Communities and Local Government

Flooding Review
March 2008

Facing the Challenge

The Chief Fire and Rescue Adviser's review of the operational response by the Fire and Rescue Service to the widespread flooding in England during 2007

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Sir Ken Knight
Chief Fire and Rescue Adviser

The findings and recommendations in this report are those of the authors and do not necessarily represent the views of the Department for Communities and Local Government.

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CHIEF FIRE & RESCUE ADVISER

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Dear Secretary of State,

This report follows my *Emerging Issues* paper of October 2007 and sets out my views on the FRS operational response to the widespread flooding in the summer of 2007.

The Fire and Rescue Service (FRS) responded with its renowned professionalism to the challenges it faced and firefighters and FRS staff worked with complete dedication in very difficult conditions over many days. The FRS rescued countless people trapped in their homes and protected successfully parts of the national infrastructure including energy and water supplies.

This review has been commissioned to examine the issues faced by the FRS and considers the views and evidence from many services and stakeholders. It is the intention that this review, which is predominantly focused on the FRS, will be considered by Sir Michael Pitt as part of his overarching review of the widespread flooding. The findings of this review indicate that there are matters that should be addressed to help communities better when the next floods occur and ensure that an even more effective service is provided by the FRS.

One of the critical issues faced by the FRS is how it deals with the vast number of emergency calls being received simultaneously in any one of its fire controls whilst providing a resilient response. It was, therefore, appropriate to consider the experience of the 2007 floods against the proposed nine interoperable Regional Control Centres (RCC), currently part of the Communities and Local Government FiReControl Project.

The review findings underpin the rationale for the FiReControl Project and concludes that a number of the difficulties experienced in the existing disparate fire control arrangements will be overcome through the proposed RCC network. The report also offers some potential short term solutions to enhance the existing controls as an interim arrangement pending the introduction of the interoperable, resilient RCCs. The findings also seek to add the experience of the significant events of 2007 to inform the operating protocols that will result from the introduction of RCCs.

I am satisfied that the introduction of the RCCs will significantly enhance the service to the public and the response from the Fire and Rescue Service, particularly during periods of peak demand.

A significant matter raised during the review is whether the FRS should have a statutory duty for flood rescue in addition to the legal powers it already has. Whilst this issue, together with that of wider water rescue, has been considered previously, last summer's floods elevated these questions to the forefront. The FRS was inundated with calls from the public for assistance, firefighters worked in hazardous and difficult conditions and the capability of some Fire and Rescue Authorities (FRAs) was stretched to capacity. The report shows, however, that unlike New Dimensions deployment there remains a lack of national interoperability for such deployment.

Even so it is clear that a statutory duty does not, in itself, ensure interoperability and commonality of equipment, training and competence. After listening to a range of views from stakeholders I have considered the matter carefully and concluded that the issue is not one of legislative change but instead one that relies on making available the necessary capability (boats, equipment and training) to enable an effective national response from the FRS.

Any response to flood rescue requires the correct equipment and training to provide a professional and safe response. My review has demonstrated that there are gaps in the provision of resources needed to undertake flood rescue, including protective equipment for firefighters, rescue craft and trained personnel. The FRS needs to know what the planning assumptions should be for national scale floods in addition to the local risks and then it should be able to prepare itself better for what is an inevitability.

My review also touches on national co-ordination arrangements, flood risk information and communications. I make a number of recommendations which I hope will now be considered by all of the relevant stakeholders to enhance the existing capability of the FRS to respond to communities affected by widespread flooding in the future.

I would like to thank those who contributed to my review, in particular the Chief Fire Officers' Association and cross government colleagues. I am also grateful for the dedication and commitment of my team. Finally, I echo the words of the Prime Minister in saying that I am both proud and grateful for the efforts made by the Fire and Rescue Service, both those in the front line and behind the scenes, together with all of those who worked alongside it last summer to assist those so badly affected by the widespread floods.

Yours sincerely

Sir Ken Knight CBE QFSM DL
Chief Fire and Rescue Adviser

CFRA
CHIEF FIRE & RESCUE ADVISER

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Executive summary

Background

During September 2007 the Chief Fire and Rescue Adviser, Sir Ken Knight, was asked by the Secretary of State for Communities and Local Government to carry out a review of the Fire and Rescue Service operational response to the flood related emergencies which occurred during the summer of 2007. The review has been in two distinct phases. The first phase resulted in the circulation of an Emerging Issues report to all FRAs seeking a wider consultation base.

The second stage of the review entailed a much broader consultation with all FRAs and key stakeholders. The Chief Fire and Rescue Adviser (CFRA) wrote to all FRAs and key stakeholders seeking their views on key issues – this included the five FRAs most affected by the flooding together with those less affected but who delivered mutual aid to neighbouring FRAs. All other FRAs were given the opportunity to comment on the key issues. A series of meetings to discuss the issues and concerns was also held between the CFRA team and the most affected FRAs.

Chapter One provides the context of the review, summarising the background to the events, the FRS contribution to the response and outlines the methodology of the review.

Chapter Two considers the current position of control and command, including handling of 999 calls and how the FRS handled the high volume of calls generated during the widespread flooding incidents. It also examines the case for the FiReControl project.

One of the key issues explored during the review was whether there was a need to apply a statutory duty on the FRS for flood rescue. **Chapter Three** examines the current legislative position, the responsibilities of other responders and organisations and an analysis of stakeholders' views and options available for ensuring certainty of responsibility for future flooding events.

The issue of firefighters' equipment, health and safety and training is covered in **Chapter Four** of the report. This looks specifically at the concerns raised by consultees over the inadequacy of the standard Personal Protective Equipment (PPE) during widespread flooding incidents.

Fire and Rescue Authorities expressed concerns about the distribution and clarity of flood risk information issued during an emergency incident. **Chapter Five** deals with the concerns raised and makes recommendations with regard to local risk management, the Fire Service Emergency Cover toolkit and dissemination of good practice in this area.

Evidence submitted to the Chief Fire and Rescue Adviser suggested that there were concerns about national co-ordination and roles and responsibilities during last summer's floods. **Chapter Six** explores these issues and makes recommendations to ensure clarity and certainty.

Chapter Seven considers the role of Category 2 responders to assist in the planning and preparedness for an emergency response and assesses their roles in relation to the FRS in the actual response phase.

Main findings and recommendations


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Main findings and recommendations

The Chief Fire and Rescue Adviser's main recommendations from the review are as follows:

Control and communications recommendations

Recommendation 1:

It is recommended that FRAs consider the following contingency arrangements to avoid the restrictions on call handling that are currently experienced in extreme conditions in the existing fire controls. However, these will need to be balanced in the light of the FiReControl project roll out programme as all of the shortcomings identified are being addressed as an integral part of the proposed Regional Controls. The interoperability of fire controls and the facility to "share" high call rates in addition to the ability to mobilise resources outside their own area will be new and important features of the proposed network of Regional Control Centres:

- Communities and Local Government and CFOA should jointly approach call handling agencies (primarily British Telecom and Cable and Wireless) via the 999 Liaison Committee to put in place a call filtering service which would be available to FRAs for extreme conditions. This facility would require that FRAs instruct the agencies to implement the procedure in order to reduce the demand on their control centres in extreme conditions.
- FRAs should consider the business case for the use of queuing arrangements and automated announcements to be used in exceptional circumstances, thus providing callers with reassuring/intelligent information while the call handling agencies are dealing with other calls. Wording used to callers in such circumstances should be accordance with the Public Electronic Communications Services (PECS) Code of Practice.
- Pending the delivery of the FiReControl Regional Control Centres (RCC) project, FRAs should review their current call handling "buddy arrangements" and consider adding another call centre geographically distant from the FRA that is less likely to be affected by the same severe weather events.
- FRAs should consider whether their current staffing arrangements for their existing fire controls provide sufficient flexibility to increase their capacity during spate conditions.

Recommendation 2:

The Communities and Local Government FiReControl Project will provide a high level of national resilience and interoperability not possible from the existing fire control room arrangements. However, Communities and Local Government will wish to ensure that RCCs are designed to cope with the high volume of calls generated by widespread flooding of the level experienced in 2007 and that the extent of the likely level of flooding is predicated upon planning scenarios that take account of the effect of climate change.

Recommendation 3:

The Communities and Local Government FiReControl Project team should continue its work with the Chief Fire and Rescue Adviser's Unit (CFRAU) and CFOA to ensure that the system will deliver the required command and control protocols for each FRA.

Recommendation 4:

FRAs should review their local media arrangements with other agencies to ensure that all necessary steps are taken to discourage calls relating to non-life threatening situations during similar exceptional circumstances. FRAs should do this as part of their Local Resilience Forum (LRF)/Regional Resilience Forum (RRF) arrangements to ensure that other call handling agencies are also clear in their expectations of the FRS during spate conditions.

Recommendation 5:

Communities and Local Government should liaise with the Home Office to ensure that the lessons learned from the 101 telephone number pilot are shared to reduce the impact of non-emergency calls on the 999 service at times of widespread flooding.

Capability and statutory duty recommendations

Recommendation 6:

Fire and Rescue Authorities (FRA) should identify, through their LRF and with partner local responders, the risk and the FRA capability expected to meet response requirements.

Recommendation 7:

The overriding need for an effective response to flooding by FRAs is to ensure that the appropriate capability exists to provide a national, interoperable response rather than a statutory duty. A statutory duty does not, in itself, ensure the interoperability of equipment, training and competence. It is, therefore, recommended that the appropriate capability is provided to maintain a safe, effective and resilient national response by the FRS.

Recommendation 8:

The Chief Fire Officers' Association (CFOA) guidance for the immediate capability of a flood response is a sound basis for assessing the adequacy of local arrangements through the LRF. However, in the longer term a more resilient and interoperable response is likely to be achieved using the team typing and training standards similar to those being developed by CFOA.

Recommendation 9:

That Defra and the Environment Agency (a Non Departmental Public Body (NDPB) of Defra) should clarify the increased flood risk facing the country through the cross-Government capability programme.

Recommendation 10:

Where Defra, following the LRF Capability Review recommended by Sir Michael Pitt together with the 2008 National Capability Survey, identifies an ongoing gap between local capabilities and the required level of appropriate national response, it should clarify with LRFs, and CLG, how far the FRS should be asked to fill the gap. The FRS could not be expected to increase its national response capability until fully funded to do so, including the ongoing costs.

Recommendation 11:

It is incumbent on Local and Regional Resilience Forums to establish clearly the specific roles carried out by the various responders, recognising the expertise offered by the different organisations in their areas. The RRFs should consider the plans of LRFs in the context of wider area flooding, the co-ordination arrangements to provide an effective response and, in particular, the important role that the FRS can play in supporting the co-ordination of flood rescue.

Equipment, health, safety and training recommendations

Recommendation 12:

Where FRAs provide a response to flooding they must also ensure that personnel are appropriately equipped and trained to meet the duties of the Health and Safety at Work ect. Act 1974 and subordinate legislation.

Recommendation 13:

Use should be made of the work of CFOA's Water Strategy Group in developing a standardised approach and a capability improvement programme within the FRS to meet the flooding risk analysis of Defra.

Recommendation 14:

National guidance should be developed for FRS staff working in major floods.

Recommendation 15:

In the event that firefighting PPE is contaminated it should be treated accordingly, eg removed, bagged and labelled as contaminated clothing requiring specialist cleaning.

Recommendation 16:

Consideration should be given to using national New Dimensions (ND) assets, ie mass decontamination equipment to decontaminate personnel who have been exposed to flood water.

Recommendation 17:

To ensure interoperability of crews a common approach to national inoculations for firefighters deployed in flooded areas should be developed and included in national guidance.

Recommendation 18:

Once completed and agreed the CFOA proposals for multi agency accreditation for inland water rescue training should be referred to the appropriate Government Skills Council for consideration within the skills business network, thus ensuring consistency and accreditation across this area of work both within the FRS and other agencies.

Flood risk information recommendations

Recommendation 19:

The proposed upgrading of the Fire Service Emergency Cover (FSEC) toolkit for major incidents and workload modelling should be brought forward by Communities and Local Government to include flood risk in the light of data that takes into account the potential for weather related incidents and the impact of climate change.

Recommendation 20:

The Chief Fire and Rescue Adviser's Unit should ensure that good practice pre-flood actions are incorporated into appropriate national guidance as part of the actions that should be considered in response to flood warning. This should include consideration as to how information from the Met Office and the Environment Agency could be utilised to create an incremental response for warnings and a requirement for the Communities and Local Government Emergency Room to

co-ordinate a consistent response from the FRS based upon warning levels agreed with the Met Office/Environment Agency.

Recommendation 21:

FRAs should ensure that they have considered the major flooding risks identified in their LRF and RRF plans, including those reported in Community Risk Registers (CRRs) and internal risk registers, as part of their Integrated Risk Management Plan (IRMP) process.

National co-ordination and clarity of roles recommendations

Recommendation 22:

Clarification of the respective roles, expectations and interaction of the Communities and Local Government Emergency Room, Fire and Rescue Service National Co-ordination Centre (FRSNCC) and the FRS Flood Support Team should be communicated to FRAs by CFRAU.

Recommendation 23:

Co-ordination arrangements for widespread flooding should be put in place between the Communities and Local Government Emergency Room and the proposed Defra /EA Situation Room outlined in Interim Conclusion (IC) 48 made by Sir Michael Pitt.

Recommendation 24:

The proposed role of the National Strategic Advisory Team (NSAT) should be developed for non-New Dimension incidents requiring a national response.

Recommendation 25:

The role of FRSNCC should include co-ordinating the overall provision of flood rescue teams and equipment in addition to New Dimensions' assets and include the work of the FRS Flood Support Team (FST) as a "cell" of its mobilising remit pending the role out of the FiReControl Project.

Recommendation 26:

Consideration should be given to the practical benefits of extending the role of the FRSNCC to other non-New Dimensions' assets pending the roll-out of the FiReControl Project.

Recommendation 27:

Conclusions are required as to how the function of the FRSNCC is undertaken following the roll-out of the FiReControl Project.

Category 2 responders' recommendations

Recommendation 28:

That the role of category 2 responders in all six phases of integrated emergency management (anticipation, assessment, prevention, preparation, response and recovery management) should be strengthened. The following points should be considered by the Cabinet Office in particular:

- How to ensure that category 2 responders are properly and consistently represented on Local and Regional Resilience Forums.
- How working relationships between category 1 and category 2 responders can be enhanced.

Chapter One
Background

Chapter One
Background

1 Two nationally significant flooding events occurred during June and July 2007 as a result of high levels of rainfall across the country. Thousands of people, homes and businesses were affected by the floods, with many still in recovery after the rising waters had long since subsided. There was a significant impact on the critical local infrastructure and a number of essential utilities were threatened by the unprecedented levels of rainfall.

2 Many Fire and Rescue Authority (FRA) areas were affected including South Yorkshire, Lincolnshire, Hereford and Worcester, West Yorkshire, Derbyshire, Nottinghamshire, Humberside, Gloucestershire, Warwickshire, Royal Berkshire, Shropshire, London, Oxfordshire and the West Midlands. Resources in many of these areas were stretched to capacity even when supplemented by other FRAs and responders.

3 The Chief Fire and Rescue Adviser (CFRA), Sir Ken Knight, has undertaken a review into the Fire and Rescue Service (FRS) response to the major floods of 2007. This review concentrates on the operational lessons learnt during the incidents. The terms of reference for the review were published in FRS Circular 40/2007 and are included at Appendix 1 of this report. The review focuses on the role of the FRS during national flooding incidents. It also touches on the FRS response to a range of other water rescue incidents but does not cover this issue comprehensively as these are considered to be local issues that should be addressed through each FRA's integrated risk management planning (IRMP) process.

4 The review took place in two distinct phases. The first phase of the review involved gathering information and viewpoints from five FRAs particularly affected by the summer floods. This information was used to draw together a list of emerging issues for further exploration during phase two and to consider whether any immediate operational changes were needed. The Chief Fire and Rescue Adviser concluded that no immediate operational changes were necessary but that there were six major issues to be scrutinised during phase two of his review. These were:

- the provision and suitability of personal protection equipment and other resources used to respond to incidents of this type
- whether a statutory duty for flooding for the FRS is needed
- the clarification and communication of national co-ordination arrangements

- the forecasting of flooding using Meteorological Office and Environment Agency information
- the mobilising challenges presented
- the role of Category 2[1] responders.

5 The CFRA's emerging issues report was sent to all FRAs in England and to other stakeholders during October 2007. Respondents agreed that the six issues highlighted at paragraph 4 were those that needed further consideration. FRAs also submitted views on lessons that needed to be learnt in light of the flooding events. Respondents also suggested additional issues for exploration during phase two of the review and a number of these have been included in this report.

6 An independent review, led by Sir Michael Pitt and the Cabinet Office, is looking at all aspects of the summer floods including its wider effects on society, flood prediction and prevention and the response to the floods. The CFRA's emerging issues review of the flooding was submitted to Sir Michael Pitt in October and this final report will be considered by the Pitt Review as part of the final conclusions and recommendations to be reached in summer 2008.

7 Sir Michael Pitt published his interim report on 17 December 2007. He made some urgent recommendations and drew some interim conclusions. The findings of this report concur with the interim findings of the Pitt review in several areas. Both reviews identified the necessity for improvement in the response of some Category 2 responders and both have identified difficulties in the forecast information supplied by the Meteorological Office and Environment Agency. Regarding the emergency services response, Sir Michael Pitt noted that there was *"some ambiguity as to which organisations have responsibilities for flood rescue."* He also felt that consideration should be given to the provision of resources specifically required to undertake flood rescue, including personal protective equipment, pumping appliances, rescue craft and trained personnel. Sir Michael reported that he would consider the CFRA's report and return to flood rescue in his final report. This report, therefore, offers views on the adequacy of arrangements and resources in the summer and where the FRS needs clarity to understand the level of flooding it is expected to plan for.

1 Category 1 Responders are subject to the full range of civil protection duties in the Civil Contingencies Act 2004 and are the bodies that are likely to be at the core of the response to most emergencies and are subject to the full range of civil protection duties in the Civil Contingencies Act 2004. Examples of Category 1 responders include the emergency services and local authorities. Category 2 Responders are co-operating responders who are less likely to be involved in the heart of multi-agency planning work but will be heavily involved in preparing for incidents affecting their sectors. Examples of Category 2 responders include utilities and transport companies, *Definition of Category 2 Responders from Part 3 of Schedule 1 of Civil Contingencies Act 2004.*

8 This report includes the findings from phase two of the review together with recommendations for Government, FRAs and other stakeholders.

Review methodology

9 During the initial phase of the review the review team visited five of the main FRAs affected by the floods and examined a range of documents relating to the flooding events over the summer as well as previous work undertaken in this area. The results of the review were circulated to FRAs and other stakeholders in an emerging issues report.

10 Comments were invited from FRAs and other stakeholders particularly around the six main issues that the CFRA had identified as needing further consideration. Twenty two organisations responded to the CFRA and their views were compiled and analysed by the review team. Replies were received from 13 FRAs, the LGA, CFOA, trades unions and a number of other stakeholders including equipment suppliers to the FRS. A full list can be found at Appendix 2.

11 The CFRA and the review team also arranged meetings with and gave presentations to a range of internal and external stakeholders including:

- All-Party Parliamentary Fire Safety and Rescue Group
- British Telecom
- Cabinet Office
- Chief Fire Officers' Association
- Department for the Environment, Food and Rural Affairs
- Emergency Services Show
- Environment Agency
- Fire Brigades Union
- Firebuy
- FiReControl
- Government Office for Yorkshire and Humberside
- Local Government Association
- Meteorological Office
- Communities and Local Government Fire and Resilience Directorate
- Retained Firefighters Union
- Sir Michael Pitt's team.

12 The review team examined a range of documents including incident debriefs, reviews conducted by other organisations, and work done in the past regarding the FRS role in responding to flooding incidents. A full list of the documents reviewed can be found at Appendix 3.

13 A summary of the costs of the FRS response to the widespread flooding in 2007 is shown at Appendix 4.

Summary of events

14 Although some flooding occurred as early as 15 June 2007, the severe weather started to have a widespread and prolonged impact from 25 June with large areas of South Yorkshire, Humberside and Lincolnshire suffering the most damage. The floods led to a concerted effort by many FRAs to respond to multiple rescues and large scale pumping through to 5 July. During this period 12 FRAs reported flooding that required one or more high volume pumps (HVPs),[2] leading to a maximum deployment at one time of 36 from a national fleet of 50 HVPs. This involved the assistance of 34 FRAs in England and Wales. Perhaps the most critical work in the June floods was carried out at Ulley Dam, South Yorkshire, where a prolonged pumping operation using HVPs was needed to relieve the pressure of the reservoir retaining embankment.

15 The floods recurred on 20 July and large parts of the Midlands were under water for several days with FRS operations continuing until 24 July. A maximum of 40 HVPs were deployed during this period from 35 assisting FRAs. HVPs were used to protect critical local infrastructure at various locations including Mythe Water Treatment Works and the Walham and Castlemead electrical sub stations in Gloucestershire.

16 Some FRAs expanded the scope of their work to include providing reassurance and general assistance to their communities and there were good examples of mutual aid between services in this wider community engagement work. Wherever this work was carried out it has been highly praised by local politicians and the wider community. The FRS carried out rescue and removal

2 A New Dimension Group was established following the terrorist attack on the World Trade Centre, New York on 11 September 2001 to evaluate FRS capabilities and to make recommendations to ensure that the service is sufficiently trained and equipped to deal with major chemical, biological, radiological, nuclear and conventional terrorist incidents on a national scale and that appropriate resilience mechanisms are in place to minimise risk and ensure an effective and sustained response. Additional equipment including High Volume Pumps (HVPs), together with training, were provided by the Government as part of the New Dimension Programme. HVPs are provided to FRAs by Communities and Local Government on a strategic basis and available for national deployment through mutual aid arrangements with all FRAs. Other vehicles/equipment provided are Incident Response Units (IRU), Mass Decontamination Units, Urban Search and Rescue teams and ancillary equipment.

operations of people who were either trapped or who needed removal to a safer place. Major pumping operations of flood water from large numbers of premises were also carried out.

17 Whilst there is no total figure available for the number of flood related calls received nationally, many FRA emergency control rooms were stretched beyond their capacity by the volume of calls. For example, Humberside Fire and Rescue Service (HFRS) received a total of 3,054 calls in an 18 hour period on the 25 June 2007 compared to their usual call volume of around 56 for the same period. The interoperability of fire controls and the facility to "share" high call rates in addition to the ability to mobilise resources outside their own area will be new and important features of the proposed Regional Control Centres. A chronology of events at the five worst affected FRAs is shown at Appendix 5.

Issues arising from the operational response by the Fire and Rescue Service

18 Responses to the CFRA's emerging issues report were compiled and analysed by the review team. The CFRA reviewed the results and determined that the six main themes in his initial review were the correct ones to consider during phase two but that some needed a broader focus:

- Three aspects to the mobilising challenges were presented. Whether emergency call handling would be enhanced by the Regional Fire Control Project, secondly ensuring that lessons learnt from the flooding events were considered as part of the FiReControl project and thirdly the need for cost-effective improvements to be made during the interim period to existing emergency call handling arrangements
- Whether the FRS has sufficient capability to respond to national flooding incidents and whether a statutory duty would enhance the capability
- The provision and suitability of Personal Protective Equipment (PPE) and other resources needed to be considered in light of the recommendations around a FRS capability for flooding. Health, safety, training and development requirements would also need to be considered as part of this issue
- Forecasting of flooding using Meteorological Office and Environment Agency information was too narrow a description for some of the risk analysis issues that had been raised during further discussions with stakeholders and this issue should be included within the broader heading of flood risk information

- The role of the CFRA's Unit in clarifying and communicating the respective roles and responsibilities in national co-ordination arrangements will be important and the plans for a National Strategic Advisory Team (NSAT) to provide a national strategic resource for a range of emergencies will need to reflect this
- The role of Category 2 responders was outside of the original scope of this review but the views reflected by stakeholders would need to be considered by the Cabinet Office and Sir Michael Pitt's final report
- It was also felt that a number of other issues raised by stakeholders, such as broader health and welfare arrangements and communication with the media, should be incorporated within the six main themes.

19 The body of this report has been structured under the six main themes. These are:

- Control and communications
- Capability and statutory duty
- Equipment, health, safety and training
- Flood risk information
- National co-ordination and clarity of roles
- Category 2 responders.

Chapter Two Control and communications


EMERGENCY
PLANNING

Chapter Two
Control and communications

999 calls and control rooms

20 Call handling and mobilising were significant issues during the summer floods, both for FRAs affected directly by flooding and also for those that did not suffer flooding directly but whose emergency fire control rooms assisted in dealing with the enormous volume of calls. The evidence suggests that during the worst of the summer floods the number of calls received temporarily hampered operational effectiveness. The ability to maintain a core response to other incidents was compromised in some FRAs in the early stages. For example, the service providers attempted to route 72,000 calls to one FRA fire control in a 24 hour period. This control room was unable to manage this volume and calls were re-routed to other FRAs some distance away.
At present re-routed calls can only be redirected back to the FRA experiencing the overload, so in effect the call is handled twice and the overload is compounded.

21 As a result of the difficulties in connection from re-routed calls, many 999 calls were sent to FRA control rooms by a variety of methods including fax and email. Many of the controls to which the calls were redirected were themselves struggling to cope.

22 Operators and managers in the 46 FRA control rooms worked incredibly hard in exacting circumstances but as they work with differing technologies and procedures their capacity for dealing with spate conditions varied accordingly. In their responses to the CFRA, FRAs agreed that it would be appropriate if the findings from this review were used to inform the FiReControl project to ensure that the future arrangements are better able to cope with mobilising in spate conditions.

23 On a connected issue some responders expressed concerns over how they will maintain control of their resources in spate conditions once the mobilising is undertaken from a Regional Control Centre (RCC). These concerns were based upon their experience in the floods. Demand deemed it necessary to hold some resources back in order to maintain a core response for fires and other emergencies. Some respondents wanted reassurance that they would be able to manage their resources in this way once mobilising was carried out from a RCC outside their own FRA area.

24 At the peak of calls there were significant effects on the 999 system at service provider level and this had a knock-on effect on other emergency services. The ability of British Telecom (BT) to handle the number of calls in severe flooding events was questioned by some FRAs consulted during the initial review. Further research into this area suggests that the significant difficulties experienced by BT during the floods were actually caused by the restrictions in capacity in individual FRA control rooms rather than by any inherent failings in the BT systems. Evidence provided by BT suggests how improvements could be made to existing FRA's control rooms to have a significant effect on the efficiency with which calls are handled by them in spate conditions.

25 BT handles 80 per cent of emergency calls made in the UK. Cable & Wireless handles almost 20 per cent of calls with a very small proportion dealt with by Kingston Communications (KCom) based in Hull. To ensure the resilience of its infrastructure BT has five call centres distributed geographically throughout the UK. It also has three switching centres to connect to the five call centres so that the network has different configurations, thereby enhancing the system's resilience. In general 999 calls go to the nearest centre but they can be re-directed to any other centre in the country.

26 In normal circumstances BT's call handling time averages at 40 seconds. On 20 July 2007, for a two hour period, call handling time increased to three minutes. BT's normal connections to FRAs would be approximately 180 calls per hour but it was increased to 2,700 calls per hour at its peak on that day. BT largely attributes this huge increase in demand to the number of calls received in London. FRS data indicates that many FRAs in the south of England experienced very high levels of calls. Whilst the London floods were not as severe as those experienced elsewhere a combination of its population density and the resultant effects that the floods caused to London's infrastructure would probably account for the seemingly disproportionate number of calls that were generated.

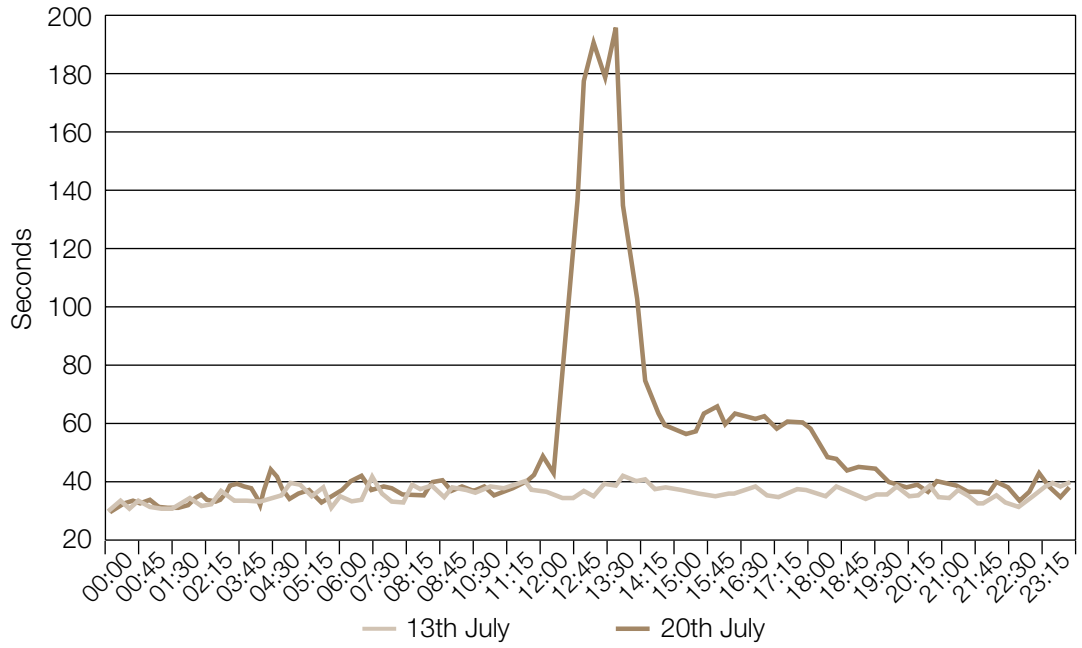
27 At its peak this meant that BT was trying to connect these calls to the respective FRAs who, given the limitation of the number of operators in each control and the relatively small number of available mobilising workstations, were unable to accept them. This, in turn, affected BT's ability to answer other calls as they are unable to terminate a 999 call until the caller is connected. The existing 46 FRA control rooms are not networked so any overspill of calls is dealt with by implementing "buddy" arrangements between other control rooms or other emergency services. BT initially tried to connect FRS calls using the pre-determined buddy arrangements to the nominated FRA control buddy but in some cases the localised nature of the severe weather dictated that the nominated buddy was also affected by floods and unable to accept the calls.

28 BT indicated that in some cases FRAs were asking them to wait five minutes and hold the call. This also caused BT a difficulty in that it tied up the 999 operator who was not available to take a new call, thus exacerbating the problem. BT's evidence is that, although the affected FRA s had pre-determined buddy arrangements, they had less robust contingencies for dealing with calls if the neighbouring service was also affected.

29 BT has systems and procedures in place to anticipate events that may impact upon the volume of 999 calls they are likely to receive. This includes the monitoring of EA and Met Office information so it can increase the number of available 999 call handlers in anticipation of calls increasing due to severe weather events. They did this in both the June and July floods.

30 BT states that, in terms of its capacity, the call volumes were manageable but the increased handling times were due to a lack of FRS capacity. For BT the July floods were the third highest impact event of the year. They initially experienced storms in January in the north west of England and also dealt with the floods in June in South Yorkshire and Humberside when their workload was increased by up to 80 per cent. In the July floods BT's 999 workload was increased by 360 per cent.

999 call handling and connection time



This graph shows average figures for all 999 calls on 13 and 20 July 2007. The police and ambulance services experienced normal call volumes so the increased handling time for FRS calls will have been greater than shown.
Source: British Telecom, 2007

31 BT has proposed procedures that could be adopted to mitigate the effects of the current restrictions in FRS capacity and to assist controls in coping with the volume of calls in spate conditions. In order to avoid an unnecessary or low priority call reaching FRA control rooms in the first instance, call handling agencies could consider the use of a filtering phrase to reduce call demand in exceptional circumstances. If it is a fire or other emergency the call would be put through but if it is in relation to flooding the operator could ask whether the caller was in immediate danger. BT's experience suggests that where callers are made to realise how busy the emergency services are, many will choose not to continue the call if there is no immediate risk to life. However emergency calls are handled, extreme volumes of calls will cause delays unless prioritised.

32 Any changes to the handling of calls during spate conditions would need to be supported by raising public awareness as to why this was being done. Sir Michael Pitt's report states that:

"Local media activity also worked well in other respects. The Review notes the value of a 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. 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. The interim conclusion of the Review is that council leaders and chief executives 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."

33 There are already provisions for call queuing in the current Public Emergency Call Service (PECS) Code of Practice but these are not generally adopted by FRAs in the existing control rooms. BT feels that it would help 999 operators and callers if the FRA could queue calls. BT could then connect the caller to the FRA and move on to the next call, thereby reducing the risk of a critical emergency call not being answered. Some of the larger FRA control rooms already use this facility. Once calls are connected and placed in a queue an automated announcement during periods of extreme demand could be used. This would allow the 999 call handler to leave callers with reassuring and intelligent information while taking another call. Such arrangements had been in use for more than 15 years in the London Police and Ambulance services. BT stress that the message should be consistent and should activate after a specific time (it would only be heard if there was a delay in answering). There could be a flexible element to the message to allow for local problems to be announced at specific times but this could only happen where technology allowed such announcements to be made quickly and programmed on to systems.

34 Issues relating to the handling of emergency calls are dealt with by the 999 Liaison Committee, whose members sign its code of practice. The 999 Liaison Committee brings together the Home Office and Department of Health, the Emergency Services (police, fire, ambulance and coastguard), the call handling agents (BT, Cable & Wireless and Kingston Communications) and the Public Network Operators (fixed and mobile). It is chaired by Communities and Local Government and provides a forum for the emergency services and the Public Telecommunication Operators to discuss matters arising from the provision of the 999 emergency call service.

35 It is recognised that the failure to filter calls could lead to fewer calls being answered in a reasonable time which could present a much greater risk. The call handling agencies would welcome a discussion with the emergency services on how this situation can be avoided in the future.

36 Some fire controls initially mobilised a response to all of the early calls they received and, as a result of this, capability to provide a core service for fire or other rescues was not maintained until later in the incident when some resources were withdrawn. FRA control rooms faced difficult decisions in these situations and there was one example where holding resources back was reported to have proved unpopular with the community. FRAs were under immense local pressure to use all available resources even though this could be at the expense of resilience and core capability. Some FRAs felt in their response that there could be pre-planned responses to wide area flooding that would include strategies to inform the public of the aims, considerations and capabilities of the FRS and better use of mutual aid to maintain core capabilities during the initial phases of floods.

37 There is currently a wide disparity in the technology available in FRS control rooms in England. For example:

- Mobile data capability is available in some form in 27 out of the 46 FRAs and two of them use it for dynamic mobilising in the way envisaged by the new Regional Control Centres (RCC). A further nine have the capacity to mobilise using Mobile Data Terminals but not in the same way
- Caller identification is currently in service in 18 of the 46 control rooms, ten of which can locate callers from mobile phones
- There is no capability to share workload between existing controls when large incidents occur or during other busy periods
- There is no national capability to mobilise the nearest appropriate resource regardless of ownership.

38 Although the technical issues governing mobilising arrangements when a high volume of calls are received in a short time need to be considered, some responders thought that there is also a need to consider how to manage the public expectation of what the FRS can do in times of extreme weather. Sir Michael Pitt's report states that:

"… telephone contact with the authorities was a key source of information for many during the flooding emergencies, particularly those directly affected. But many people commented that they were passed from organisation to organisation when seeking advice. In some instances the publicising of several different telephone lines left people confused about which one to ring. In addition there were instances of 999 calls being made when, for example, a garden or unoccupied vehicle had been affected by flooding. Although clearly distressing to the individuals affected, these kinds of events are not considered emergency situations by the police, fire and rescue services and this contributed to the pressure on emergency call centres during the events of June and July."

39 Thousands of calls were received for domestic properties and flooded gardens at a time when the FRS could give no practical help and had nowhere to pump the water. These calls were part of the huge volume that temporarily overwhelmed the 999 system with knock-on effects on other emergency services. There were examples of temporary difficulties in maintaining a viable service in case of fires, road traffic collisions or to provide assistance to the vulnerable or those in dire need as a result of flooding. Some felt that, once severe weather warnings are given, the public expectation of the FRS must be managed as part of a communications strategy.

40 Evidence was provided by some FRAs of their determined effort to deal with the backlog of calls, often over a period of several days. This often involved using support staff and officers in contacting the caller and either advising them that they were unable to assist at present or using the information obtained to prioritise the calls and deploy resources appropriately.

41 In South Yorkshire, effective use was made of the 101 Non-Emergency Telephone Number being piloted in the area. In doing so the 101 Service provided a simple means for the public to access non-emergency services and provide information, co-ordination and response. The use of 101 in this way significantly relieved pressure on the 999 emergency call handling arrangements.

42 In the recent Review of Policing (published 7 February 2008) Sir Ronnie Flanagan, HM Chief Inspector of Constabulary, recommended that the Home Office and Communities and Local Government should learn from the 101 programme and ensure lessons are learned and these are shared with all community safety partners and mainstreamed into local operations. The experience of the use of the 101 service during the widespread flooding in Sheffield demonstrates the considerable advantages that could be available from the use of the system.

Current position

43 The existing 46 control rooms provided by FRAs offer no interoperability or resilience for one area suffering spate conditions. The differing technology and general lack of flexible staffing models put huge pressure on the local fire control that has the sole ability to receive emergency calls and mobilise resources in the area. This in turn causes a backlog of calls waiting in the 999 system. The FiReControl project will address these issues and it is part of the fire resilience programme which is being led by Communities and Local Government and comprises three major projects:

- FiReControl will deliver a network of nine regionally based control centres for England (instead of the current 46) operated from purpose-built accommodation and equipped with modern technology. FiReControl will make full use of the capabilities offered by Firelink and will provide the necessary capabilities to ensure effective use of New Dimension assets
- Firelink will deliver a national digital radio network for the FRS in England, Scotland and Wales capable of interoperation with all FRAs and other emergency services
- The New Dimensions programme is delivering special purpose vehicles and equipment to the FRS in England and Wales together with the necessary command and support arrangements to tackle major incidents including the HVPs which were used to great effect during the floods.

44 There are significant dependencies between these three projects, in particular between FiReControl and Firelink. Arrangements are in place to manage these dependencies, for example an Operational Interface Group between FiReControl, Firelink and New Dimensions and also programme management structures. The FiReControl project also has interfaces with a number of other projects, eg e-Fire, Incident Reporting System.

45 FiReControl is a significant national project which will enhance resilience including capacity for call handling. The objective of the FiReControl project is to deliver a network of nine regionally based emergency fire control centres in new purpose-built accommodation and equipped with modern technology. The project aims to deliver the following which would overcome many of the difficulties reported in the summer floods:

- The ability to divert calls dynamically between regional control centres, based on the numbers of operators available which, compared with current arrangements, will allow greater ability to use control centre capacity nationally to meet extremes of operational demand placed on the service (arising, for example, from major incidents or high volumes of calls), thereby delivering an improved service to the public
- Sharing of incident and resource management information across all centres, meaning that operators will be better able to handle a call from another region and eliminating the need for manual procedures (such as faxing) to return call information to the "home" control
- Ability to mobilise the nearest asset from another RCC using data transmission rather than voice messages
- Increased levels of security and resilience in terms of buildings and technology to ensure continuity of service in case of major incidents, national response requirements or failures of systems
- The FiReControl project will also provide enhanced capability ensuring all FRS staff have access to the best supporting infrastructure. FiReControl will bring all FRAs up to the standard of the best current controls by providing the following features:
  - the caller location of a member of the public calling by telephone for help (whether mobile or landline) will be identified automatically
  - satellite positioning will tell the control operator which fire appliances, with the appropriate equipment has the shortest travel time to the incident
  - firefighters mobilised to the incident will have mobile data terminals on their vehicles. These will be updated, giving them a wide range of information in a standard format including mapping and incident data.
- Economies of scale in call-handling and incident management to bring efficiency across the whole service up to the levels achieved by the largest FRS control rooms while still meeting or exceeding current performance levels.

46 The FiReControl project team was consulted as part of the review process and it is satisfied that suitable protocols are being designed to allow flexibility in how or whether a remote RCC that has automatically picked up an overspill call mobilises another FRA's resources. The project team is conscious of the need to create an information flow from the RCC to its FRA to ensure that the FRA has information on demand so that local resources could be managed dynamically. Consideration was given to some stakeholder concerns that "Command and Control" decisions including Gold Command arrangements would no longer be part of the local FRA when RCC became operational. Examination of the project and discussions with key stakeholders confirmed that the concern is unfounded in that, whilst call handling and mobilising will be a key remit of the RCC, Command and Control decisions will remain at a local and strategic level within each FRA.

Stakeholders' views

47 Most FRAs responding to the CFRA's initial review sought reassurance that the issues arising from handling calls and mobilising in spate conditions would be fed into the FiReControl project. Whilst most stakeholders accepted that the FiReControl network would bring increased capacity to handle calls, CFOA and other stakeholders have indicated their wish for reassurance that the Regional Control Centres are designed to cope better with the volume of calls generated by wide area flooding and that the extent of the likely level of flooding be predicated upon planning scenarios that take account of the effects of global warming. Another concern expressed by many stakeholders in relation to the FiReControl project is that an FRA's resources may be deployed by a remote networked RCC without the FRA being able to maintain control of its own resources.

48 During the consultation for the initial report Gloucestershire FRA reported that having Gold Command bases close to the local mobilising centre had significant operational benefits and was concerned about how this would work once the RCC was in place.

49 The Gold Command arrangements within each FRA will remain unchanged. The co-location of Gold Command and the emergency call handling centres of respective emergency services is not an essential aspect of Gold Command co-ordination which is demonstrated in a large number of emergency services. The issue of providing an information flow from the RCC to and from command teams has been raised by other stakeholders and has always been part of the concept of operations and importantly separates mobilising from command and control. The rationale for FiReControl is in part the need to handle spate conditions and this has always been built into the system design. The floods have provided the FiReControl project with some helpful data to model the system's expectations to cope better with spate conditions than the existing arrangements.

Control and communications recommendations

RECOMMENDATION 1

It is recommended that FRAs consider the following contingency arrangements to avoid the restrictions on call handling that are currently experienced in extreme conditions in the existing fire controls. However, these will need to be balanced in the light of the FiReControl project roll out programme as all of the shortcomings identified are being addressed as an integral part of the proposed Regional Controls. The interoperability of fire controls and the facility to "share" high call rates in addition to the ability to mobilise resources outside their own area will be new and important features of the proposed network of Regional Control Centres:

- Communities and Local Government and CFOA should jointly approach call handling agencies (primarily British Telecom and Cable and Wireless) via the 999 Liaison Committee to put in place a call filtering service which would be available to FRAs for extreme conditions. This facility would require that FRAs instruct the agencies to implement the procedure in order to reduce the demand on their control centres in extreme conditions.
- FRAs should consider the business case for the use of queuing arrangements and automated announcements to be used in exceptional circumstances, thus providing callers with reassuring/intelligent information while the call handling agencies are dealing with other calls. Wording used to callers in such circumstances should be accordance with the Public Electronic Communications Services (PECS) Code of Practice.
- Pending the delivery of the FiReControl Regional Control Centres (RCC) project FRAs should review their current call handling "buddy arrangements" and consider adding another call centre geographically distant from the FRA that is less likely to be affected by the same severe weather events.
- FRAs should consider whether their current staffing arrangements for their existing fire controls provide sufficient flexibility to increase their capacity during spate conditions.

RECOMMENDATION 2

The Communities and Local Government FiReControl Project will provide a high level of national resilience and interoperability not possible from the existing fire control room arrangements. However, Communities and Local Government will wish to ensure that RCCs are designed to cope with the high volume of calls generated by wide area flooding of the level experienced in 2007 and that the extent of the likely level of flooding is predicated upon planning scenarios that take account of the effect of climate change.

RECOMMENDATION 3

The Communities and Local Government FiReControl Project team should continue its work with the Chief Fire and Rescue Adviser's Unit (CFRAU) and CFOA to ensure that the system will deliver the required command and control protocols for each FRA.

RECOMMENDATION 4

FRAs should review their local media arrangements with other agencies to ensure that all necessary steps are taken to discourage calls relating to non-life threatening situations during similar exceptional circumstances. FRAs should do this as part of their LRF/RRF arrangements to ensure that other call handling agencies are also clear in their expectations of the FRS during spate conditions.

RECOMMENDATION 5

Communities and Local Government should liaise with the Home Office to ensure that the lessons learned from the 101 telephone number pilot are shared to reduce the impact of non-emergency calls on the 999 service at times of widespread flooding.

Chapter Three Capability and statutory duty

Chapter Three
Capability and statutory duty

Context

50 FRAs do not have a specific duty to respond to inland water rescues under either the Fire and Rescue Services Act 2004 or the Civil Contingencies Act 2004. This applies to all water emergencies whether caused by flooding or other activities. FRAs do, however, have a duty to respond to fires on inland waters.

51 In considering the legislative background it is recognised that the Fire Services Act 1947 did not provide a Fire Authority with either a duty or a power to purchase equipment for other than firefighting purposes.

52 The Fire Services Act 2004, however, provides a wider definition of both the statutory duties and powers for the FRS to provide a greater range of services. In particular Section 11 of the Act states that:

(1) A fire and rescue authority may take any action it considers appropriate:

(a) in response to an event or situation of a kind mentioned in subsection (2);

(b) for the purpose of enabling action to be taken in response to such an event or situation.

(2) The event or situation is one that causes or is likely to cause:

(a) one or more individuals to die, be injured or become ill;

(b) harm to the environment (including the life and health of plants and animals).

(3) The power conferred by subsection (1) includes power to secure the provision of equipment.

(4) The power conferred by subsection (1) may be exercised by an authority outside as well as within the authority's area.

53 The new powers included in the Fire Services Act 2004 were further enhanced by the introduction of the Fire and Rescue Service National Framework which placed new responsibilities on FRAs and the required local determination by FRAs of risk and capability through the Integrated Risk Management Planning

process. The Fire and Rescue Services Act 2004, therefore, gives an FRA the power to take action it considers appropriate in the event of flooding.

54 Some stakeholders want clarity on the issue of whether a statutory duty for flood rescue is appropriate for them. This topic was discussed in detail during interviews with some of the FRAs most affected by the floods and in responses received from other FRAs, CFOA, the Local Government Association and other stakeholders. The primary concern expressed was the need for enhanced capability (resources) to respond to flooding incidents and the statutory duty issue was often explored in terms of whether it would lead to such an enhancement or not. The majority of FRAs felt that public demands and expectations of them to respond to wide scale flooding incidents currently exceed their capabilities.

55 In his interim report Sir Michael Pitt concluded that:

"The fire and rescue services have no explicit statutory duties for flood rescue. Similarly, although the Maritime and Coastguard Agency is a Category 1 responder for casualties at sea, on the coast and in estuaries, and the RNLI has a statutory duty on the Thames, neither organisation has a legal responsibility for flood rescue. However, both organisations played an active role in the response to the summer 2007 floods and deployed crews to assist the local response in a number of the affected areas.

The Review considers that this perceived ambiguity should be addressed; although that does not mean that a specific statutory duty is necessarily the appropriate solution, particularly given the range of organisations with experience and expertise in this area. The issue to be considered is the provision of resources needed specifically to undertake flood rescue, including personal protective equipment, pumps, rescue craft and, especially, trained personnel.

The Review is aware that Communities and Local Government is considering flood rescue as part of the review it is undertaking into the Fire and Rescue Service's response in the summer. The Review will consider Communities and Local Government's report in due course and will return to flood rescue in the final report. In doing so, it will also examine whether there would be advantages in establishing a single search and rescue emergency response co-ordinating authority for land-based emergencies, rather than the present system co-ordinated by the Ministry of Defence, the Maritime and Coastguard Agency and the police."

56 The CFRA's review of the FRS response to the floods seeks, therefore, to identify an appropriate solution to the perceived ambiguity surrounding the statutory duty position identified in the initial findings of the Pitt Review. The legislative position is different in Scotland following the introduction of the Additional Functions Order 2005, in that the police fulfil the co-ordinating role

whilst FRAs have a statutory duty to rescue people trapped or likely to become trapped in the event of serious flooding in its area. There is no statutory duty placed upon Scottish FRAs to undertake water rescue in non flooding situations.

57 It is understood that further consideration is being given in Scotland to the roles and responsibilities of the FRS regarding water rescue and capability. It should be noted that, notwithstanding the statutory duty placed on Scottish FRAs, no significant additional resources have been provided to enhance the capability.

Current position

58 Notwithstanding the legislative position, FRAs have traditionally assisted the community during flooding by removing water using conventional firefighting pumps. This capability has now been significantly enhanced by the provision of High Volume Pumps (HVPs) in strategic locations throughout England and Wales. The HVPs were provided by the Government as part of the New Dimensions programme and proved themselves invaluable in the summer by virtue of their role in protecting critical local infrastructure in various locations.

59 FRAs do have duties under Part One of the Civil Contingencies Act 2004. They have a duty to act as a Category 1 responder in planning for emergencies and are required by the Act to co-operate with other responders via their Local Resilience Forum (LRF). In that capacity FRAs have a shared duty for:

- Risk assessment
- Business continuity management (BCM)
- Emergency planning, and
- Maintaining public awareness and arrangements to warn, inform and advise the public.

60 It does not follow that a duty to risk assess and create emergency plans translates into a legal responsibility to respond to flood rescues as outlined in Sir Michael Pitt's interim review. Government guidance, however, contained in Emergency Preparedness (paragraph 1.24) states that:

- *The Act requires Category 1 responders to take up their civil protection duties by reference to their functions.*
- *Functions are defined as any power or duty whether conferred by virtue of an enactment or otherwise.*
- *The reference covers statutory powers and duties, as well as common law powers.*

61 In effect, the Category 1 responders' duties under the Act are confined to those for which they already have a function by virtue of a statutory power or duty. Guidance was sought to clarify the relationship between section 11 of the Fire and Rescue Services Act 2004 and duties imposed by the Civil Contingencies Act 2004 and the view remains that the Civil Contingencies Act 2004 does not impose a duty upon the FRAs to provide a rescue response for flood rescue.

62 Despite having no statutory duty many FRAs make provision for isolated water rescue incidents and local flooding incidents. Procurement of equipment by individual FRAs for floods has been undertaken under the discretionary power provided by Section 11 of the Fire and Rescue Services Act 2004. This is a reasonable position to have taken following the introduction of integrated risk management planning in 2003[3] to ensure that FRAs better address local risks. However, current capability for rescuing people from floods varies between FRAs and the only figures available are from a survey carried out as part of the New Dimensions Programme that is now some 18 months old. This survey found that from 49 English and Welsh FRAs surveyed;

- Forty-one had a water rescue team and an estimated 22 of these would achieve a team typed[4] technician team
- Thirty-two had a powered boat capability, with some FRAs having more than one craft available. Of 32 FRAs eight would achieve a team typed boat team. This was predominantly because training levels or the boat specification failed to meet the draft CFOA Inland Water Technical Group's proposed standards. At the time of writing these draft standards have been referred to CFOA's Inland Water Strategy Group (IWSG) for consideration and consultation through the Practitioners Forum. The intention of CFOA is that they lead to the creation of nationally agreed benchmarks for training and equipment specifications for this area of FRS operational deployment.

63 The CFOA report *Management of Major Flood Events – FRS Contribution to the Emergency Phase,* published on 21 November 2006, suggested that previous discussions around a potential future FRS statutory duty for responding to major flood events had led some FRAs to delay investing locally in inland water safety equipment and training.

3 Integrated Risk Management Plans are in place in each FRA as a requirement arising from the Government's National Framework introduced in April 2003.

4 Team typing is the Chief Fire Officers' Association proposed accreditation method designed to ensure inter-operability of flood rescue teams. The Cabinet Office's Concept of Operations document includes Guidance note no. NSE 141 Planning for Major Water and Waste water incidents in England and Wales – Section 10/1 *Defra acts as lead Government Department in water and sewerage related incidents.*

Responsibilities of other organisations

64 There are other key organisations with relative capability that are engaged in response such as the Royal National Lifeboat Institution and HM Coastguard, together with local smaller responders, whilst the Police Service has a broad duty to co-ordinate all emergencies including any emergency response for incidents on inland waters. As noted in Sir Michael Pitt's initial report, both the Maritime and Coastguard Agency (MCA) and the RNLI worked alongside the FRS and played an active role in the response to the 2007 floods and deployed personnel in a number of the affected areas.

65 The Department for Environment, Food and Rural Affairs (Defra) holds the Government policy responsibility for flood and coastal erosion risk management in England[5]. It also has the lead role for flood emergencies. The Defra plan sets out the co-ordination arrangements at local, regional and national levels for flooding from rivers or the sea. Defra has no delivery function in relation to flooding.

66 The Environment Agency (EA) is the principal flood risk management operating authority but does not have a statutory duty to manage flood risk from designated main rivers and the sea. The EA does have a statutory power to undertake flood defence work. The EA is responsible for increasing public awareness of flood risk, flood forecasting and warning, and for general supervision of all matters relating to flood risk management. Defra agrees targets with the EA for corporate planning purposes.

67 Local authorities and internal drainage boards, in areas with special drainage needs, have similar powers of flood risk management for ordinary watercourses (ie those not designated as a main river). Coastal local authorities have powers to carry out works to manage the risk from coastal erosion and in some areas may also manage the risk from sea flooding.

Outcomes

68 The responses to consultation show there is some doubt as to whether FRAs should equip themselves fully for responding to flooding incidents. The FRA is only required to consider risks in its local area and there is no requirement to plan for any larger national scale events apart from New Dimension events for which the additional capability is provided centrally.

5 The Cabinet Office's *Concept of Operations* document includes Guidance note NSE 141 Planning for Major Water and Waste Water Incidents in England and Wales – Section 10/1 "*Defra acts as the lead Government Department in water and sewerage related incidents.*"

69 Whilst some FRAs have included the provision of resources (boats, PPE and training) within the FRS as part of their Integrated Risk Management Planning process it is recognised that the provision is predominantly for localised water rescue, eg people reported falling into rivers, canals, as well as flood rescue.

70 There are also a range of agencies, eg RNLI, HM Coastguard that are appropriately equipped for limited deployment for inland water rescue and flood rescue.

71 In his interim report one of Sir Michael Pitt's recommendations called upon Local Resilience Forums (LRFs) to "urgently review their current local arrangements for water rescue to consider whether they are adequate in light of the summer's events and their local community risk registers." This recommendation, in effect, requires the LRF to undertake a stocktake of its flooding risk and its response capability.

72 Each FRA (as a category 1 responder) is a member of its LRF and is expected to be involved actively in the capability assessment arising from the Pitt Review as outlined in a letter dated 17 December 2007 from the CFRA to all Chief Fire Officers.

73 The resulting work of each LRF arising from the Pitt recommendations is anticipated to produce an audit of flooding risk and existing capability for local deployment by early 2008.

74 Whilst the LRF audit recommended by Sir Michael Pitt will be invaluable for identifying local risk and capability it is not intended to identify whether there is sufficient provision to maintain a national response with national resilience. It will be for Defra to consider the degree to which the sum of local resources identified from the LRF audit is sufficient to meet the national requirements for widespread flooding.

75 Defra is undertaking a review of the national widespread flooding risk expectations and capabilities in parallel with the LRF reviews.

76 The outcome of the work by the LRFs and Defra will allow an analysis to be undertaken regarding potential flood rescue for national response and any "gap" that will need to be filled by the FRS and/or other providers.

Stakeholders' views

77 Four FRAs responding to the CFRA's Emerging Issues report said that there was a clear need for the FRS to have a statutory duty for flood rescue. Seven organisations said that they would support a statutory duty for flooding so long as there was the appropriate funding. The rest had no strong opinion or did not mention it in their response. The collective view of CFOA is for an appropriately drafted duty for a full water rescue service involving all scenarios, not just major floods. It does, however, propose that any statutory duty should avoid water rescue from "controlled environments," for example swimming pools. The LGA was not in favour of a statutory duty which it felt would be onerous and inflexible. Stakeholders were keen for the Government to clarify what it was that the FRS was expected to do during flooding incidents and some felt that this issue was more about capability than duty. Some stakeholders felt that the public expected the FRS to respond during flooding incidents and that FRAs were obliged to respond with or without the duty to do so.

78 Another issue identified by stakeholders was a need to reconsider the probability of severe flooding occurring in the light of climate change and recent experience. Historically, severe flooding events had been thought to be so infrequent that it was not considered prudent to allocate resources to conditions that may not occur more than once in 30 years. However, Sir Michaels Pitt's review makes it clear that *"flood risk is here to stay"* and that climatic changes will mean that this country can expect more extreme weather with periods of intensive rainfall.

79 Other responses from FRAs also referred to the perceived link between the lack of a statutory duty and the inability to provide the funding necessary to equip the FRS to a common standard that would meet the demands of severe and widespread flooding.

80 There was widespread agreement amongst respondents to the Emerging Issues report that the current capability of the FRS was inadequate to meet either national planning scenarios or events on the scale of summer 2007. This issue is explored further in the equipment, health and safety and training section of this report.

81 Clearly, despite the gaps identified, the FRS provided an excellent response to the 2007 widespread flooding. The picture emerging from the Pitt review and amongst others, however, is that of climate change leading to floods becoming both more frequent and more severe – and that the response capability for major floods needs to be enhanced.

82 It is, therefore, important to all responders that Defra and the Environment Agency clarify the increased flood risks faced by the country. The mechanism exists to do this through the cross-Government Capability programme. This clarification will allow the FRS, together with other local responders, to plan appropriately for the increased level of flood risk – at the local level within the Local Resilience Forum (LRF) and more strategically at the Regional Resilience Forum (RRF) level.

Option analysis

83 The case for a statutory duty was carefully considered as part of the review and after due consideration of the evidence, stakeholder views and the findings of other reports such as the interim findings of the Pitt Review, a number of options were evaluated.

84 Options considered included the potential setting up of a new body to deal with rescues from floods but because of the implications of providing a national infrastructure and suitable training and equipment, this option was discounted.

85 The issue of whether any statutory duty should be created for a broader water rescue role was examined in some detail by the review team. The review team concluded that the imposition of a new duty for all water rescues was neither desirable nor necessary. The sheer diversity of water rescue incidents lends itself to a local approach and FRAs are able to use the existing IRMP process to manage the risk of isolated water rescue incidents without recourse to new legislation.

86 The FRS is likely to be called upon to attend any major flooding incident. There is a strong community expectation for the FRS to do so. The lack of clarity over the role in responding to wide scale flooding has quite properly encouraged the FRS capability to grow in a manner reflecting a focus on local need rather than any collective national provision or agreement. CFOA's position remains that a statutory duty is the best solution to this matter but does suggest that if a statutory duty is not to be applied to the FRS for flood and water rescue then it would need reassurance on a number of issues. This includes assurance that whatever arrangements are to be put in place they should be efficient, effective, safe and resilient and would remain so for the foreseeable future. It draws comparison between the capabilities currently provided under the ND programme and any future capabilities for flooding incidents.

87 From the above it is apparent that the perceived capability gap for widespread flooding is the provision of an interoperable, resilient national response by the FRS using mutual aid arrangements in a similar way to New Dimension deployment.

88 In considering this option it is appropriate to consider the analogous provision and capability for a national response. In the case of ND equipment – specialist equipment such as Incident Response Units and High Volume Pumps were provided and strategically located to meet the national risk criteria. It is notable that no statutory duty exists for the use of HVPs yet they have been used most effectively for a national response whilst also being deployed at local incidents (fires and flooding) since their introduction.

89 Unlike a statutory duty that might place a potentially onerous requirement on all FRAs the provision of interoperable equipment and effective capability to meet the national risk requirements has proved to be a successful, flexible and effective model.

90 A further disadvantage in placing reliance on a statutory duty to provide the required capability is the time frame required for such a legislative change. If, as Sir Michael Pitt states, the risk is with us now it is unreasonable to deprive the community of the capability that can be provided by non-legislative means.

> *"Whether or not a statutory duty for flood or water rescue is placed upon the FRS, an expectation is already widely held by the public and partner agencies that the FRS will undertake rescue in such circumstances. The uncertainty that results due to the conflict between this expectation and the legislative position means that the FRS is unable to prepare effectively or appear to respond efficiently as current arrangements for water or flood rescue are ad hoc in nature."*
>
> **Fire and Rescue Service**

91 It is concluded, therefore, as did the Pitt interim report, that the key is the sufficiency of resources to meet the level of flood risk we face and the ability to use these under mutual aid arrangements to provide a national response. It is understood that, on the basis of previous work by CFOA, the Defra survey and the questions raised by Sir Michael Pitt with the LRFs, there is likely to be a gap in capability between local provision and national need – specifically in the number of appropriately equipped boats for carrying out rescues in the aftermath of flooding. If this is the case, little realistic prospect is seen of the FRS enhancing its contribution to the collective response in advance of the provision of extra resources. Under the conventions of local government finance (the "new burdens principle") it is, therefore, important that when Defra

reports back on any shortfall in the national requirement for flood rescue capability, it makes clear the extent to which the FRS will be expected to meet the shortfall and identify where the resources will come from to allow the FRS to do so. As with other responders, costs would need to cover the initial purchase of boats, fitting them out with appropriate equipment as well as ongoing maintenance and training of personnel – a point made forcefully by Sir Michael Pitt.

92 In reviewing the position, the CFRA has also been mindful of the need to provide a national interoperable response to widespread flooding. A statutory duty does not, in itself, ensure the interoperability and commonality of equipment, training and competence.

93 If additional resources are made available to the FRS to increase the provision of boats, equipment, training and maintenance then, as with HVPs, it is believed they will be fully used in future flooding events under existing FRA powers.

94 The perceived ambiguity referred to by Sir Michael Pitt in the lack of a single responder having a specific statutory duty should be addressed through the LRFs and RRFs. It is incumbent on the LRFs to establish clearly, as part of their plans to meet the flood risk, the specific roles carried out by the various responders, recognising the expertise offered by the different organisations in their area. The RRFs should consider the plans of the LRFs in the context of a wider area flood and the co-ordination of an effective response. Further, in considering how any increased capability is shared between different local responders, it would be useful to seek the involvement and views of the UK Search and Rescue Committee.

95 During the later stages of this review, HM Coroner for East Riding and Kingston upon Hull concluded the inquest into the death of Michael Barnett who became entrapped in a flooded drain on 25 June 2007.

96 Whilst the incident is outside the scope of this review, it was felt appropriate to recognise the tragic loss of life that occurred and to acknowledge the request of HM Coroner to consider the implications.

97 There are no immediate solutions to what appears to have been a tragic accident at which emergency responders tried tirelessly to release Michael Barnett from his position trapped in flood water.

98 It has been decided, however, to consider HM Coroner's comments in more detail in consultation with the other emergency services and to review what reasonable rescue methods and/or agencies might be appropriate in similar circumstances and to report on the findings at a later stage.

Capability and statutory duty recommendations

RECOMMENDATION 6

Fire and Rescue Authorities (FRAs) should identify, through their Local Resilience Forum (LRF) and with partner local responders, the risk and the FRA capability expected to meet response requirements.

RECOMMENDATION 7

The overriding need for an effective response to flooding by FRAs is to ensure that the appropriate capability exists to provide a national, interoperable response rather than a statutory duty. A statutory duty does not, in itself, ensure the interoperability of equipment, training and competence. It is, therefore, recommended that the appropriate capability is provided to maintain a safe, effective and resilient national response by the FRS.

RECOMMENDATION 8

The Chief Fire Officers Association (CFOA) guidance for the immediate capability of a flood response is a sound basis for assessing the adequacy of local arrangements through the LRF. However, in the longer term a more resilient and interoperable response is likely to be achieved using the team typing and training standards similar to those being developed by CFOA.

RECOMMENDATION 9

That Defra and the Environment Agency (a Non-Departmental Public Body (NDPB) of Defra) should clarify the increased flood risk facing the country through the cross-Government capability programme.

RECOMMENDATION 10

Where Defra, following the LRF Capability Review recommended by Sir Michael Pitt together with the 2008 National Capability Survey, identifies an ongoing gap between local capabilities and the required level of appropriate national response, it should clarify with LRFs, and CLG, how far the FRS should be asked to fill the gap. The FRS could not be expected to increase its national response capability until fully funded to do so, including the ongoing costs.

RECOMMENDATION 11

It is incumbent on Local and Regional Resilience Forums to establish clearly the specific roles carried out by the various responders, recognising the expertise offered by the different organisations in their areas. The Regional Resilience Forums (RRFs) should consider the plans of LRFs in the context of wider area flooding, the co-ordination arrangements to provide an effective response and, in particular, the important role that the FRS can play in supporting the co-ordination of flood rescue.

Chapter Four Equipment, health, safety and training

Chapter Four
Equipment, health, safety and training

Context

99 The level and type of existing equipment and the provision of appropriate Personal Protective Equipment (PPE)[6] for rescue has been widely recognised as a critical issue during the Chief Fire and Rescue Adviser's review. The provision of the appropriate training for working in or near flood waters as well as the implementation of additional health and safety control measures have also been raised by stakeholders as warranting further consideration and have therefore been included in this section.

100 Many FRS personnel worked in difficult conditions using PPE that may not have been designed specifically for this type of incident. The replacement levels of PPE was also an issue during the incidents, with a number of Services reporting that it was difficult to decontaminate and replace PPE during protracted incidents of this nature. It was also noted that the existing suppliers of PPE were crucial in providing invaluable resilience of contaminated replacement clothing.

Current position

101 FRAs have a duty under the Health and Safety at Work ect. Act 1974 to ensure the health, safety and welfare of their employees. The Act also requires them to provide whatever information, instruction, training and supervision as is necessary to ensure, so far as is reasonably practicable, the health and safety at work of employees.

102 This is expanded by the Management of Health and Safety at Work Regulations 1999, which identifies situations where health and safety training is particularly important, for example on exposure to new or increased risks and where existing skills may need updating. Regulation 3 requires employers to make a suitable and sufficient assessment of the risks, regulation 5 requires employers to ensure that they undertake effective planning, organising, control, monitoring and review of risks, and regulation 10 requires employers to provide employees with information on risks.

6 PPE is defined in the Personal Protective Equipment Work Regulations 1992 as 'all equipment (including clothing affording protection against the weather) which is intended to be worn or held by a person at work and which protects him against one or more risks to his health or safety.'

103 The Personal Protective Equipment at Work Regulations 1992 require that personal protective equipment is to be supplied and used at work wherever there are risks to health and safety that cannot be adequately controlled in other ways. The regulations also require that PPE is properly assessed before use to ensure it is suitable, maintained and stored properly, provided with instructions on how to use it safely, and used correctly by employees. Training for working in flood water often requires the use of specialist facilities and expertise. FRAs use a variety of venues and specialist training providers including some provision made under agreements with the national Fire Service College.

104 The use of both FRA and other agencies' boats was also an issue raised by FRAs and other stakeholders. Although many successful rescues were carried out, some FRA responders felt that more could have been achieved if strategically placed boats had been available to trained personnel. It was felt in some instances that performing rescues on this scale with the unplanned use of locally held boats, as was the case in those areas where the assistance of trained and well-equipped boat crews was not readily available, requires consideration.

105 Many consultees commented upon the crucial role played by other agencies in boat rescues stating that their contribution was invaluable and many rescues would have been impossible without their assistance. This included organisations as varied as the Maritime Coastguard Agency (MCA), the Royal National Lifeboat Institution (RNLI) and the Royal Society for the Prevention of Cruelty to Animals as well as locally based organisations such as the Severn Area Rescue Association. There were, however, instances of self-mobilising volunteers wanting to become involved in operations. Clearly no responsible body will wish to involve people in potentially hazardous operations without assurances of their competence.

106 Some consultees felt that the lack of a statutory duty on FRAs to undertake water or flood rescue was an issue for them and had impacted upon the level of provision of PPE and equipment. The FRAs questioned on the initial review had some provision for water rescue but it was primarily aimed at isolated incidents for identified risks in their areas such as rivers, lakes and canals. The level of provision of boats and PPE, such as dry suits and personal floatation devices, reflected this, being largely focused on responding to infrequent and short duration incidents rather than an interoperable response.

107 The scale of the flooding incidents in 2007 meant that the majority of personnel were deployed simultaneously and for extended durations. This was not something for which most of the FRAs involved were well equipped. This led to firefighters being deployed in normal firefighting PPE which rapidly became wet, cold and contaminated by flood water. The use of firefighting PPE cannot

be viewed as being appropriate since it is 'not fit for purpose', in the sense that it was not designed for such use and carries with it extra risks, eg restriction to the wearer's mobility, contamination etc. Whilst the respondents commented predominantly on dry suits, there are other aspects of PPE that complement dry suits, eg head protection, foot protection, thermal protection and personal flotation devices. The predicted frequency of the events (in one case it was quoted as a 1 in 150 year occurrence) also led some to feel that it would not be a prudent use of their resources.

108 Many FRS and other agencies' staff were not dealing with rescues in the traditional sense of removing someone from a life-threatening situation but were often deployed to move people to rest centres or places of relative safety from buildings that had become flooded or had lost their electricity supply.

109 Responders often waded through relatively shallow water to move vulnerable members of the community to places where heat, food and power were available. This was reported to be necessary due to:

- a lack of trained boat crews
- the number of people that needed rescuing
- boat crews being prioritised to rescues where life was at immediate risk
- the extended duration of the incidents.

110 All FRAs consulted felt that there are resilience issues with the current command structures when incidents extend over several days. In addition to firefighters having to work extended hours there were many examples of principal officers in positions of significant responsibility working for very protracted periods. Some FRAs recognised this and used mutual aid agreements to provide command and control cover at principal officer level from other FRAs. There were also other examples of the resilience issues, eg some HVP regional co-ordinators were reported to have worked for some 30 hours continuously. FRAs have a duty of care to employees under health and safety legislation to ensure that employees are given adequate rest to allow them to work safely. They also have responsibilities under the Civil Contingencies Act 2004 to ensure that Business Continuity arrangements are in place to ensure that they continue operations in such a way that they can discharge their duties as Category 1 responders.

111 This was not a universal picture. Some FRAs provided responders with dry suits that enabled crews to carry out this rescue role in PPE and allowed them to stay dry. However, the deployment of personnel in firefighting PPE meant that their role in the incident was often prematurely curtailed once they had become too wet and cold to continue. Examination of debrief forms provided by the FRAs involved to the review team shows a consistent reference by

personnel to having inadequate and unsuitable PPE and the difficulties of working in water in standard fire PPE. In support of this the 11 FRAs that commented on PPE in reply to the emerging issues report agreed on the need to improve PPE. Their concern over this area was also shared by stakeholders who all felt that the provision of PPE should be reviewed.

> *"We possess a number of dry-suits for use of crews when working in or near water. The scale of operations meant that the majority of personnel did not have access to this specialised PPE whilst involved in the operational response to the flooding. This resulted in that their standard firefighting PPE became quickly water-logged and in which condition it remained for a number of days. This particularly affected personnel from other FRAs who were working within the FRS area. "*
>
> **Fire and Rescue Service**

112 The standards in the Fire Service Manual Volume 2 *Working on or near water* published in 2002 sets out minimum best practice guidance for the training of firefighters but would benefit from updating to cover all aspects of flooding and flood related risks in the light of the experience of the 2007 floods.

Issues

113 The deployment of firefighters in seemingly relatively safe situations such as wading in shallow water is not without risk. Advice from CFOA suggests that wading in water is a potentially hazardous activity given the inability to see hazards underneath the water and the need to understand the hydrology of moving water. Their submission to the Emerging Issues report suggests that, for a reasonably practicable level of safety to be achieved, firefighters should be trained, properly equipped and form part of a team of similarly trained and equipped persons. CFOA also notes that the hazards of wading in flood water include; changing water depth, speed of current, force of water, missing inspection covers, open ditches, sewers, and hazardous materials (chemical and biological).

114 Wading is currently included in the draft First Responder and Technician training Modules[7] but it is not clear what proportion of personnel who had been deployed in the summer had been trained to these standards. However, there was widespread agreement amongst those consulted that the overall provision of training and PPE was inadequate. It is possible that some of those without the correct PPE for working in water were also not trained to the appropriate level for the tasks they were performing. Compromise to the rescuer's safety may impact upon the person being rescued.

7 Draft training modules currently proposed by CFOAs Inland Water Technical Group

115 It is, however, encouraging that a number of FRAs have developed a water rescue capability that can provide a professional response to a range of inland water incidents using a variety of boats along with a modern rescue technology and suitable PPE. There are different types of boats in use. Each has strengths and weaknesses and is used for different types of flooding scenarios or at different stages of operations. This capability has been secured using the FRA legislative powers through the IRMP process

116 There is some evidence that the development of water rescue involvement capability has led to the application of different standards and capabilities which may reduce the effectiveness of an interoperable response.

117 Some of the evidence from stakeholders points out that the equipment requirements for dealing with major floods go beyond the need for boats and PPE and that rescue operations cannot be adequately supported without a comprehensive range of specialist equipment including:

- personal flotation devices
- ultra lightweight portable pumps (ULPPs)
- lighting
- temporary shelters
- decontamination
- feeding and welfare facilities.

118 The issue of FRS personnel suffering ill health through ingestion, inhalation of or contact with contaminated water represents a significant risk. The effects can vary from acute ill health, eg gastroenteritis, to chronic ill health such as Weil's disease (Leptospirosis). In rural environments there is a greater risk of zoonotic infections, eg cattle, than in urban environments.

119 The issue of welfare of personnel during deployment was also referred to in the Emerging Issues report which recognised that the New Dimensions Programme had provided FRAs with national assets that can be deployed across borders for extended periods. However, there was general agreement amongst the FRAs consulted that the length of deployments as part of the new broader role makes it more likely that the FRS will attend incidents for longer periods and that there needs to be some reflection on current arrangements. At least one FRA provided a welfare pack including clothing and toiletries which could be used by firefighters for a deployment of several days. Some FRAs felt that the Service may need to adapt policies and procedures to make long-term deployments more resilient.

Stakeholder views

120 Seventeen consultees responding to the Chief Fire and Rescue Adviser's Emerging Issues report said that the provision and suitability of PPE and equipment was a major issue for them. Most stakeholders felt that there was a need for a co-ordinated approach to providing equipment and training that would enable safe systems of work and that this would require significant resources. There was a strong view expressed by some that capability should be enhanced using national standards and that appropriate specifications would be need to be agreed. Concern was expressed around the use of inconsistent and incompatible equipment which raised questions of liability.

> *"Crews were working in arduous and debilitating conditions. Personnel had to wade in sewerage and flood water that was up to 1.5m deep in places (1m deep on average)."*
>
> **Fire and Rescue Service**

Analysis and options

121 The duty to equip and train FRA staff properly to an appropriate standard for existing FRS capacity lies with individual FRAs who have decided to provide this function.

122 If the FRS in England is seen as the main rescue responder to the risk of large scale flooding events it follows that any enhancement to the flood rescue capability should include the FRS. FRAs in England have already made a significant investment in boats and related equipment to deal with local risk of flooding and water rescue. Through the use of Integrated Risk Management Plans, FRAs have agreed local risks associated with water and flooding and provided a water rescue capability in most areas. The focus of this report, however – large-scale flooding events that require a coordinated interoperable national FRS response – is aimed at ensuring that the FRS and other responders are competent to carry out the rescue function in such circumstances.

123 The outcome of a Defra survey into flood rescue capability, due to be carried out in the early part of 2008, is expected to indicate that there is a case for increased investment in boats and related equipment to meet the increased risk of flooding. In the context of local FRA prioritisation of resources, any investment to enhance the capability would need to take into account the gap between the national risk assessment and the existing local rescue provision and ensure that the gap was filled by an interoperable provision that meets functional requirements. This should be created by:

- Using the national flood risk assessment and planning scenarios as a basis to identify overall capability need and identify the gaps in the provision of equipment
- Developing nationally agreed rescue capability standards to meet the identified gap
- Providing resources to fill the identified gap
- Further development of the FRS national deployment using mutual aid arrangements.

124 The implementation of any capability improvement programme should take into account the CFOA Inland Water Strategy Group proposals for a standardised response. In this way capability would be developed and national resilience enhanced to provide a more effective and safer interoperable response to widespread flooding.

125 In 2006 CFOA produced a suggested framework for a multi-agency response following consultation with Defra and the Cabinet Office which is worthy of further development. Whilst in the first instance the personnel identified for deployment to the widespread flooding in 2007 were broadly drawn from a self declaration of competence to provide an immediate response, CFOA has been working actively on a draft classification system for team typing and training standards based on the following expectations:

- Water awareness – any staff who may need to work near to water in the course of their duties but who will not enter the water
- Water first responder – staff who do not need to be water technician trained but who can be provided with the appropriate training to work safely in the water environment in appropriate PPE (dry suits). The key issue will be to ensure that individuals recognise the limitations of their training and are not placed at risk by attempting to undertake technical rescues
- Water rescue technician – specialist water rescue staff without powered boat operation
- Water rescue boat operator – as the Water Rescue Technician above but this includes staff with additional boat skills in flood/rescue conditions which go beyond traditional RYA powerboat skills
- Water rescue incident management – aimed at Bronze/Silver Command level managers.

126 The intention of CFOA is to promote multi agency accreditation for inland water rescue operations. Whilst the proposals have not been examined in detail they are felt to be worthy of wider consideration and consultation. When they are refined and agreed the proposals should be referred to the appropriate Government Skills Council for consideration within the skills business network,

thus ensuring consistency and accreditation across this area of work both within the FRS and other agencies, including the MCA and RNLI.

Equipment, health, safety and training recommendations

RECOMMENDATION 12

Where FRAs provide a response to flooding they must also ensure that personnel are appropriately equipped and trained to meet the duties of the Health and Safety at Work ect. Act 1974 and subordinate legislation.

RECOMMENDATION 13

Use should be made of the work of CFOA's Water Strategy Group in developing a standardised approach and a capability improvement programme within the FRS to meet the flooding risk analysis of Defra.

RECOMMENDATION 14

National guidance should be developed for FRS staff working in major floods.

RECOMMENDATION 15

In the event that firefighting PPE is contaminated it should be treated accordingly eg removed, bagged and labelled as contaminated clothing requiring specialist cleaning.

RECOMMENDATION 16

Consideration should be given to using national New Dimensions assets ie mass decontamination equipment to decontaminate personnel who have been exposed to flood water.

RECOMMENDATION 17

To ensure interoperability of crews, a common approach to national inoculations for firefighters deployed in flooded areas should be developed and included in national guidance.

RECOMMENDATION 18

Once completed and agreed, the CFOA proposals for multi agency accreditation for inland water rescue training should be referred to the appropriate Government Skills Council for consideration within the skills business network, thus ensuring consistency and accreditation across this area of work both within the FRS and other agencies.

Chapter Five
Flood risk information

Chapter Five
Flood risk information

Context

127 The five FRAs that were consulted for the Emerging Issues report suggested that the provision of information from the Environment Agency (EA) and the Meteorological Office (Met Office) presented some difficulties in their response to the summer floods. Differences in interpretation, presentation and consistency of information were experienced by some but not all FRAs who responded to the report.

128 This was reported by one FRA as "*there was some initial difficulty in interpreting the different information sets provided by the Meteorological Office and the Environment Agency. This was attributed to the different mapping system used by the Environment Agency when compared with that of the Meteorological Office and that used by the FRS. The effectiveness of the information was dependent on the end-user being able to collate and interpret the individual data sets correctly.*"

129 The Met Office's Public Weather Service (PWS) has a national network of advisers whose role is to assist the users of PWS forecasts and warnings, helping in the interpretation of forecast information in terms of potential impact on life, property and infrastructure. The PWS advisers played a significant role in the summer flooding events using their key contact networks, including representing the Met Office at COBR and Gold Command centres and providing TV, radio and newspaper briefings. In support of COBR, additional forecasts were provided at the request of the PWS team. PWS advisers also attended the FRS Flood Support Centre in Worcester during both June and July flooding events and assisted with meteorological input into the coordinated and effective management of the response. This included providing weather briefings to command and control centre staff and the media.

130 The majority of FRAs also agreed that the provision of information was an issue that needed further consideration. However, the responses indicate that this was not a problem experienced in all FRAs. Another FRA stated that:

"this issue was not as acute as in other areas. As all agencies were located in the County Emergency Centre we could discuss the implication of predicted rainfall and drainage between the Environment Agency, the water board and internal drainage board and local authority engineers. Having all key agencies

in one room was vital in making sense of forecasts that cover broad areas to plan for effects on local rivers and drainage systems."

131 In general, FRAs felt that they could have reacted to flood events more effectively if the information provided by the Met Office and EA had been provided in a more consistent and understandable format. They also noted that the lack of information regarding tributaries made prediction of flooding events more difficult. The Pitt Review noted that *"A separate Environment Agency control room and individual policy teams in Defra had to work harder than necessary to deliver coherence."* The interim conclusion of the Pitt Review is that Defra and the EA work together to establish a single London situation room. The implications of this change for the FRS are referred to in the section dealing with national co-ordination.

132 Following discussions with other stakeholders and further consideration of the responses to the Emerging Issues report it is apparent that this issue has wider implications than an evaluation of the EA and Met Office information. Following these wider consultations it became clear that it is necessary to evaluate the use of flood risk information in a broader context.

133 The CFRA's Emerging Issues report suggested that the amount and quality of data held on floods appeared to vary between FRAs. Some interviewees had indicated that they needed to understand local drainage systems better in order to remove water effectively. Others reported that co-ordination with the various authorities with responsibilities for the drainage infrastructure was difficult. It was generally felt that closer liaison with local bodies with drainage responsibilities, the Meteorological Office, Environment Agency and other Category 1 and Category 2 responders would help to create more effective risk analysis for flooding.

134 Further responses to the Emerging Issues report appear to support the view that the analysis of the risk of flooding varies significantly. The CFRA's Emerging Issues report also found that the extent to which flood planning at LRF level was co-ordinated with the level of FRS resources was not clear. This view was supported by the early findings from the report by Greenstreet Berman for Communities and Local Government.

135 The Greenstreet Berman report considered the analysis of risk in a wider resilience context and was produced for Communities and Local Government and the Civil Contingencies Secretariat. It focused on the availability, selection and use of risk assessment techniques, tools, data and guidance within FRAs and as used by other Category 1 and 2 responders. It examined how risk analysis was used by responders to assist them in meeting their obligations under the Civil Contingencies Act as well as how risk analysis was used for IRMPs. Whilst its main focus was not on flood risk information, flooding was

considered within the broader context of how IRMPs are created, how LRFs carry out risk analysis and how the interface between the two is currently managed.

136 The report found some weaknesses in the risk analysis carried out for LRFs and IRMPs, for example the report states:

"There is significant scope to further develop the risk assessment tools and techniques used by LRFs for the sake of assessing more 'localised' events, to model knock-on effects, factor in public risk perceptions and to disaggregate risk assessments within their areas;

There are some aspects of FRS risk assessment that could benefit from further development, such as wildfire, RTCs, workload modelling and major incidents."

Major incidents in this context could include the risk of major flood events.

137 It was be noted that 43 out of 46 FRAs currently use Fire Service Emergency Cover (FSEC) risk as analysis and resource deployment software as part of their IRMP process. FSEC has a Major Incident module that has included flooding. This is being updated to include the latest Met Office/Environment Agency data and to take improved account of flooding responses such as boats (other equipment such as HVPs, like any road deployed vehicle, can be included in FSEC already).

138 All FRAs that were originally consulted felt that planning assumptions about the frequency and severity of flooding should be re-examined in the light of their recent experience. They recognised that this would need to be done with partners though LRFs. Some also felt that Business Continuity Plans for FRAs should be re-examined in the light of the experience of the services worst affected by the floods.

139 Prior to the summer floods, some of the flooding events had historically been thought to be of such low frequency that it might be considered imprudent to allocate resources to conditions that may not occur more than once in 30 years. As a result, some of those consulted indicated that provision had been made for isolated water rescue incidents but not for the different response needed for multiple rescues needed in wide area flooding.

140 The concern among FRAs that wide area flooding events may become more frequent in future is shared by the EA. The EA recently produced their review of the floods[8]. The EA will recommend that the Government should review if flood risk protection standards for inland, coastal and surface water flooding are still appropriate in view of climate change.

8 Environment Agency report *Review of 2007 summer floods – December 2007*

141 During the initial trawl of FRAs for the Emerging Issues report, three FRAs indicated that local risks deemed part of the critical local infrastructure such as electricity supply should be prioritised and this should be reflected in locally held plans so that it could be used as part of an overall flood plan response. They believed that their recent experience had shown that local knowledge of strategic and local infrastructure could be improved and that greater awareness of the importance of maintaining the integrity of key areas of the infrastructure would assist in developing pre-planned responses.

142 FRAs took the view that the recognition of the wider impacts of flooding is not FRS-specific and would be best developed by all local responders working though their LRFs. This concern over the vulnerability of critical local infrastructure is echoed by the EA in their review of flooding. The EA are suggesting that the issue of protecting critical local infrastructure is so important that the Government should put measures in place to make sure that key utilities and public services take responsibility for protecting their assets and facilities appropriately. They propose that all public authorities and all private sector companies that provide essential public services should have to take responsibility under the forthcoming Climate Change Bill, in line with those for Category 1 and 2 responders under the Civil Contingencies Act, for taking account of climate change when providing their services.

143 The EA also intends to recommend that multi-agency incident response plans need to consider the possible impact on critical local infrastructure more effectively. Recommendation 10 in Sir Michael Pitt's report states that:

"the Review recommends that Category 1 responders should be urgently provided with a detailed assessment of critical infrastructure in their areas to enable them to assess its vulnerability to flooding."

Current position

144 The finding of the CFRA's emerging issues report that information on surface water flooding was less developed than for fluvial flooding is also confirmed in the EA review. The EA state in their review that they constantly monitor rainfall, river and sea conditions. They also use information provided by the Met Office on rainfall and severe weather forecasts, weather radar, tide levels and wind conditions. Together with the Met Office they have a development programme to look at ways of making rainfall forecasts more reliable, accurate and timely. They feed this data into their National Flood Forecasting System (NFFS) which predicts river and tide levels for specific places and allows them to warn people at risk and to alert other agencies. The EA found during the summer floods that the computer models generally proved satisfactory at predicting river levels but that less accurate predictions on the timing of floods may have

been due to the lack of data on such extreme summer floods in the past, as many rivers rose far quicker than during any previous flooding. They accept that their forecast of river levels for Doncaster and Evesham were less accurate but state that in many cases accurate forecasts were available 12 to 24 hours before levels were reached.

145 The EA also accepts that increasingly early warning of floods from overwhelmed drains and sewers, and rivers that respond quickly to rainfall, is needed. It states that this will be technically challenging and difficult to implement. It points out that no one organisation is currently responsible for surface water flood risk and that its forecasting and warning systems are not designed to deal with the widespread surface water flooding that occurred. It is not yet sure whether cost effective and reliable warning systems will be technically feasible or viable as urban drainage systems are complex and dynamic and change rapidly with development and it would be a costly challenge to map and model these and provide detailed warnings.

146 The EA has, however, completed research to develop a surface water flood alert system for partner agencies. This uses existing topographical data to identify susceptible locations. Contingency plans are then produced to ensure appropriate action is identified and practiced before alerts are given. The rainfall alerts are currently not available on a routine basis but upgraded Met Office computers will create the capability needed in mid-2008. Further testing of this research system will be needed before it could be used widely. The EA does not believe the technology is sufficiently developed to provide public warnings at present but has undertaken to look at the feasibility of extending its current warning system to cover these forms of flooding as far as science and technology can reasonably allow. This undertaking is dependant upon the necessary resources being available.

147 In summary the EA has said that it will review its flood forecasting development programme to make sure it reflects lessons learned from the 2007 floods and to see what scope there is to improve accuracy, reliability and timeliness. It will also review ways of using rainfall forecasts in their flood forecasting system to provide more timely warnings in fast-responding catchments.

148 The view expressed by some FRAs that the interpretation of information provided by the Met Office and EA on weather conditions and river levels was difficult is supported by the findings of the EA in its own review. It has indicated that it will review its professional partners' specific needs so that it and the Met Office provide forecasts and warnings which mean they can more easily take action. It also stated that, together with the Met Office, it would look at the best way of presenting and explaining weather forecasts and flood warnings so that its professional partners and the public better understand them.

149 The Flood Support Team (FST) felt that the Meteorological Office and Environment Agency generally provided good information to the team. However, it found that some of their information seemed to conflict with the information that Cabinet Office Briefing Room (COBR) was being sent by the same agencies and this caused some frustration to the Flood Support Team.

150 The extent to which FRAs feel that LRFs have access to flood risk information that assists in planning for major flood events appears to vary. The quality of planning and preparation carried out by an LRF depends upon a number of factors, not least of which is the extent to which information is shared appropriately. The recent joint submission from Communities and Local Government's Fire and Resilience Directorate and the Emergency Planning College suggested that the sharing of information in a civil protection context is weak and that there were various obstacles for effective sharing of data including inter-operability, commercial concerns and fears over security of the data.[9]

151 One other issue that appears to make the use of flood risk information by LRFs difficult may be the considerable overlap of responsibilities in relation to flooding and the lack of clarity over who has the overall lead in major flooding events. The EA has recognised this in its review and asked that government provide guidance on who will provide a strategic overview on all forms of flooding to ensure that the different organisations involved in surface water flooding work better together to reduce flood risk. It also suggest that multi-agency emergency response plans should be reviewed to make sure that they are consistent with the Civil Contingencies Act and that all professional partners have access to adequate resources for managing flood events.

9 Joint author Dr McFarlane, Assistant Director of Training and Doctrine, Emergency Planning College, Easingwold

Stakeholders' views

152 In response to the CFRA's Emerging Issues report, 14 stakeholders said that information needs to improve. One submission from an FRA suggested that the use of flood related data on Mobile Data Terminals as part of the FiReControl/Firelink projects should be considered. The FRAs suggested that this include the use of flooding and severe weather overlays for maps. As the EA have indicated that they already have data on the probability of flooding in this form, this would appear to be a suggestion worthy of further consideration.

153 Another FRA submission suggested that the advance warning of the possibility of flooding was crucial because it allowed the FRA to take some pre-planned actions. These might include:

(a) identifying critical local infrastructure involved and considering early action to protect and mitigate against potential effects of flooding
(b) considering evacuation of the public
(c) pre-deploying assets
(d) moving responders assets from the affected area
(e) activating FRSNCC, Communities and Local Government Emergency Room, NSAT team
(f) identifying Strategic Holding Areas (SHA) and safe routes in and out of affected area.

154 The same submission suggested that the effectiveness of such information could be enhanced by ensuring consistency of response between neighbouring FRAs through the development of a nationally designated incremental response table for warnings and a requirement for an FRA to agree a consistent response. In effect this would embed best practice use of flood risk information into operational doctrine as part of their IRMP.

Flood risk information recommendations

RECOMMENDATION 19

The proposed upgrading of the Fire Service Emergency Cover (FSEC) toolkit for major incidents and workload modelling should be brought forward by Communities and Local Government to include flood risk in the light of data that takes into account the potential for weather related incidents and the impact of climate change.

RECOMMENDATION 20

The Chief Fire and Rescue Adviser's Unit should ensure that good practice pre-flood actions are incorporated into appropriate national guidance as part of the actions that should be considered in response to flood warning. This should include consideration as to how information from the Met Office and the Environment Agency could be utilised to create an incremental response for warnings and a requirement for the Communities and Local Government Emergency Room to co-ordinate a consistent response from the FRS based upon warning levels agreed with the Met Office/Environment Agency.

RECOMMENDATION 21

FRAs should ensure that they have considered the major flooding risks identified in their LRF and RRF plans, including those reported in Community Risk Registers (CRRs) and internal risk registers, as part of their IRMP process.

Chapter Six National co-ordination and clarity of roles

Chapter Six
National co-ordination and clarity of roles

Context

155 During the floods the co-ordination of FRS resources mobilised to assist the stricken areas was dealt with by the combined efforts of the Communities and Local Government Emergency Information Support Group (EISG) in London, the Fire and Rescue Service National Co-ordination Centre (FRSNCC) in West Yorkshire, the ad hoc arrangements during the initial floods to provide CFOA Flood Support Team (FST) in Worcester and CFOA lead officers. There was widespread agreement amongst consultees that the arrangements had worked well. Stakeholders also agreed, however, that it was necessary to clarify and communicate the role of each of these bodies and the extent of their respective responsibilities.

156 This chapter focuses on the specific FRS resource mobilising arrangements. In his report Sir Michael Pitt also looks at the strategic perspective Gold Command brings to an emergency response allowing more effective engagement by the full range of responders including the MCA and the RNLI. This is beyond the remit of this report but very welcome. What is clear is that any FRS arrangements need to be fully consistent with existing national and local multi-agency co-ordination arrangements.

157 During the flooding period the roles of the three bodies were clarified by Communities and Local Government as follows:

- **EISG**: Responsible for the strategic co-ordination and direction of New Dimension assets and maintaining a strategic overview of an emergency on the largest scale and inter-department liaison at a Government level, advice to COBR and the FRS
- **FRSNCC**: Responsible for the mobilisation of New Dimension assets. For the period of the floods it was agreed that FRSNCC would assist with the resource allocation of flood rescue assets identified by the Flood Support Team
- **FST**: Established for FRSNCC and EISG to assist FRSNCC and CFOA to identify known flood rescue assets.

158 It should be noted that since the review started the three coordinating bodies were activated successfully and used on 8 and 9 November 2007 in the preparations that were put in place for the North Sea storm surge.

159 One of the issues raised was that as the FRSNCC was originally established for the mobilisation of Communities and Local Government New Dimension (ND) assets to ND incidents, the widespread flooding fell outside its remit for boats whilst within its role for HVPs. It was felt to be prudent, however, to use the FRSNCC to co-ordinate the mobilisation of rescue craft to incidents pending the outcome of this review because of the established communications links for the deployment of national assets.

160 In clarifying the role of the respective co-ordinating teams there was also a feeling that the protocols for requesting support should also be more clearly defined.

161 As part of the Communities and Local Government ND programme and the ongoing development for long term capability (LTCM) of the ND, national work has already started to develop a National Strategic Advisory Team (NSAT). This will provide a small cadre of experienced CFOA operational officers lead by the CFRA who, in the event of a catastrophic incident/terrorist attack, could undertake the following roles:

- Provide strategic advice about the incident to FRD, FRSNCC, FRS, Communities and Local Government Emergency Room and central government
- Provide a national overview of ND assets from the EISG and provide advice and support to the FRSNCC accordingly
- Assist in the preparation of ministerial/COBR briefings from the EISG
- Attend locations (including FRSNCC) on request as a link to EISG and briefing preparation.

162 The original concept for NSAT was to provide strategic advice and support during major emergencies, including assistance in the decision making process on the deployment and use of ND assets. Although primarily focused on ND type incidents, from the experience of the flooding it is evident that the role of NSAT should take account of other large scale events requiring a national response.

Current position

163 In general the national co-ordination arrangements worked well, helped significantly by the informal NSAT role that CFOA played in liaison and support. Those involved have, however, acknowledged that there is room for improvement in the light of experience gained. The main issue requiring clarification is to confirm who determines the overall use of national assets and in what circumstances.

164 The current arrangements for the mobilisation of ND assets are summarised as follows:

- In the event that a FRA wishes to mobilise ND assets held within its area to an incident within its area it will mobilise the resources and notify FRSNCC. FRSNCC will inform the duty EISG contact who will determine the necessity to activate EISG.
- In the event that an FRA wishes to receive ND assets from another FRA for an incident within its area it will make the request to FRSNCC who will determine which of the ND assets should be mobilised in order to maintain a national strategic resilience. FRSNCC will inform the duty EISG contact who will determine the necessity to activate EISG.
- Where EISG is activated the FRSNCC, all FRAs together with FRD are informed and mobilisation of ND assets takes place in consultation between EISG and FRSNCC.

165 The FRSNCC in West Yorkshire was established to co-ordinate the mobilisation of ND resources. The FRSNCC maintains a national picture of ND capability and mobilises as appropriate on request from affected FRAs via local FRA control rooms.

166 It has been recognised that the concept of the new interoperable Regional Control Centres (RCCs), each one capable of accessing the national FRS response capability, will provide alternative models to the delivery of the mobilisation of national assets in the future.

167 The Flood Support Team (FST) was set up as an ad-hoc arrangement for the initial flooding to capture the data regarding the national response (boats and trained crews) capability. This worked well and was necessary as hitherto there had been no single location where this information was readily available and it was outside the scope of the FRSNCC, although the ad hoc nature of its creation may have led to some lack of clarity about its role.

Issues

168 There was a general desire amongst stakeholders to clarify the lines of communications between the three co-ordinating bodies. Some of those consulted felt that there should be clear communication protocols adopted to avoid the risk of duplicating or losing important information.

169 The apparent lack of clarity on the respective co-ordination functions means that stakeholders are unclear on which of the bodies has the lead in determining strategy. FRSNCC took the view that there would be circumstances where it was acceptable for them to deal with the deployment of the assets without any need for a co-ordination role for EISG and that there

were examples of the effective mobilisation of national resources without the need to confer with EISG on overall strategy. This was particularly the case with smaller incidents but also applied to a lesser extent during the floods.

170 The FRSNCC also experienced some difficulties in mobilising assets for strategic covering moves due to the lack of clarity on who would pay for the mobilisation when the host FRA for a standby has no direct involvement in the incident and the FRA affected by the floods has not made the request. In determining the levels of supporting resources it needs to call on through mutual aid arrangements, the affected FRA should consider seeking Communities and Local Government duty officer/EISG advice on the benefits from cover moves. This is an example of a situation where the EISG would need to direct or assist in the arrangements.

171 Some stakeholders felt that the term *Emergency Information Support Group* was unhelpful as the title gave no hint as to its function or ownership. Since this review was initiated, EISG has been re-named as the Communities and Local Government Emergency Room (Fire and Rescue) which should assist FRAs in understanding its role and the support that it provides.

172 Sir Michael Pitt's review drew an interim conclusion that:

"Defra and the Environment Agency work together to establish a single London situation room to coordinate flooding information, to act as a focal point for cross-Defra efforts, and to support Defra Ministers."

173 On the occasions that widespread flooding occurs it will be important that liaison arrangements are put in place between the Communities and Local Government Emergency Room and the situation room proposed by the Pitt review.

Stakeholders' views

174 Fourteen of the organisations responding to the CFRA emerging issues report agreed that clarity around national co-ordination arrangements would be helpful.

175 Stakeholders agreed that roles need to be broadened to deal with non-New Dimension equipment and that procedural arrangements need to be better understood by and communicated to FRAs.

176 Some stakeholders said that a single point of contact for flooding would be useful. Some FRAs stated that they received repeated requests for the same information, particularly in relation to the deployment, status and location of HVPs. One FRS described it as *"repeated requests for the same information by different organisations over different time scales and in different formats."* This complex interaction of different bodies tends to lend weight to concerns

that have been expressed about lines of communications and explains the desire of FRAs to have a single point of contact for incidents involving national mutual aid arrangements.

177 Some consultees felt that there may be a need to review the current training provision for FRS officers in the light of recent changes leading to the introduction of co-ordination bodies with a national FRS-related function. Although the wide area flooding had highlighted some issues of knowledge and competency, it was felt that the many changes to the FRS operational commitment in the light of the advent of the Civil Contingencies Act 2004 and the roll out of the New Dimensions Programme, had led to some gaps in the operational knowledge requirements.

178 Some stakeholders expressed the view that the pre-deployment of assets prior to major flooding was crucial and that this concept was not well understood by a number of FRAs. They felt that the current arrangements were ad-hoc and not well embedded in the arrangements.

179 One of the stakeholders responding to the CFRA said that liaison with the FRS had been excellent throughout the flooding periods. They had, however, experienced some difficulties with communication and mobile phones were often the only means of communication with rescue personnel. They stated that the issue of communications between maritime Search and Rescue (SAR) providers and the land based emergency services had been discussed on many occasions and was currently on the UKSAR Communications Working Group's agenda. They felt that this issue needed to be addressed if multi agency communications were to be effective.

Analysis and options

180 The Memorandum of Understanding (MoU) between West Yorkshire Fire & Rescue Service (WYFRS) and Communities and Local Government does not currently include the use of the FRSNCC for non-New Dimension incidents, although there are clearly large-scale emergencies where its mobilising role may be necessary.

181 In the short term it is desirable to extend the role of FRSNCC to include the overall provision of flood rescue teams in addition to ND assets and encompass the work of the FRS Flood Support Team as part of the FRSNCC mobilising remit.

182 Further consideration will need to be given to the practical benefits and effects of extending the role of FRSNCC for other non-ND assets, eg foam stocks.

183 The FRSNCC is funded by Communities and Local Government to co-ordinate New Dimensions resources. The role of the FRSNCC will evolve with the

introduction of the RCCs. Any arrangements which FRAs make in extending the role of the FRSNCC will, therefore, need to take this into account.

184 For the medium/longer term there will need to be early consideration of how the roll-out of RCCs can enhance coordination of national assets.

National co-ordination and clarity of roles recommendations

RECOMMENDATION 22

Clarification of the respective roles, expectations and interaction of the Communities and Local Government Emergency Room, Fire and Rescue Service National Co-ordination Centre (FRSNCC) and the FRS Flood Support Team should be communicated to FRAs by CFRAU.

RECOMMENDATION 23

Co-ordination arrangements for widespread flooding should be put in place between the Communities and Local Government Emergency Room and the proposed Defra/EA Situation Room outlined in Interim Conclusion (IC) 48 made by Sir Michael Pitt.

RECOMMENDATION 24

The proposed role of the National Strategic Advisory Team (NSAT) should be developed for non-New Dimension incidents requiring a national response.

RECOMMENDATION 25

The role of FRSNCC should include co-ordinating the overall provision of flood rescue teams and equipment in addition to New Dimension Assets and include the work of the FRS Flood Support Team (FST) as a “cell” of its mobilising remit pending the role out of the FiReControl Project.

RECOMMENDATION 26

Consideration should be given to the practical benefits of extending the role of the FRSNCC to other non-New Dimension assets pending the role out of the FiReControl Project.

RECOMMENDATION 27

Conclusions are required as to how the function of the FRSNCC is undertaken following the roll out of the FiReControl Project.

Chapter Seven Category 2 responders

Chapter Seven
Category 2 responders

Context

185 There is evidence that at times, FRAs have found it difficult to engage some Category 2 responders in planning and response. Some services found that some Category 2 responders were not sufficiently prepared to deal with some of the incidents for the durations required. They found that the liaison and resilience arrangements in place during the emergency were hindering the communications process and that some Category 2 responders struggled to get people with the required level of expertise and authority to maintain a presence at Silver and Gold Command level. This hindered the effectiveness of the Gold and Silver Command arrangements in some instances.

Current position

186 Current guidance relating to Category 2 responders is contained in the government guidance on the Civil Contingencies Act 2004 (Emergency Response and Recovery). Paragraph 3.53 states that:

"The Civil Contingencies Act 2004 defines these organisations as Category 2 responders, requiring them to co-operate and share information with Category 1 and other Category 2 responders. This multi-agency co-operation will ensure that these industries' own arrangements are fully linked with those of the wider emergency management community."

187 As Category 2 responders are obliged only to 'co-operate and share,' different interpretations of this phrase may have contributed to the variation in levels of engagement in both the planning and response phases by Category 2s. The guidance in Annex 1a of Emergency Response and Recovery also states that:

Category 2 responders (eg Health and Safety Executive, Strategic Health Authorities, transport and utility companies) are "co-operating bodies," which are less likely to be involved in the heart of planning work but will be heavily involved in incidents that affect their sector. Category 2 responders have a lesser set of duties – co-operating and sharing relevant information with other Category 1 and 2 responders."

188 It is difficult to see how Category 2 responders cannot be "heavily involved" in the response if they have been "less likely to be involved" in the planning and exercising. Whilst there is no compulsion, the position in relation to Cat 2s appears to be strengthened by Para 2.13 of Emergency Response and Recovery which states that:

"In return, Category 2 responders must recognise the clear intention in the Act that all Category 2 responders should play a part in civil protection at the local level. They must respond to reasonable requests, and they must adhere to the principles of effective representation."

189 The initial survey of five of the worst affected FRA areas, and the subsequent consultation with the wider FRS, showed that the problem of Category 2 engagement in both planning and response was experienced at different levels in many areas. Whilst this work did not go into enough detail to determine the causes of this difficulty, evidence from the Regional Government Office of Yorkshire and Humber (GOYH) has been helpful. Sir Michael Pitt's report states:

There is also a need for improved information sharing and knowledge exchange on a routine basis between infrastructure operators, in their roles as Category 2 responders, and emergency planners in local authorities and other Category 1 bodies to better understand the vulnerability and consequences of failure, thus enabling effective planning for emergencies.

190 GOYH conducted research by contacting a variety of Category 2 responders including the Environment Agency, Yorkshire Water, United Utilities (gas), National Grid (gas), Highways Agency, Kingston Communications (telephones) CE Electric and Network Rail. The main findings of GOYH support the view that the engagement of Category 2 responders should be strengthened.

Stakeholders' views

191 The view emerging from GOYH's work is that providing an effective, joined up response to major incidents that have affected Category 2 resources and infrastructure is difficult if Category 2 responders are not fully involved in the heart of planning. It also raises a concern that Category 2 responders may either be marginalised or choose to take less of a role within the LRF than is appropriate. Key players are sometimes unrepresented at LRFs and this causes difficulties during the response phase.

192 Thirteen organisations responding to the CFRA's Emerging Issues report agreed that involvement by Category 2 responders needed to improve. One response reported that their local arrangements were working well.

193 The 2007 floods exposed the fact that there is no systematic approach to reduce the vulnerability of the critical local infrastructure to disruption from natural hazards such as flooding in comparison to the well established programme to tackle terrorist threats. As a consequence, one of the interim conclusions from the Pitt Review, published on 17 December 2007, proposes that the Government:

"Should establish a systematic, co-ordinated cross-sector campaign to reduce the disruption caused by natural events to critical infrastructure and essential services" (interim conclusion 52).

194 The Civil Contingencies Secretariat, which sits within the Cabinet Office, is leading a study in response to this conclusion. The report goes on to say:

"The Gold Command held in Gloucestershire proved the value of team members who were familiar with each other from previous exercises and meetings. Getting to know potential members of Gold Commands before an emergency, especially through exercises, speeds up multi-agency working during an incident. Training, such as the 'Gold Standard' training provided by the Government's Emergency Planning College, would ensure that responders knew what to expect when attending a real Gold Command situation. The interim conclusion of the Review is that Category 2 responders should be required to participate fully at Gold and Silver Commands and that the Government should deliver this through the Civil Contingencies Act or other regulatory regimes."

Category 2 responders' recommendations

RECOMMENDATION 28

That the role of category 2 responders in all six phases of integrated Emergency Management (anticipation, assessment, prevention, preparation, response and recovery management) should be strengthened. The following points should be considered by the Cabinet Office in particular:

- How to ensure that category 2 responders are properly and consistently represented on Local and Regional Resilience Forums.
- How working relationships between category 1 and category 2 responders can be enhanced.

Appendices

Appendix 1
Terms of reference for the review of widespread flooding incidents – summer 2007

The following terms of reference for the review were published in FRS Circular 40/2007.

Scope

The scope of the review will cover all operational FRS response aspects of the two major flooding incidents in South Yorkshire, Lincolnshire, Derbyshire, Nottinghamshire and Humberside during the second half of June 2007 and Hereford and Worcester, Gloucestershire, the West Midlands, Berkshire and Oxfordshire in the second half of July 2007. Whilst the focus will particularly be on a small number of FRAs who were affected massively, all FRAs who had a significant operational demand during either of these periods will be asked to contribute. The review will seek the views of a selected number of FRAs who just provided resources remotely. In addition to this, the roles, relationships and effectiveness of the three central functions of FRSNCC, EISG and the Flood Support Centre will be examined. The review will look at:

- Use of data/intelligence – risk analysis and IRMPs
- Operational preparedness
- Mobilising arrangements, including the role of fire controls & communications, both locally and nationally
- Operational effectiveness – functionality and overall resource deployment
- Mutual aid and broader resilience arrangements
- Role of retained staff
- National co-ordination/support including the effectiveness of FRS coordination of water rescue assets (FRS and non-FRS).

Method

The review will consist of:

1. An initial light touch "early lessons" report:
   - producing a reasonably detailed chronology of events for both periods
   - reviewing individual initial reports/analyses from FRAs produced locally
   - examining outcomes of locally undertaken de-briefs for the three central functions.

2. A more detailed, full report covering all aspects of the scope (target date end of December) which will:
   - review any CFOA analysis on incidents and CFOA role in national coordination
   - review outcomes from any reviews undertaken through Regional Resilience Fora
   - draw together a full structured national de-brief based on the above to draw out consensus on lessons leant
   - carry out some evaluative research by issuing questionnaires
   - review outcomes of full FRA debrief/review reports
   - consider the outcomes of any Governmental reviews.

Output

The review will produce two detailed written reports, the first summarising the whole sequence of events for the two incidents and a review of the efficiency and effectiveness of the overall operational response, with particular emphasis on the roles played by the three central functions. The second report will draw out key lessons learnt and make recommendations to improve overall operational effectiveness, particularly in relation to central support/coordination and broader issues such as relationships with RRFs, Gold and COBR. A key part of this will be to ensure that lessons learnt are fed into relevant FRD work, particularly the Fire and Resilience Programme projects.

Appendix 2
List of respondees to the CFRA's emerging issues report

Responses to the Chief Fire and Rescue Adviser's initial report were received on behalf of the following organisations.

Fire and Rescue Authorities

Dorset Fire and Rescue Authority
Durham & Darlington Fire & Rescue Authority
East Sussex Fire & Rescue Authority
Greater Manchester Fire & Rescue Authority
Hertfordshire Fire & Rescue Authority
Leicestershire Fire & Rescue Authority
London Fire and Emergency Planning Authority
Lincolnshire Fire & Rescue Authority
Mid and West Wales Fire and Rescue Authority
Norfolk Fire & Rescue Authority
South Yorkshire Fire & Rescue Authority
Staffordshire Fire & Rescue Authority
West Sussex Fire & Rescue Authority

Stakeholders

AssetCo plc
Chief Fire Officers Association
Fire Brigades Union
Health & Safety Executive
Lane, Jefferies & Associates Ltd – Floodfighters conference
Lion Apparel Systems Ltd
Local Government Association
Retained Firefighters Union
Royal National Lifeboat Institution

Appendix 3
Table of documents reviewed

Title	Description
The June 2007 floods in Hull	Interim report by the Independent Review Body
HFRS Flooding debrief action plan notes	Internal debrief and action plan
Government of Yorkshire and Humber debrief	Internal debrief and action plan
Initial Debrief Report June 2007 Flooding	Initial debrief
Notes from Gloucestershire Flood Debrief	Initial debrief
Structured debrief for Gloucester Gold	Initial debrief
Structured Debrief for GFRS Control Staff	Initial debrief
Management of Major Flood Events	FRS contribution to the Emergency Phase Report for CFOA Board
EISG debrief notes	Initial debrief
West Yorks FRSNCC	Debrief
CFOA Initial report on CFOA Flood Support Team	Report by Chair CFOA IWSG
CFOA specification for boats	
West Yorks news2u	Staff newsletter articles re response
Fighting the floods in West Yorkshire	Article for FIRE magazine
Buckinghamshire Floods	Article for internal newsletter

Title	Description
Buckinghamshire Floods	Various press releases – chronological order
FRSNCC Activity 15th-17th June 2007	Note sent to Communities and Local Government Communications Division
Incidents for weekend 15/06/07	Table of calls and HVP mobilisations
CFOA meeting 04/09/2007	Meeting note
South Yorks Incident Debrief Report	HVP incident debrief
Proposals for web based severe weather advisory	Submission to RRFs and LRFs
CFOA additional functions water rescue	CFOA briefing note
Scottish S.I 2005 No. 342	Fire (Additional Function) (Scotland) Order 2005
Government Office East Midlands flood debrief	Debrief
CFOA meeting on water/flood rescue (19/12/07)	Meeting note

Appendix 4
Summary of examples of costs of the FRS response

A full cost benefit analysis has not been undertaken. However, the costs outlined below provide an indication of some of the costs incurred and resulting benefits of the FRS response to the summer 2007 floods.

Costs to five FRAs of responding to the June and July floods were obtained from the Audit Commission's report *Staying Afloat – financing emergencies*. The Audit Commission's review team worked with local finance staff of five FRS's to collate costs using a standard cost proforma. These five FRAs were particularly involved during the flooding in the areas featured in the Audit Commission's report. These FRAs were:

- Gloucestershire FRS
- Hereford and Worcester FRS
- Humberside FRS
- Oxfordshire FRS
- South Yorkshire FRS

Table 1 below is an extract from the Audit Commission's report detailing the costs to the five FRAs above. The Audit Commission's research demonstrates that the bulk of the costs to the FRS are for staff time and that very little damage was caused to FRS assets. Other costs identified include fuel and equipment as well as accommodation and supplies for staff. Staff costs include overtime for full time crew and additional hours for retained staff.

All these costs are marginal costs and do not take account of opportunity costs; that is they do not account for other activity that was not carried out because staff were helping out in flooded areas, such as carrying out fire prevention work.

Table 1: Detailed costs to the fire and rescue service extracted from the Audit Commission's December 2007 report *Staying Afloat – financing emergencies*

Service	Staff costs	Other costs	TOTAL	How covered?
Gloucestershire	£260,000	£258,000	£518,000	Internal reserves as total costs fell below county Bellwin threshold
Hereford and Worcester	Front line and support staff £130,000	£116,000	£246,000	£10,000 income from other authorities for assistance Own resources £57,000 Bellwin claim £179,000
Humberside	Front line and support staff £121,500 Recharges from other authorities £151,300	£20,600	£301,100	Own resources £88,500 Bellwin claim £212,600
Oxfordshire	Front line and support staff £189,200 Recharges from other authorities £45,800	£52,100	£287,100	Internal reserves as total costs fell below county Bellwin threshold
South Yorkshire	Front line and support staff £75 – £100,000 Recharges from other authorities £400,000 expected.	£260 – £350,000	£735,000 so far	Own resources £110,000 Bellwin claim at least £740,000

Appendix 5
Chronology of events

Humberside

During June 2007 over 250mm of rain fell on Hull.

On Friday 15 June demand exceeded 100 calls per hour throughout the mid morning period and at times all pumping appliances were involved in all four local authority areas.

On Monday 25 June from 0600 hrs calls for assistance quickly reached a peak and averaged 105 calls an hour. This was sustained for the next 15 hours. Humberside Fire and Rescue Service (HFRS) received a total of 3,054 calls in 18 hours. The HFRS High Volume Pumping Unit was deployed in Withernsea. The Water Support Unit operated in West Hull. A reserve of available appliances was maintained at strategic locations to respond to life threatening incidents which fell as low as six appliances during peak demand.

On Monday 25 June all HFRS pumping appliances were deployed. National co-ordination arrangements were put in to place to provide High Volume Pumps. Two High Volume Pump Units were mobilised from Northumberland and Durham to attempt to drain Kingswood.

By Thursday 25 June five further High Volume Pumps from other Fire and Rescue Services were in operation.

On 27 June the Service managed to prevent significant damage in Hedon and on 30 June a reservoir near Barton was pumped to avoid substantial flooding in the town. High Volume Pumps were in full operation for several days.

Despite the efforts of HFRS, substantial flooding in some areas remained for several days from a combination of rainfall, tidal and river sources. A total of 780 incidents were attended, advice was given to a further 3,129 callers and 776 people were rescued.

The following table provides brief information regarding the timing of events in Humberside FRS:

Date	Time	Event
15 June 2007		Heavy downpours begin – 70mm of rain recorded on this day, 250mm in total during June.
22 June 2007	1511	Early warning of more heavy rain was issued by the Environment Agency (EA).
24 June 2007	1057	Flood watch alert issued.
25 June 2007	0930	Many parts of Hull inundated with flood water. Hull City Council declared a major incident.
	1025	Police set up a Silver Command. RAF SAR deployed to assist in reconnaissance and evacuation.
26 June 2007	1425	Military deployed to assist in evacuation.
30 June 2007	1830	FRS main operations ceased.

South Yorkshire

On the first day of the flash floods (25 June) and at its peak, the South Yorkshire Fire and Rescue Service (SYFRS) was responding to around 120 calls per hour.

Between midday Monday 25 June and midday Tuesday 26 June SYFRS received 1,800 calls and responded to 600 incidents. National co-ordination arrangements were put in to place to provide High Volume Pumps and boats.

During this period SYFRS also attended a large fire in the Sheffield area. Approximately 300 rooftop rescues were carried out including 19 by three military helicopters. The military supported operations to prevent flood waters affecting the operation of the Thorpe Marsh Power Station.

Boats were provided for rescue and humanitarian purposes by SYFRS, South Yorkshire Police, six other Fire and Rescue Services, and local providers. Twenty-six FRAs assisted SYFRS in dealing with the floods with a total of 31 High Volume Pumps being deployed at one time or another. Major areas of concern included a possible collapse of the dam wall to the Ulley Dam; the extent of the flooding in Toll Bar; and the evacuations required in Sheffield, Catliffe, Canklow, Whiston, Treeton, Darfield and Doncaster. Two members of the public died as a result of the flooding.

The following table provides brief information regarding the timing of events in South Yorkshire FRS:

Date	Time	Event
15 June 2007		SYFRS received hundreds of calls and damage was widespread throughout the area with Sheffield, Barnsley and Rotherham being badly affected.
24 June 2007	1400	Environment Agency started issuing flood warnings.
25 June	0705	South Yorkshire Fire and Rescue Service (SYFRS) received its first call to flooding.
25 June	Between 1010 and 1300	Three major incidents were declared in the Barnsley, Doncaster and Sheffield areas by the local authorities.
25 June	1600	The South Yorkshire Police (SYP) declared a major incident. Gold Command was established and Silver Commands in four metropolitan areas.
25–26 June 2007	Overnight	Heavy rain fell on the region overnight. The Regional Response Team was established. A major pumping operation was conducted to reduce the height of the water in the Ulley Dam by two metres. This involved High Volume Pumps from SYFRS, other assisting FRAs and private contractors using their pumps.
5 July		Twenty-six HVPs were in use at Toll Bar using approximately 27.5 kilometres of hose-line.

Gloucestershire

In total Gloucestershire Fire and Rescue Service (GFRS) received 2,375 calls for assistance during the period from 20 to 28 July. They attended 1,007 of these incidents and gave telephone advice to 1,368 callers. Thirteen boats from a variety of organisations including the FRS, RNLI, Severn Area Rescue Association and the RSPCA were deployed and 529 people were rescued. High Volume Pumps were used to protect the strategic infrastructure and normal pumping operations continued in commercial and domestic properties. Various types of military assistance were used in Gloucestershire, notably to assist in protecting critical local infrastructure. A post flooding community care operation was carried out by GFRS involving Community Fire Safety staff from Cheshire FRS.

The following table provides brief information regarding the timing of events in Gloucestershire FRS:

Date	Time	Event
20 July 2007	0300	Gloucestershire FRS started to receive flood related calls at a steady rate.
	0700	Calls increased in volume as the local community awoke to the flooding.
	1300	Flood conditions affecting significant parts of Gloucestershire.
21 July 2007	Evening	Major rescue operations required in Tewkesbury
	2130	GFRS were notified of a threat to Mythe Water Works.
22 July 2006	0216	GFRS told that the River Severn had overflowed into Mythe Water Treatment works and that the water supply plant would close leaving the county with only 12 hours supply of mains water.
	1442	GFRS assisted with floodwater threatening the Walham sub station.
	1545	GFRS assisted with floodwater threatening the Castlemead sub station was under threat.

Hereford and Worcestershire

Significant parts of Hereford and Worcestershire were badly affected by the floods in both June and July and some areas were under water for several days, with Evesham and Upton-upon-Severn both heavily affected. During the period between Monday 16 July and Sunday 22 July 2007, Hereford & Worcester Fire and Rescue Service (HWFRS) attended 293 flooding incidents and 162 other non-flooding incidents. The Service received a total of 1,573 calls over this seven day period with most of the calls coming between midnight on Thursday (854 calls) to midnight on Sunday. There were approximately 1,124 rescues.

The rescue effort involved teams from Buckinghamshire, Mid and West Wales, Greater Manchester, Cheshire and Merseyside FRAs. They joined the Royal National Lifeboat Institution (RNLI) Rapid Response Unit, the Severn Area Rescue Association and the three HWFRS water rescue teams in a full scale rescue effort across the county. These teams were supported by air from the Aeronautical Rescue Co-ordination Centre, Kinloss in Scotland.

The following table provides brief information regarding the timing of events in HWFRS:

Date	Time	Event
19 June	All day	Severe storms resulting in flash floods. Fire control received 300 calls in one hour.
19–20 June	Overnight	Over 80 rescues carried out using a combination of crews, swift water rescue teams and RAF SAR helicopters.
19 July	Day	Severe weather warning issued for the Midlands.
20 July	Day	Storm hits Hereford and Worcester. Some villages flooded and over 80 people rescued in around 3 hours. RAF SAR helicopter also in deployment.
21 to 23 July 2007	3 days	Water rescue teams from various FRAs, RNLI and Severn Area Rescue Association assisted by the RAF began rescue operations. A total of 1,185 people rescued from cars, boats and their homes.

Oxfordshire

In total Oxfordshire Fire and Rescue Service (OFRS) received 2,000 calls for assistance throughout the period of the floods. Around 3,000 homes were affected either by direct flooding or due to evacuation caused by loss of electricity supply or for other safety reasons. Approximately 230 boat rescues were carried out. Military assistance was used in Oxfordshire to assist with the provision of sandbags, though they had no direct involvement in assisting the FRS.

The following table provides brief information regarding the timing of events in Oxfordshire FRS:

Date	Time	Event
18 July 2007	Through the day	Initial weather warnings received predicting localised heavy flooding. Later warnings repeated this but locations could not be predicted.
20 July 2007	0900–1100	Calls to control begin to build up throughout the morning.
20 July 2007	1100–1200	Spate conditions experienced and approximately 1,200 calls received throughout the day.
20–21 July 2007	Day and overnight	All appliances committed to strategic cover or flash flooding incidents caused by surface water run off. Early decision taken to respond to life calls only. Initial contact with FRSNCC to request HVP and Boat Crew assistance. Elderly persons home (EPH) cut off with OFRS crews who remained with residents overnight. Plan created to rescue 57 elderly persons using boat crews from OFRS, Essex and GMC.
21 July 2007	All day	Main activities based on river flooding. Large areas of county inaccessible. HVP used to protect and safeguard Marcham. Major pumping operation in Witney including evacuation of EPH and some boat rescues. Multi-agency leaflet work by crews alerting residents of potential flooding and giving advice. Prioritised direct assistance to vulnerable people.
21–22 July 2007	Overnight	Flooding in Abingdon caused damage to 570 homes and evacuation of the fire station.

Date	Time	Event
22 July 2007		Created standby fire station at nearby MoD establishment. Further evacuations in Abingdon including another EPH. First meeting of multi agency recovery working group chaired by OFRS. Selected recovery work undertaken in Banbury. Further HPV requested.
22–23 July 2007	Overnight	Pumping operation to protect a substation in Oxford.
23 July 2007	During day	Forward Control set up in Oxford with crews working on batches of calls. Six extra phone lines set up to receive calls. Rescues carried out from further EPH. HVP in use in Witney.
23–24 July 2007	Overnight	Evacuation of Osney and Botley Road areas of Oxford, various boat rescues also carried out.

Other parts of the country also suffered floods throughout the summer periods and many FRAs including West Yorkshire, London, Royal Berkshire, Nottinghamshire, Lincolnshire, Derbyshire, Warwickshire and the West Midlands were also heavily involved in rescues and pumping operations.

Appendix 6
Glossary of terms

Term	Definition
CFOA	Chief Fire Officers' Association
CFRA	Chief Fire and Rescue Adviser
COBR	Cabinet Office Briefing Rooms
Defra	Department for the Environment, Food and Rural Affairs
EA	Environment Agency
EISG	Emergency Information Support Group*
FRA	Fire and Rescue Authority**
FRS	Fire and Rescue Service
FRSNCC	Fire and Rescue Service National Co-ordination Centre
FST	Flood Support Team
HVP	High Volume Pump
IRMP	Integrated Risk Management Plan
IWTG	Inland Water Technical Group
LRF	Local Resilience Forum
NSAT	National Strategic Advisory Team
RRF	Regional Resilience Forum
SAR	Search and Rescue
USAR	Urban Search and Rescue
SHA	Strategic Holding Area
LGA	Local Government Association
Critical local infrastructure	Local infrastructure that includes gas, electricity, water, road and rail

* Since this review was initiated, EISG has been re-named as the Communities and Local Government Emergency Room (Fire and Rescue).

** As defined in the Fire and Rescue Services Act 2004 Part 1(1)

Photo credits

Thank you to those Fire and Rescue Services who responded to our request for images of the flood related emergencies during the summer of 2007. We are unable to include all those received in this report and have chosen those we think best illustrate the events.

West Midlands Fire and Rescue Service Photographic *(Front Cover)*

Avon Fire and Rescue Service *(Executive Summary)*

David Bloomfield Hampshire Fire and Rescue Service *(Main findings and recommendations)*

David Bloomfield Hampshire Fire and Rescue Service *(Chapter One Background)*

West Midlands Fire and Rescue Service Photographic *(Chapter Two Control and communications)*

Greater Manchester Fire and Rescue Service *(Chapter Three Capability and statutory duty)*

Greater Manchester Fire and Rescue Service
(Chapter Four Equipment, health, safety and training)

Oxfordshire Fire and Rescue Service
(Chapter Five Flood risk information)

Greater Manchester Fire and Rescue Service
(*Chapter Six National co-ordination and clarity of roles)*

Greater Manchester Fire and Rescue Service
(Chapter Seven Category 2 responders)

David Bloomfield
Hampshire Fire and Rescue Service
(Appendices)

West Midlands Fire and Rescue Service Photographic
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