, unless agreed otherwise locally, should convene and lead the multi-agency response.

RECOMMENDATION 43: Gold Commands should be established at an early stage on a precautionary basis where there is a risk of serious flooding.

RECOMMENDATION 44: Category 1 and 2 responders should assess the effectiveness of their emergency response facilities, including flexible accommodation, IT and communications systems, and undertake any necessary improvement works.

RECOMMENDATION 45: The Highways Agency, working through Local Resilience Forums, should further consider the vulnerability of motorways and trunk roads to flooding, the potential for better warnings, strategic road clearance to avoid people becoming stranded and plans to support people who become stranded.

RECOMMENDATION 46: The rail industry, working through Local Resilience Forums, should develop plans to provide emergency welfare support to passengers stranded on the rail network.

RECOMMENDATION 47: The Ministry of Defence should identify a small number of trained Armed Forces personnel who can be deployed to advise Gold Commands on logistics during wide-area civil emergencies and, working with Cabinet Office, identify a suitable mechanism for deployment.

National response

ES.83 The exceptional scale and variety of the summer 2007 floods, coupled with the widespread disruption of essential services, made regional and national support integral to the response. Certain departments played a particularly prominent role, notably Defra as the central government department with lead responsibility for flooding, the Cabinet Office and Communities and Local Government as the lead department for the recovery phase.

ES.84 The flooding in June 2007, was judged, on the basis of initial reporting from the Environment Agency, to be within the capacity of local responders to manage. COBR was therefore not formally activated, although Defra and the Environment Agency provided a continued oversight of the response. COBR was however activated during the July 2007 floods. The trigger was a forecast by the Environment Agency – which turned out to be broadly accurate – that the scale of the flooding would be severe and on a par with that in 1947. COBR was also active for the subsequent civil emergencies, including the prolonged interruption to water supplies following the loss of the Mythe water treatment works and the threat to Walham electricity substation, as well as later flooding events in the Thames Valley.

ES.85 The activation of COBR in July 2007 was welcomed by Gold Commands, and played an important role. Departments felt that the response during July was better coordinated and more focused than during June 2007. This experience points to earlier activation of COBR on a precautionary basis in the future in the event of serious flooding.

ES.86 The last national flooding exercise was in 2004 and the Review notes that another national flooding exercise is not expected before 2010. Whilst we accept that there must be reasonable time for planning, and for the new National Flooding Frameworks to bed in, we believe that a national exercise on flooding should be prioritised in addition to local and regional events.

RECOMMENDATION 48: Central government crisis machinery should always be activated if significant wide-area and high-impact flooding is expected or occurs.

RECOMMENDATION 49: A national flooding exercise should take place at the earliest opportunity in order to test the new arrangements which central government departments are putting into place to deal with flooding and infrastructure emergencies.

Maintaining power and water supplies and protecting essential services

Taking a systematic approach to preventing disruption

ES.87 The floods had a dramatic effect on electricity substations, water and sewage treatment works, and the road and rail network. The consequence of loss of essential services provided by these sectors extended well beyond the areas that were flooded and served as a reminder of the need to pay greater attention to improving the resilience of critical infrastructure against flooding.

ES.88 The approach taken by the Government to mitigating the risks to critical infrastructure from flooding and other natural hazards has been uncoordinated and reactive. There is no central understanding of the level of risk to which critical infrastructure, and hence wider society, is exposed; and there is no centrally defined standard against which to drive action.

ES.89 The public need to be reassured that essential services are resilient to flooding and other forms of disruption. Government needs to respond by taking action to enable infrastructure operators and local responders to mitigate these risks, especially for 'Single Points of Failure'. There is a requirement for a more systematic approach to understanding the vulnerability of critical infrastructure and to driving up resilience. We welcome the Government's commitment to do this and propose that they create a national framework to help reduce the risks to the delivery of

essential services resulting from natural hazards.

ES.90 The framework should balance risks and costs across sectors and aim to:

- reduce risk to the most important infrastructure assets resulting from natural hazards through a careful assessment of vulnerability and decisive action based on new centrally defined standards;
- provide appropriate economic incentives to infrastructure operators to increase the resilience of infrastructure; and
- enhance the capacity to act quickly when faced with unexpected events through the introduction of mandatory business continuity planning.

You got four litres per person per day... but there people abusing it. [People with] shopping trolleys trying to flog it.

(Householder, Upton)

RECOMMENDATION 50: The Government should urgently begin its systematic programme to reduce the disruption of essential services resulting from natural hazards by publishing a national framework and policy statement setting out the process, timescales and expectations.

RECOMMENDATION 51: Relevant government departments and the Environment Agency should work with infrastructure operators to identify the vulnerability and risk of assets to flooding and a summary of the analysis should be published in Sector Resilience Plans.

RECOMMENDATION 52: In the short-term, the Government and infrastructure operators should work together to build a level of resilience into critical infrastructure assets that ensures continuity during a worst-case flood event.

RECOMMENDATION 53: A specific duty should be placed on economic regulators to build resilience in the critical infrastructure.

RECOMMENDATION 54: The Government should extend the duty to undertake business continuity planning to infrastructure operating Category 2 responders to a standard equivalent to BS25999, and that accountability is ensured through an annual benchmarking exercise within each sector.



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Better planning through information sharing

ES.91 During summer 2007 emergency responders needed more information the location of critical sites, their vulnerability to flooding, the likely consequences of their loss and interdependencies between sectors. The information available was at best inconsistent, and at times unavailable. Agencies were severely hampered in their ability to respond quickly as events unfolded.

ES.92 The duties under the Civil Contingencies Act for Category 2 responders to cooperate and share information were shown to be insufficient. Critical infrastructure providers must become much more active in local and national emergency preparedness and response, with greater contact between the public and private sectors at national and local levels.

ES.93 We also need to be more direct with the public about risk. The balance between protecting information about critical infrastructure sites for security reasons and the need to share information with local agencies about such sites to protect them from flooding needs to be rethought. Guarding against one risk can exacerbate the other. As the summer floods showed, actual risk to these sites is much higher than communicated risk, and the public were shocked by the loss of essential services. Responders were poorly prepared, and levels of protection of these key sites did not match the public's expectations. Critical infrastructure operators and security organisations should be more open about the risks which exist and play a fuller part in civil protection arrangements.



RECOMMENDATION 55: The Government should strengthen and enforce the duty on Category 2 responders to share information on the risks to their infrastructure assets, enabling more effective emergency planning within Local Resilience Forums.

RECOMMENDATION 56: The Government should issue clear guidance on expected levels of Category 2 responders' engagement in planning, exercising and response and consider the case for strengthening enforcement arrangements.

Effective management of dams and reservoirs

ES.94 The events which occurred at Ulley reservoir, Rotherham, highlight the potential risks facing communities living in dam inundation areas. Around 1,000 people were evacuated and main roads (including the M1) were closed. The absence of prior information with which to prepare contingency plans meant responders had to improvise by drawing floods maps and making evacuation plans on the spot. Had the incident happened in a more densely populated area it is doubtful if this improvised approach would have been adequate.

ES.95 The UK has an excellent record of dam and reservoir safety. Nevertheless, some still pose significant risks to people and property. Much depends on the location and maintenance of the reservoir, rather than size. As such, we support the proposal of the Environment Agency in its biennial report that the Reservoirs Act should be amended to provide better, risk-based, criteria for targeting regulation.

ES.96 But the lesson of Ulley is that we must also be prepared for failure. At present, security concerns mean that the UK has one of the world's most secretive regimes in relation to dam inundation. But this has meant that responders cannot be as ready to respond as they should be, whether the breach occurs because of a malicious attack or natural failure. The Review considers it essential that LRFs should have the information they need to undertake effective planning, and to engage fully with downstream communities. This would bring the UK into line with other parts of the world, where evidence suggests that involving the community in local planning increases awareness and lessens the risk of fatalities and damage. This should include identification for the public of evacuation routes and procedures for the public to follow where destruction of buildings and loss of life could occur.

"I know we're not supposed to have the inundation plans, but I think I've still got some locked in a cupboard from when we got them years ago. They might come in handy if something goes wrong."

Emergency planner, Midlands

RECOMMENDATION 57: The Government should provide Local Resilience Forums with the inundation maps for both large and small reservoirs to enable them to assess risks and plan for contingency, warning and evacuation and the outline maps be made available to the public online as part of wider flood risk information.

RECOMMENDATION 58: The Government should implement the legislative changes proposed in the Environment Agency biennial report on dam and reservoir safety through the forthcoming flooding legislation.

Better advice and help for people to protect their families and homes

Raising awareness before the emergency

ES.97 The public need to be aware of a flooding risk before they can take action to minimise it. But even being aware of risk may not be enough – of those we talked to who actually knew prior to the floods that they were at risk, relatively few had done anything to prepare.

ES.98 The public need to be educated about flood risk. With climate change likely to lead to more varied weather patterns and a greater risk of flooding, householders and businesses need properly consider risks and take precautionary action in the same way as they do against other hazards, such as fire.

We were assured that our house wouldn't flood.

(Householder, At risk, West Oxfordshire)

When we bought the house in '99, the solicitor didn't tell me it was on a flood plain, but then you speak to people that lived here years and know Catcliffe, and the worse thing they say to you is 'oh, I could have told you that'.

(Householder, Rotherham)



ES.99 Increased risk awareness is important but it must sit alongside advice on effective actions to limit the impact of flooding, otherwise all that may be achieved is a heightened sense of anxiety and helplessness. During the summer 2007 floods, the public were confused by the numerous sources of information relating to flood mitigation measures, health advice, and actions to take before and during flooding. Not only did the multiple sources mean that people did not know where to look for advice, but the information given was often inconsistent. Therefore, the Review believes that the Government should decide which flood prevention and mitigation advice is essential and it should brand this as the definitive advice via a public information campaign.

ES.100 One powerful step the Government could take would be to significantly increase the take-up of flood warning schemes. In our interim report, we noted the limited participation and proposed that an 'op-out' rather than 'opt in' approach should be adopted. Government accepted the recommendation, but the issue is not yet resolved. We believe it should be an urgent priority.

ES.101 A proportion of property owners and tenants do not even realise that they live on a floodplain. There is currently no requirement for people purchasing a property to be informed about flood risk by estate agents, lawyers or the previous owner. Vendors, unless asked, do not have to disclose whether they are aware of the property ever having flooded. Flood risk or flood history discovered at an advanced stage of the purchase process can be costly if transactions are aborted after money has been spent by the potential purchasers.

ES.102 Home Information Packs (HIPs) were introduced in August 2007 and provide house buyers with some of the information they need to make an informed choice about a property they wish to buy. Flood risk from groundwater, rivers and the coast is not a mandatory search element of the HIP. The only question asked on flooding in the HIP relates to surface water flooding and arises in the mandatory drainage and water search, which covers the risk of flooding due to an overloaded public sewer. We believe this requirement should be extended. With additional information, purchasers can

ask more informed questions – not only of the property owner, but also of the Environment Agency or local authority – such as what flood defences exist locally and whether flood warning is available.

RECOMMENDATION 59: The Risk and Regulation Advisory Council should explore how the public can improve their understanding of community risks, including those associated with flooding, and that the Government should then implement the findings as appropriate.

RECOMMENDATION 60: The Government should implement a public information campaign which draws on a single definitive set of flood prevention and mitigation advice for householders and businesses, and which can be used by media and the authorities locally and nationally.

RECOMMENDATION 61: The Environment Agency should work with local responders to raise awareness in flood risk areas and identify a range of mechanisms to warn the public, particularly the vulnerable, in response to flooding.

RECOMMENDATION 62: The Environment Agency should work urgently with telecommunications companies to facilitate the roll-out of opt-out telephone flood warning schemes to all homes and businesses liable to flooding, including those with ex-directory numbers.

RECOMMENDATION 63: Flood risk should be made part of the mandatory search requirements when people buy property, and should form part of Home Information Packs.

Warnings and advice

ES.103 One of the striking lessons about public warning during the flooding was the varying impact of information. The public's response to the flooding differed according to whether people were aware of the risks and able to take action as a consequence. Different people responded to different kinds of contact. In some areas telephone warnings worked well, while in others face-to-face contact was more effective.

Well if there is an advice line or internet, there are loads of ways of getting messages or being able to find information like a flood line. If there is one, I don't know.

(Business owner, Barnsley)

They send out warnings and you could come onto the local radio. The internet I wouldn't know where to start so it is no good for elderly people and they are saying get onto the internet and you will find out.

(Businesses, Barnsley)

There was no information from the Government or any organisation to help you as old folks. The only thing they tell you is what's on TV or in the papers.

(Householder, West Berkshire)

ES.104 Door-to-door calls were viewed as particularly effective and were welcomed by residents, as also witnessed during preparations for coastal flooding on the East Coast in November 2007. This is a simple but effective method which can be put into effect quickly while additional warning methods are explored. The method is already used in a number of areas, where its effectiveness as a method of disseminating information before flooding and once flooding has receded is well understood. Some LRFs have plans which utilise resources of the police, other local community groups and Environment Agency staff where appropriate.

ES.105 Telephone contact with the authorities was a key source of information, particularly for those directly affected. But many people were passed from organisation to organisation



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when seeking advice. In some instances, the publicising of several different telephone lines left people confused about which one to ring. Nevertheless, there were also success stories. Members of the public were able to get the Environment Agency's Floodline and other organisations such as Hull and Barnsley councils set up flood information lines for the local community. These services made use of local authority contact centres, which are now a regular part of service delivery and should be more widely used during emergencies.

ES.106 Many people were frustrated at having to access a number of websites to find information on flood-related issues such as the disconnection or restoration of electricity and water supplies, health notices and flood warnings. Many websites were poorly constructed or crashed under the volume of information requests. Some people could not find the information they needed as they did not know where to start looking. It would be of great value if a single website provided links to all other websites needed for a comprehensive set of advice on flood-related matters, including where to go for more specific information and what to do during the emergency. This could be the area's LRF website, with all Category 1 responders linking back to this 'hub'.

ES.107 We also note the value of the high media profile for local leaders, as achieved by council leaders and Gold Commanders in a number of areas affected by the floods. For example, in Doncaster, the elected Mayor's high visibility provided reassurance to the public during the severe flooding which affected the city in June 2007. In Gloucestershire, the Gold Commander adopted a similarly successful high profile, using the media as a way of communicating advice to the public and providing visible leadership at the local level. All local leaders need to play their part in this, and local authorities should share the load with the uniformed services.

RECOMMENDATION 64: Local Resilience Forums should continue to develop plans for door-knocking, coordinated by local authorities, to enhance flood warnings before flooding and to provide information and assess welfare needs once flooding has receded.

RECOMMENDATION 65: The Met Office and Environment Agency should urgently complete the production of a sliding scale of options for greater personalisation of public warning information, including costs, benefits and feasibility.

RECOMMENDATION 66: Local authority contact centres should take the lead in dealing with general enquiries from the public during and after major flooding, redirecting calls to other organisations when appropriate.

RECOMMENDATION 67: The Cabinet Office should provide advice to ensure that all Local Resilience Forums have effective and linked websites providing public information before, during and after an emergency.

RECOMMENDATION 68: Council leaders and chief executives should play a prominent role in public reassurance and advice through the local media during a flooding emergency, as part of a coordinated effort overseen by Gold Commanders.

The role of communities and individuals

There were 12 and 13 year olds looking after the old folk of our village and all of a sudden beans and soup appeared from nowhere and they were looked after but it was from our village ourselves no emergency services.

(Householder, Toll Bar, Doncaster)

People in our community went round every bungalow and collected medications, went and got prescriptions, fetched them back and they were visited and kept up to date but that's from people in our community no doctor came.

(Householder, Toll Bar, Doncaster)

ES.108 Community action was one of the most striking impacts of the summer floods. It has considerable potential for the future. In a wide area emergency, the authorities are overwhelmed and people have little choice other than to help themselves.

ES.109 There are many property level measures which can be taken – air brick covers, gates for doors, repositioning of electrical sockets and boilers. Also, many people have the option to sign up for warning schemes such as Flood Warnings Direct. And we continue to urge people to take the simple step of preparing their own flood kit.

ES.110 Many communities showed themselves willing to pull together. Helping neighbours became second nature, and we have heard many stories of community spirit and engagement. So we strongly endorse the announcements in the National Security Strategy relating to the promotion of Community Resilience by government in partnership with local organisations.

RECOMMENDATION 69: The public should make up a flood kit – including personal documents, insurance policy, emergency contact numbers (including local council, emergency services and Floodline), torch, battery or wind-up radio, mobile phone, rubber gloves, wet wipes or antibacterial hand gel, first aid kit and blankets.



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RECOMMENDATION 70: The Government should establish a programme to support and encourage individuals and communities to be better prepared and more self-reliant during emergencies, allowing the authorities to focus on those areas and people in greatest need.

Staying healthy and speeding up recovery

Health and wellbeing

ES.111 The summer 2007 floods had a significant impact on people's health and wellbeing. Many people suffered from illnesses, ranging from coughs and colds to bronchitis and heart attacks, and this affected family life and relationships. Some individuals have likened their flooding experience to bereavement, going through similar emotions such as shock and disbelief, anger, blame and finally acceptance. Psychological impacts included increased levels of anxiety during periods of rainfall, and as a result of temporary living arrangements, dealing with insurers/builders and financial difficulties.

ES.112 There were many instances of individuals, businesses and the voluntary and community sector receiving inconsistent health information and support. In some cases, health

advisors said it was safe to stay in flooded properties, yet in others families were told to leave their homes immediately due to health risks from fungal spores. Builders were unable to find advice on whether renovating damp properties posed health risks. Public authorities and the insurance industry issued conflicting advice on the removal and disposal of water-damaged items from houses and businesses.

ES.113 Clear and consistent health advice needs to be widely available to all people affected, both during the response and throughout recovery. The advice should cover hazards to both physical and mental health. It should be widely available across a range of media, such as the internet and in leaflets available at health centres. Consideration should also be given to raising health awareness in advance of an emergency.

ES.114 Our own research work shows that people affected by the summer floods suffered illness in large numbers, putting localised strain on NHS services and causing widespread absence from work or school. One of the most significant challenges for responders in future must be to provide sufficient support. Those charged with leading recovery locally should tackle health problems early and minimise the distress people feel. Getting this right needs proper monitoring arrangements. National



NHS reporting systems did not pick up serious local pressure points. Local Recovery Co-ordinating Groups need to take this task on, and redeploy resources accordingly.

I've got a little boy of three. We went to Scarborough for the day and he won't go in the sea because he is scared he was going to get flooded, it's a psychological effect on the kids.

(Householder, Sheffield)

I've been told that it's alright to live in a damp house with children with asthma, and I've been told [separately] that it's dangerous, so who do you trust?

(Business owner, Hull)

There were kids body surfing in the filthy, polluted floods, and their parents were just watching them ... they just didn't realise the potential health problems that the floods brought.

(Householder, West Oxfordshire)

Yeah and that's when people started with headaches, sickness, rashes.

(Households, Sheffield)

ES.115 We have also encountered significant dissatisfaction with the time it took to dry out and stabilise properties after extensive flooding. But evidence shows that there is a continuing and significant detrimental effect on families' mental and physical health when they have to stay out of their homes for months at a time. Technological improvements can be made to speed up the process of building recovery, and these should be urgently pursued.

RECOMMENDATION 71: The Department of Health and other relevant bodies should develop a single set of flood-related health advice for householders and businesses which should be used by all organisations nationally and locally and made available through a wide range of sources.

RECOMMENDATION 72: Local response and recovery coordinating groups should ensure that health and wellbeing support is readily available to those affected by flooding based on the advice developed by the Department of Health.

RECOMMENDATION 73: The Government, the Association of British Insurers and other relevant organisations should work together to explore any technological or process improvements that can be made to speed up the drying out and stabilising process of building recovery after a flood.

RECOMMENDATION 74: The monitoring of the impact of flooding on the health and wellbeing of people, and actions to mitigate and manage the effects, should form a systematic part of the work of Recovery Coordinating Groups.



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Roles and responsibilities during recovery

“The role of Government Offices needs to be defined in relation to response and recovery...”

Hull City Council

“... there needs to be as much coherence and consistency as possible ...”

Leeds City Council

Roles and responsibilities during recovery

ES.116 As with the response phase, clarity over roles and responsibilities is crucial to the effective management of recovery. Evidence to the Review shows that recovery arrangements following the floods generally worked well, with strong collaborative working between key government departments and agencies, and between regional and local bodies. Outcomes were most successful where there was clear leadership, where roles and responsibilities were understood, and where local authorities worked systematically with communities. However, there were inconsistencies in the approaches taken, and in some cases this

reduced the effectiveness of the recovery phase. The public also perceived differences in treatment within communities which led in some cases to annoyance and frustration.

ES.117 Communities and Local Government was responsible for cross-government delivery of the flood recovery programme ensuring that Government departments and other national and regional bodies had a shared understanding of policies and priorities, and that they contributed fully and effectively to the recovery effort. At the local level, local authorities are ideally placed to understand the varied flood recovery needs of different neighbourhoods within their areas and in summer 2007 local authorities naturally understood that they would be looked upon to play a key leadership role in recovery efforts. Local Recovery Co-ordination Groups (RCGs) took up responsibility for recovery as Gold Commands began to wind down, with the expectation that they would eventually pass responsibility over to mainstream programmes. This clear leadership at the national and local levels should be the basis for planning for future emergencies.

ES.118 The events of last summer also highlighted the benefits to be gained from local areas working together and sharing best



practice on the management of recovery work. RCGs sought advice from authorities who had dealt with recovery following previous flooding emergencies. The Review considers that this experience is valuable and should be captured and shared with others in the immediate aftermath of an emergency. National Recovery Guidance should reflect this, and Government Offices (GOs) should work with organisations such as the Local Government Association to translate this into practice.

ES.119 GOs also have an important role in co-ordinating cross-area recovery. GOs were the principal conduit for gathering information from affected local authorities and relaying this to central government. Likewise, local responders used the GOs as the first port of call for requests for advice or assistance from central government. This role continued into the recovery phase. However, there were no previously established structures in place to undertake this work, which caused difficulties in some GOs. This should become an agreed part of future recovery operations.

RECOMMENDATION 75: For emergencies spanning more than a single local authority area, Government Offices should ensure coherence and coordination, if necessary, between recovery operations.

RECOMMENDATION 76: Local authorities should coordinate a systematic programme of community engagement in their area during the recovery phase.

RECOMMENDATION 77: National and local Recovery Co-ordinating Groups should be established from the outset of major emergencies and in due course there should be formal handover from the crisis machinery.

RECOMMENDATION 78: Aims and objectives for the recovery phase should be agreed at the outset by Recovery Coordinating Groups to provide focus and enable orderly transition into mainstream programmes when multi-agency coordination of recovery is no longer required.

RECOMMENDATION 79: Government Offices, in conjunction with the Local Government Association, should develop arrangements to provide advice and support from experienced organisations to areas dealing with recovery from severe flooding emergencies.

RECOMMENDATION 80: All central government guidance should be updated to reflect the new arrangements for recovery and Local Resilience Forums should plan, train and exercise on this basis.

Recording and reporting

ES.120 The floods of summer 2007 generated the requirement for effective information flows to a wide range of national, regional and local organisations. Local authority leadership of the recovery phase meant that they were tasked with providing information to central government through GOs. Central government, in turn, provided information on the overall recovery position. This created a bureaucratic burden, particularly for local government. More attention should be given to agreeing the criteria, definitions and mechanisms for reporting in advance, including who needs information, what information they need and the format they need it in.



ES.121 One of the main indicators used during both the response and recovery phases to measure the scale of damage and speed of recovery was that of ‘households affected’ – replaced later by the indicator on ‘households who are still displaced’. The information was also used to support the targeting of resources and actions to maximise their impact.

ES.122 Perhaps most importantly for those affected, getting people back into their homes is a very clear signal of progress and of the effectiveness of the efforts being made by all those engaged in the recovery phase. When published, the figures have attracted wide interest and both government and the insurance industry have been called to account. This is necessary – the number of people out of their homes is a matter for concern and has remained unacceptably high.

Being forgotten

“Just because we’re in temporary accommodation and no one’s in any real danger, the government and media have forgotten about us, they think we’ve recovered from it when in actual truth, we’re nowhere near recovering.” (Householder, Hull)

Number of people still out of homes

Local authorities have estimated that 4,750 households were still out of their homes at the end of May 2008.

RECOMMENDATION 81: There should be an agreed framework, including definitions and timescales, for local-central recovery reporting.

RECOMMENDATION 82: Following major flooding events, the Government should publish monthly summaries of progress of the recovery phase, including the numbers of households still displaced from all or part of their homes.

Funding for recovery

“Most local authorities do think it prudent to have adequate reserves, but the extent of these has to be weighed against the investment needs for services” – Local Government Association

ES.123 The total cost of the summer 2007 floods runs into billions of pounds. Damage caused by the floods affected individuals, homeowners, farmers and businesses as well as public buildings and infrastructure such as schools and roads. Funds to cover the repair and replacement of goods and property, and to compensate for loss of business, came from a number of sources and via an assortment of funding mechanisms. In some cases people were happy with the speed of payment and the amounts given. However, in many cases there were concerns that advice on funding was inconsistent and the procedures for obtaining funds were complex and inflexible.

ES.124 Problems with funding systems were twofold - some organisations at the local level had not made proper arrangements to cope with significant financial shocks, and there was no coherent pre-agreed system for funding at the national level. The Review believes that financial assistance can be revised to improve speed, simplicity and certainty, and that a new funding approach could minimise unnecessary expenditure and maximise value for money for public finances collectively, rather than for central or local government alone.

ES.125 Local organisations must prepare themselves better. Most of the losses incurred during the summer were insurable, either through commercial insurance or through

self-insurance and use of reserves. Local authorities in particular already have clear direction to build contingency into their financial arrangements. As with all other aspects of the response to emergencies, local organisations must expect to manage their own problems in the first instance and only seek support in the most difficult of circumstances.

ES.126 Emergencies can cause very serious financial problems. Individual authorities can face expenditure for which insurance is unavailable or unreasonably expensive. In the past, just as during the summer floods, central government has recognised this through generous ad hoc funding schemes. But the temporary and uncertain nature of this approach undermines efficiency, and encourages local authorities to over or under-provide for disasters. The Review believes that there is a strong argument for a scheme to be created specifically to fund the capital costs of recovery from exceptional emergencies such as the floods of 2007. The new scheme would receive funding from relevant central government departments, be delivered through a single funding gateway and supported by the work of GOs. Such an arrangement would end the current piecemeal approach and allow for more accurate financial planning by local authorities. Effectively, it would be a form of public sector self-insurance for the most serious events.

Hull Flood Recovery Grant

The Flood Recovery Grant Scheme (FRG) was a new grant scheme established in June 2007 and administered by CLG for local authorities. The scheme was intended to support local flood recovery work, particularly for people in greatest and most immediate need. The grant was paid to lower-tier local authorities on the basis of the number of households affected by flooding (those where water entered the property, not just the grounds).

In Kingston upon Hull, one of the areas worst affected by the summer floods, £2.7 million has been paid through the FRG scheme. Some of this money has been used to pay hardship funds to some of the worst affected residents in Hull. Elsewhere, money has been used to provide activities to support families living in caravans.

RECOMMENDATION 83: Local authorities should continue to make arrangements to bear the cost of recovery for all but the most exceptional emergencies, and should revisit their reserves and insurance arrangements in light of last summer's floods.

RECOMMENDATION 84: Central government should have pre-planned rather than ad-hoc arrangements to contribute towards the financial burden of recovery from the most exceptional emergencies, on a formula basis.



Normalisation and regeneration

The Carlisle floods

“In the immediate aftermath of the floods in January 2005, Carlisle City Council... knew that it just wasn't enough to get the city back to normal, we had to do much better than that – so our mantra in the early days became ‘Let's get Carlisle back to normal – but better.’ Our key task was to oversee the flood recovery process, but we took the opportunity at that early stage to use our multi-agency group in developing a vision for the physical, social and economic regeneration in Carlisle and make the case for Carlisle Renaissance.”

(Maggie Mooney, Town Clerk and Chief Executive, Carlisle City Council)

ES.127 Recovering from the 2007 summer floods will be a long-term process taking many months if not years. Determining when an area has ‘recovered’ depends on the objectives established at the outset. In some cases, this will involve returning affected areas to their previous condition - ‘normalisation’. In others, the recovery phase will be seen as the opportunity for long-term economic development. The Review has found a number of regeneration programmes which followed emergencies in the UK and overseas, including after the Carlisle floods of 2005, the hurricane and subsequent flooding in New Orleans and the fire at the Buncefield oil storage depot, Hemel Hempstead.

ES.128 Evidence to the Review has shown that most local authorities agree that longer-term regeneration and economic development should be considered at an early stage of the recovery process. But evidence also shows that most authorities have opted for normalisation rather than regeneration. This represents a missed opportunity. So Recovery Co-ordination Groups, in establishing the aims and objectives for the recovery phase, must consider the strategic choice between normalisation and regeneration of an affected area.

RECOMMENDATION 85: Local Recovery Coordination Groups should make early recommendations to elected local authority members about longer-term regeneration and economic development opportunities.

How do we know this Review will make a difference?

“...recommendations... should be led nationally, down through the regions to the local level, to ensure consistency and development across the board. The big question now is whether there is the political will to enforce these....”
(Emergency Planning Society)

“The report is a terrific foundation to identify the lessons from the 2007 floods... The challenge, to ensure we really learn the lessons, will be to get commitment from senior government to maintain the pressure for progress on the recommendations.”
(London First)

ES.129 The recommendations in this Report are directed towards a range of government departments and agencies. Lead amongst these is Defra, as department with responsibility for flood risk management. Defra has already shown itself willing to take on a leadership role, and we understand that it will co-ordinate both the response to this Review and the wider programme of change. The Department has already begun work on the new National Framework for flooding emergencies.

ES.130 But a positive approach and administrative structures are not enough alone. This programme of work must have teeth. Defra should set out publicly how the Government can be held to account and how progress can be monitored. This work must be overseen by a top official, with regular reporting to Defra Ministers and Board.

ES.131 Defra cannot tackle this job alone. The issues considered in this Report are many and varied, and go far beyond Defra's direct interests. In order to support Defra, there should be a new Cabinet Committee to deal with flooding, much as we have already for terrorism and pandemic influenza. A Cabinet Committee will provide clear ministerial leadership across government, and ensure that other important departments like CLG, Cabinet Office and BERR play their part. As a Cabinet Committee, its business will take precedence within government over other matters. It is a step which raises the status of flooding to bring it alongside the other most serious risks we face.

RECOMMENDATION 86: The Government should publish an action plan to implement the recommendations of this Review, with a Director in Defra overseeing the programme of delivery and issuing regular progress updates.

RECOMMENDATION 87: The Government should establish a Cabinet Committee with a remit to improve the country's ability to deal with flooding and implement the recommendations of this Review.

Oversight at the national level

ES.132 The work carried out in government has to be done together with external organisations. Just as at the local level, the multi-agency approach has to be the cornerstone of improving our ability to deal with flooding emergencies. However, at present there is no single body at the centre of government to make this happen.

ES.133 Key decisions must still sit with government itself, but local responders and the private sector need influence and to be more closely involved. Submissions to the Review from key external organisations, notably local government and critical infrastructure operators, have made this clear. The creation of a National Resilience Forum, with representatives of local response organisations and government, would give the kind of multi-

agency strategic oversight that we believe is necessary to make the recommendations in this Report work

ES.134 We have also considered how delivery should be monitored at a national level once the Review is shut down. The Environment, Food and Rural Affairs (EFRA) Select Committee has followed the progress of our Review and there has been a sharing of ideas. We believe the Committee should build on its own longstanding interests in flood risk management by reviewing progress against our recommendations. The Committee will have a particular interest when the government's response and Action Plan are published in late summer or early autumn. In addition, we would encourage the Committee to make an assessment of progress once departments have had time to undertake some of the more substantial policy and operational changes.

RECOMMENDATION 88: The Government should establish a National Resilience Forum to facilitate national level multi-agency planning for flooding and other emergencies.

RECOMMENDATION 89: The EFRA Select Committee should review the country's readiness for dealing with flooding emergencies and produce an assessment of progress in implementation of the Review's recommendations after 12 months.

Scrutiny at the local level

In its submission to the Review, Severn Trent Water, commented on the company's experience of attending the Scrutiny Inquiry conducted by Gloucestershire County Council following the floods of summer 2007:

“Severn Trent Water has experienced the benefits [that] attending the Gloucester Scrutiny enquiry can bring. We have been able to inform and reassure the communities we serve by demonstrating what we as an organisation are doing to make our networks more resilient and what contingency arrangements we have in place to respond to an emergency in their community.”

ES.135 National and regional oversight must be matched locally and we consider that there is a role for scrutiny committees of local councillors. Overview and Scrutiny committees are now a well-established feature of local government. They provide a strong focus for public interest in key areas of local service delivery, and ensure that organisations are held to account publicly. As one step removed from the service providers, they can consider the position across the piece. The model is already used successfully on a national basis to improve local oversight of NHS services.

ES.136 The wide range of organisations which have a part to play in reducing the impacts for future flooding in local areas means that the scrutiny model is particularly well-suited. Scrutiny committees have successfully examined the events of last summer in areas such as East Riding of Yorkshire, Gloucestershire, Doncaster and Berkshire, taking evidence from public and private sector bodies. These have been most effective where a public report has been produced, and specific actions identified. Indeed, the lessons they have identified have provided useful information for this Review. Full reports of this kind might only need to be undertaken from time to time, but an assessment of progress against actions would have most effect if published at least annually.

ES.137 The other element of work at the local level to achieve improvement following flooding events is internal analysis to learn and share

lessons. In this respect, there will be a need for responders to evaluate and share operational and specialist lessons from the response and recovery phases and some of the areas under discussion. Local Resilience Forums will need to play a role in identifying and implementing these lessons.

Gloucestershire Scrutiny Inquiry

In the aftermath of the summer floods, Gloucestershire County Council set up a Scrutiny Inquiry to look at how the emergency services, local authorities and utility companies dealt with the event. The 11-week inquiry highlighted several critical local issues of concern, which included the inadequacy of flood warning systems, the lack of knowledge for the county's drainage system, and the vulnerabilities of single points of failure within the county's critical infrastructure. Once agreed, the County monitored the progress of the recommendations at regular intervals, ensuring that progress can be systematically checked.

RECOMMENDATION 90: All upper tier local authorities should establish Oversight and Scrutiny Committees to review work by public sector bodies and essential service providers in order to manage flood risk, underpinned by a legal requirement to cooperate and share information.

RECOMMENDATION 91: Each Oversight and Scrutiny Committee should prepare an annual summary of actions taken locally to manage flood risk and implement this Review, and these reports should be public and reviewed by Government Offices and the Environment Agency.

RECOMMENDATION 92: Local Resilience Forums should evaluate and share lessons from both the response and recovery phases to inform their planning for future emergencies.

ES.138 The Review is now complete. The Government will consider our recommendations and respond. Full details of how to comment on the issues we address in this Report, or to access any of the papers (including all the evidence that was considered), are set out in Chapter 31 of the main document.