Rising Levels?
Public awareness and understanding of risks from flooding

Work by the Risk and Regulation Advisory Council in response to the Pitt Review of Flooding
The Risk and Regulation Advisory Council

This report was prepared for the Risk and Regulation Advisory Council in November 2009 by Chris Gotch of the Risk and Regulation Team in the Department for Business, Innovation and Skills, on the basis of work carried out by the Risk and Regulation Advisory Council, supported by the Risk and Regulation Team, between June 2008 and October 2009, and research commissioned by the Risk and Regulation Advisory Council.

More information about the Risk and Regulation Advisory Council can be found at http://www.bis.gov.uk/rrac.
Contents

1. Introduction – The Risk and Regulation Advisory Council  .....................  4
2. The Pitt Review and the Risk and Regulation Advisory Council  ..........  6
3. Risk Actors ................................................................................................  9
4. Public Risk Communication ...................................................................... 20
5. Improving Public Understanding of Risk .............................................. 30
6. Conclusion and Summary of Recommendations ................................. 34
   Bibliography ................................................................................................ 37
   Further reading – RRAC Publications ....................................................... 38
1. Introduction: The Risk and Regulation Advisory Council
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The Risk and Regulation Advisory Council

The Risk and Regulation Advisory Council (RRAC) was set up by the Prime Minister in January 2008 to work with Government and stakeholders across society to improve understanding of public risk and how best to respond to it. Over the course of a year, the RRAC led an experimental offensive against the mishandling of risk in society. We primarily looked at how distorted perceptions of risks can encourage poor policy-making and unnecessary laws, leading people to feel that Government is interfering too much in their lives.

In May 2009, the RRAC published its main report to Government: *Response with responsibility: Policy-making for public risk in the 21st century*. The report summarises the Council’s findings, introduces our approach and tools for dealing with public risk, offers advice for Ministers in charge of responding to a risk and sets out our general recommendations to Government. We have also published case studies and research on particular areas of work, and guides to help policy-makers and the public deal better with public risk.

The RRAC’s work programme consisted of operational and academic research, centred on a series of major case studies selected to illustrate and improve understanding of particular areas and aspects of public risk and policymaking. Additional work was undertaken in response to requests for intervention or advice, and this made a valuable contribution to the Council’s understanding, reflected in our main report and in the supporting guides and tools.

Specifically here we are concerned with public understanding and communication considerations relating to flooding and other community risks, in connection with a request from Sir Michael Pitt in his 2008 Review of Flooding.
2. The Pitt Review and the Risk and Regulation Advisory Council
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In the summer of 2007, Britain experienced exceptionally heavy rainfall, which ultimately meant that it became the wettest summer since records began. Many parts of the British Isles were affected by flooding, making it an incident of broad national concern. Although the effects were not as severe as some crises suffered by countries in parts of the world which have historically been more susceptible to extreme weather (e.g. Hurricane Katrina in the US in 2005), the scale of the deluge in the worst affected areas of England, Wales and Northern Ireland was unprecedented. 55,000 properties were flooded, 13 people died and some 7,000 needed to be rescued from the flood waters by the emergency services, and almost half a million people were left without mains water or electricity in the biggest civil emergency in British history.¹

In August 2007, Sir Michael Pitt was asked by Ministers to conduct a thorough and independent review of the flooding emergency that had hit the UK in June and July of that year. Sir Michael’s final report Learning lessons from the 2007 floods was published in June 2008, demanding changes where needed and giving praise where it was merited. He made 92 specific recommendations for particular actions by the Government and others.

In the section devoted to improving advice and helping people to protect their families and homes, Recommendation 59 of the Pitt Review was that:

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


This paper therefore reports on the work undertaken by the RRAC in agreement with DEFRA, following the request in the recommendation above. It also signposts the findings and tools of the RRAC published separately which are particularly relevant to Pitt’s recommendation.

We have taken the definition of “community risks” as near-equivalent to the RRAC’s definition of “public risk”, i.e. all those risks which may affect a community and to which government may be expected to respond.

Following the Pitt Review’s recommendation, the Risk and Regulation Advisory Council agreed with DEFRA to take forward work in three particular areas: reviewing research on the key players involved in changing society’s perception of risks; carrying out further direct research

¹ Pitt 2008, Executive summary pp ix-x.
through facilitated discussions involving these same groupings; and establishing an academic partnership to develop guidance for risk communication.

These workstreams were integrated into the RRAC’s overall work programme, contributing usefully to the RRAC’s understanding of the key trends summarised in our main report to government, *Response with Responsibility: Policy-making for public risk in the 21st century*. Our work in response to the Pitt Review also provided an additional impetus to develop and publish a series of guides for policymakers and analysts, for those required to communicate about public risks, and for the public to improve their risk understanding.

**RRAC Recommendation 1:**

Government should fully endorse the approach to policymaking for public risk set out in the report of the Risk and Regulation Advisory Council, *Response with responsibility: policy-making for public risk in the 21st century*. Comprehensive use should be made of the guides developed by the RRAC, or appropriate similar tools and techniques, to help policymakers and others to better understand, communicate about and develop policy for public and community risk.
3. Risk Actors

Society’s perception of risk is shaped by many different voices such as, for example, newspapers, insurance companies, or friends and family. In the RRAC’s work we have come to call these different groups which are involved with risk ‘risk actors’. In order to develop a better understanding of the complex interactions which together affect our understanding of and responses to risk, the RRAC commissioned a series of research reviews. Each review was led by one or more specialists in the respective field, and focussed on the roles of particular risk actors, examining both the way each group influences perceptions of risk, and the way they in turn are influenced by other groups. The seven groups examined initially were: politicians, civil servants, the media, insurers, the legal professions, standards-setters, and the public. Later reviews included examination of the roles of academics and experts, and analysis of the way interactions between the groups can sometimes combine to escalate perceptions of risk into "regulatory storms".

In coordination with the reviews of research undertaken, a series of facilitated “spotlight” events were held in the FutureFocus facility in BERR (now BIS) on each of the seven initial risk actor groups. Each event involved between ten and twenty targeted individuals drawn from the particular group in focus. Through facilitated discussion and interactive exercises, the events explored the relative importance of differing inter-group interactions on public risk, thus enabling the RRAC to better understand the perspectives and role of each group and to refine the development of a generalised risk landscape. Informed also by the findings from our major risk forum events in policing and health and safety, we were able to design and publish a simplified schematic representation, The Risk Landscape: Interactions that shape responses to public risk. This can be used to assist in the rounded consideration of public risks for many purposes, including as a policymaking aid, to help design communications and engagement strategies, and as an educational tool.

Each of the risk actor groups generally makes a positive contribution to society, and individually and together they can and do help to solve real problems. But each group naturally acts according to its own particular motivations, which in certain circumstances can cause problems. If a group sees a risk in a particular way and gives its opinion, then the effect, whether intended or not, can be to distort the views of others. In the worst cases risk actors can become ‘risk-mongers’ – people or groups who conjure up or exaggerate risks. This may be in order to create some kind of advantage for themselves, such as financial gain, attention, power or even job security. Sometimes it will be well-intentioned but misguided. All of the risk actor groups are capable of acting in this way in relation to one or more risks. Both Government and the public need to understand the risk actors and risk-mongers who can affect perceptions and responses to risks. Otherwise, their own perceptions may be distorted and their responses may be inappropriate and disproportionate to the real risk.
The public as a risk actor

‘The public’ is a widely used term, but there are of course many very different individuals and groups within the public, and members of other risk actor groups are themselves also, at some level, members of the public. So the influences on the public’s understanding of a risk, and the public’s influence on others, are especially complex. In making observations about the behaviour and perceptions of ‘the public’, we must remain aware that generalisations on behaviour in this group, while useful to our understanding, cannot usually reflect the considerable range of views and responses of all those affected by a particular risk.

The perception and understanding of any particular public risk by an individual differs greatly according to a complex set of variables, including for example the person’s level of familiarity, experience and fear of the risk in question, and the nature of the risk itself. Risks can be natural or man-made, immediate or long-term, voluntary or mandatory, to list just a few of the factors which affect the way people think about the risks they face. Thus the public’s understanding of flooding risk will necessarily differ markedly from their understanding of, for example, the “community risk” posed by the potential siting of a nuclear power station, local road safety considerations or an animal health scare.

The nature of a risk will therefore also shape public responses to it. Man-made or ‘technological risks’ (eg pesticides, nuclear power stations) are less acceptable than natural ones (eg floods and radon). Flooding and similar ‘acts of god’ are largely seen as beyond human control and are therefore more easily tolerated. But as a consequence, less action tends to be undertaken in response to the risk.

Despite the severity of the flooding in 2007 and episodes of flooding every year, even now relatively few UK citizens will have direct experience of their home being flooded. With many types of risk, such as the concern over GM foods, we see that a lack of tangible experience is one of the key drivers behind increased risk fears. But this effect is not observed with respect to flooding. Perhaps the clearly visible and easily understood consequences of flooding – though still serious – are sufficient to avoid the fear of the unknown. Ubiquitous images of flooding in the media, and personal links with those affected, also provide an indirect experience of flooding to those not affected themselves.

On the other hand, we might expect those who know themselves to be at risk – those who have been affected previously or know they live on a floodplain – to be more active in responding to the known flood risk. During or immediately prior to an incident of flooding itself people take action to protect themselves, their family and property, and others in their community. But to stimulate a community into action at other times requires the presence of an ‘attractor’ – an issue held to be of importance for the community once the immediate threat to family and property is perceived to have been removed. A non-flooding example can be found

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2 The risk actor review on the public explores these themes in more detail. Wood Holmes Group. 2009. The public and public risk. Research commissioned by RRAC.
4 “Arguably the most potent tool at the media’s disposal is the ability to transform an abstract media message into an indirect experience for the audience”. Wood Holmes Group 2009, p14.
The behaviour and actions of Business, Public Bodies and the Public are shaped by the interactions shown in the Risk Landscape.
Influences

1. Standards informed by specialist knowledge
2. Court decisions informed by specialist knowledge
3. Policy informed by specialist knowledge
4. Pressure Ministers, Regulators and Other Politicians to take action
5. Raise awareness/concern about issue
6. Legal uncertainty can create opportunity for standards creation
7. Judgments partly determine insurance risk and inform premiums
8. Set and enforce rules and provide guidance
9. Policy decisions informed by advice
10. Encourage positive coverage of policy
11. Set policy direction
12. Set statutory remit
13. Scrutinize and challenge Ministers’ actions, issue directives
14. Determine funding and set remit
15. Standards used as a guide to acceptable practice
16. Best practice and guidance made available
17. Pricing and offers of cover informed by compliance with standards
18. Out of court settlements prevent legal principles of case being tested
19. Actions affected by insurers’ advice, availability and conditions of insurance
20. Out of court settlements encourage litigation
21. Pressure on Ministers and Other Politicians to act
22. Raise awareness of and sensitivity to risks
23. Raise awareness of risk and potential solutions
24. Demand for products or services to mitigate risk
25. Public opinion influences appeal court judgements
26. Pressure Ministers and Other Politicians to take action
27. Impact of policy on society influences Civil Servants’ recommendations
28. Interests and concerns of Public influence Media content

Risk alarms

1. Events raising or exposing risks
   (e.g. 9/11, banking crisis, publication of WHO report highlighting health risks)
2. Emerging risk issues
   (e.g. security of energy supply, pandemic flu, domestic security)
3. Newsworthy stories which highlight risk (e.g. flooding, bird flu, child abduction)
4. Individuals or groups, who stand to gain from elevating concerns, raise anxiety/highlight issue (e.g. Conservation Groups, NIMBY campaigners)
5. Issues of concern to the Public
   (e.g. environmental, health, education, safety issues)

Compositions

Experts: Individuals widely recognized as reliable sources of technique or skill
Academics: Individuals from an academic institution who are widely recognized as reliable sources of technique or skill
Single Issue Groups: Formal and informal groups of individuals (e.g. charities, pressure groups)
Legal: Judges, courts and the legal profession
Regulators: Bodies set up by government with power to set and enforce rules in a particular area (e.g. HSE, FSA)
Civil Servants: Civil Servants of central government departments
Ministers: Central government Ministers
Other Politicians: National politicians who are not Ministers, local and international politicians
Standard Setters: Agencies which disseminate formal advice on how risk should be managed (e.g. BSI, ISO, professional bodies and industry groups)
Insurers: Insurance brokers and underwriters
Media: Print, broadcast or internet media
Public Bodies: Public Bodies, which are not part of central government (e.g. Local Authorities, NHS, NDPBs)
in community action to oppose the opening of a new young offenders’ residence within the community.\(^5\) For flooding there is a clear attractor in the immediate aftermath of a flood. But just as the community action group dissipates once their objective is achieved, the attractor for flooding risk is likely to wane after the damage is repaired and the mess cleared up. Without the community attractor there is less awareness and less motivation for people to take action related to flood risk and flood resilience.

The Environment Agency’s data defines the highest level of “significant” flood risk as a chance of 1 in 75 or greater of occurring in a given year. So even when the risk is considered substantial, flooding is still for most a rare and infrequent event. As memories of flooding fade, there is likely to be less attention paid to flood risk management, although the level of risk is unchanged. So we must be conscious of the need to maintain sufficient public interest and awareness in flood risk and flood resilience even – especially – when no recent flooding has taken place. Other community risks will have similar issues if they are not perceived as immediate threats.

Flood risk communication therefore needs to be ongoing, and periodically refreshed, in order to prevent public engagement and interest from dissipating once the immediate attractor of a recent severe flood occurrence has passed. Without overplaying the risk or exacerbating fears, the aim should be to ‘mainstream’ sensible flood risk management by individuals’ and communities’, so that it can be automatically considered on a regular basis in the same way as maintenance and financial planning.

**RRAC Recommendation 2:**

Government should ensure that appropriate flood risk communication plans are developed and implemented on an ongoing basis subject to regular reviews, with the aim of encouraging sensible planning for flood risk management by individuals and communities.

Apart from influences on the public’s perception of risk by other risk actor groups, the public are themselves prone to inadvertently distorting the risk perceptions of their friends and families – other members of the public. Within a group or community, many people can be expected to act and react in similar ways, and this tends to reinforce the strength of the attitude or behaviour.

\(^5\) Wood Holmes Group 2009, p37.
The Media and Regulatory Storms

Many public risks, such as those related to health, crime and safety are frequent subjects of significant media attention both as news and opinion. Our research indicates that the media plays a greater role than any other risk actor in influencing individuals’ responses to public risk. The media’s primary motivation, of course, is to attract and retain audience, and there is therefore a natural inclination for the press to choose the most interesting – and often the most extreme – examples of a risk or event to feature in reports. This understandably selective use of data, especially in headlines, can distort the public’s perception of the risk or event, even when a media outlet is not intentionally seeking a sensationalist approach. Developments in technology in recent years and the way the public increasingly interacts and participates in media coverage, for example by use of mobile phone cameras, can often accentuate the focus on the most dramatic aspects of a story, at the expense of more rounded coverage, exacerbating the potential for distortion.

The result can easily be ‘risk amplification’: the individual reader or viewer perceives the level of risk to be higher than the underlying facts would indicate. When an individual is also exposed to differing views, such as guidance on the same risk from a trusted friend or authority, then the net effect may be one of increased uncertainty and/or decreased trust in the authority. When there is no strong countervailing view, it is relatively easy for the interplay of media, public opinion and any vested interests to escalate the issue into a ‘regulatory storm’, putting pressure on ministers to act: “something must be done. This can never happen again”. The resulting regulatory or legislative response, if forthcoming, may satisfy a public/media demand but tends to be exaggerated, disproportionate to the underlying risk. If ministers resist taking precipitate action they can be criticised as soft or indecisive. Examples of these difficulties and their effects can be seen in the calls for crackdowns on binge drinking and drug-taking, dangerous dogs legislation and the over-burdensome child safeguarding regulations now in force in the UK.

In the case of flooding risk, we can be grateful that the 2007 floods did not lead to a regulatory storm. Flooding, when it occurs, is a “media-friendly crisis”, likely to provide strong televisual disaster images, and therefore likely to be a story high on journalistic priorities. The unprecedented nature of the UK floods in 2007 meant there was bound to be a high level of media attention. But coverage of the floods was largely factual and reflected the positive ‘wartime spirit’ of those affected. In the immediate aftermath, there was a flurry of response to the floods, including a plethora of reports by different bodies. There was criticism in the press for alleged Government failings including inadequate investment, unheeded warnings and poor forecasting. But calls for government action were largely met by the Pitt Review and the ongoing work in response to it, which has not in our view shown a disproportionate response. As Burgess says, “The 2007 floods were exceptional events that raised new problems of clear public importance that seem to have been met with a largely proportionate, financially modest response.”

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7 Kitzinger 2009, pp10-11.
8 Boudier 2009, pp22-23.
9 Burgess 2009, p53.
On the other hand, there may be an opposite effect in play, in which the public's own diminished perception of flood risk, and the relatively low media profile of the issue outside specific periods of flooding, may lead to a general underestimation of the risk and consequently to disproportionately little flood risk response by the public.

Although the media can frequently be a factor in the distortion of risk perceptions, the RRAC found that mainstream British media could also be a valuable partner in correcting distorted perceptions and influencing other risk actors. In the summer of 2008 the RRAC highlighted proposals for tree safety management that would have placed disproportionate burdens on land owners and might have led to people cutting down trees unnecessarily. Targeted media interviews and clear presentation of the underlying facts resulted in balanced and sensible coverage, and after substantial public response and debate, the proposals were not implemented.10

Other Risk Actor groups and their influence

**Insurers** emerge as an important risk actor group in relation to flooding and many other risks. Insurance policies mitigate the financial consequences of taking risk. Insurers can therefore have an important effect on the behaviour of their customers and potential customers, for example through the advice they give, the conditions or limits applied to the cover they provide, and the standards they adopt. **Standards-setters**, such as BSI or trade associations, can have an important influence on risk perception and response through the way others (such as insurers and the judiciary) choose to use their standards.

**The legal sector**, as a risk actor group, includes judges, courts and the legal profession. With respect to public risk, they are broadly responsible for interpreting and administering the law and determining liability when applicable. The sector therefore has an important influence over those who are seen as responsible for a public risk, often exerted through insurers since the extent and nature of any likely liability is crucial in deciding the terms of insurance cover offered to a customer. Liability issues lie at the heart of perceptions of a ‘compensation culture’, in which people seek to assign blame for mishaps, and then make a claim against the alleged party at fault. The perception of a compensation culture is pervasive and can affect risk responses, even though actual levels of compensation claims in the courts suggest the perception might be exaggerated. With respect to flooding risk, as a natural phenomenon, the potential for unhelpful allocation of blame is less obvious, but claims against officials seen as negligent in providing a response or against those whose actions are alleged to have contributed to worsening a claimant's flooding experience are not inconceivable.

**Experts and academics** in specific disciplines can play a valuable role in informing responses to public risks. But they can also use the risk landscape to their own ends, taking advantage wilfully or inadvertently of the high degree of trust that the public has in them. Experts can for

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example raise issues in the media which enhance their own reputation, or advocate standards which increase the value of their own expertise. On the other hand, our research suggests that common sense, local knowledge and experience are frequently undervalued in responses to community risks, in comparison with the views of specialists brought in from outside who will likely be ignorant of local factors.\textsuperscript{11} This may, for example, be particularly pertinent in the case of flooding risk from surface water brought on by localised intense rainfall, a key aspect of the 2007 floods. Pitt recognised that while the UK held a high degree of valuable expertise in predicting and modelling river and coastal flooding, current levels of expert knowledge were insufficient for a similar systematic approach to intra-urban surface water floods of the kind seen in 2007\textsuperscript{12}. Local knowledge of the areas affected might have contributed useful information on land use, drainage run-off patterns and how they might be diverted or adapted, blockage points and particularly vulnerable facilities or communities. It will be important for future flood risk planning to take full advantage of the best available local knowledge, both in long-term plans and at short notice during times of increased risk.

Government, made up of Ministers and officials, is required to set and implement policy relating to public risks. When the profile of a risk is raised, Government is usually expected to react. Pressure to act may come from the public, media, lobby groups and others, and Ministers will want to be seen to respond appropriately. Sometimes the 'best' course of action may be not to take substantive new measures, but this is often an unattractive choice for civil servants eager to make their mark, or for politicians, under pressure to make an announcement, to “do something”. Intervention in these circumstances could be at best unnecessary and may actually be unhelpful in managing the underlying public risk.

By reacting in such situations, the Government further extends the public expectation of a Government responsibility for an ever-widening range of risks. The House Of Commons Select Committee on Public Administration recently received evidence from three former ministers, each of whom indicated their view was that the British Public now believed that it was the duty of Government (and specific Government ministers) to protect the public from any harm (real or perceived) which might befall them. This was in their view an unrealistic expectation and one which caused the overall system of public administration to become burdensome.\textsuperscript{13}

\textsuperscript{11} Barrett and Ball 2009. pp11,16,19,24.
\textsuperscript{12} Pitt 2008, p40.
Community Resilience

The RRAC has identified the danger of Government assuming too much responsibility for the management of risk in society, and therefore establishing a spiral in which the rest of society becomes less responsible for managing the risks it faces, reducing its capacity to handle those risks and ultimately reducing community resilience. But the role of the community in the event of major crises has been widely recognised as crucial to mitigating the worst effects, especially on vulnerable people. We therefore worked with the Government’s Talent and Enterprise Task Force to examine the characteristics of successful examples of community resilience.  

The Pitt Review noted that recent approaches to flood risk management have moved from the use of large-scale physical infrastructure (i.e. flood walls), towards greater reliance on adaptation measures. The change in the Government’s approach to flood risk measures from an objective of flood prevention in the last century, to one of flood risk management, removes the presumption that flooding can be prevented, and relies instead on proportionate measures to mitigate the worst effects of flooding, including improving flooding resilience, i.e. the ability to recover quickly and fully from an incident of flooding. This is of course closely related to the resilience of the community itself, and means that strengthening community resilience is more important than ever.

The RRAC’s work on building resilient communities found that more and better help was needed for community activists wanting to take action, to enable them to take their ideas forward, and to scale up successful ideas. Mary Dhonau, Chief Executive of the National Flood Forum (NFF), was one of the participants in our forum. She explained how her organisation had evolved from a group of neighbours who petitioned for better responses after their homes had been ruined. Through a series of community networks, and lobbying the media, local authorities and MPs, a formal organisation had developed, and grown in reach and influence. But it retained its original focus on community support, acting as a voice for flood victims. The NFF brings together approximately 100 different groups from across the country and is an unusual but valuable example of a community-based organisation which allows ‘the public’ affected by a risk to substantively engage at a national level with Government and other risk actors. We commend the work of the NFF and suggest that the advantages of its existence should be maximised in encouraging its full engagement at a national level with flood risk policy development, and at a local level the engagement of its constituent groups with Regional and Local Resilience Forums, local authorities and others. But equally, care should be taken not to exclude other community voices that wish to get involved in flooding risk response, especially at a local level.

The RRAC’s approach to tackling public risk issues comprises understanding the risk in context, engaging with a broad community, and effective communications. The importance of

17 Details of Local Resilience Forums and the national resilience framework at http://www.cabinetoffice.gov.uk/ukresilience.aspx
active and full engagement with a wide range of stakeholders including members of the public should not be underestimated. Multi-stakeholder discussion also contributes enormously to better understanding of the risk and to effective communication. In many circumstances it can play a real role in policy formation at an appropriate level, and should not just be a part of an arms-length consultation. Policies discussed, debated and developed jointly enjoy better acceptance and chances of success, and the mutual trust and understanding developed between different risk actors in planning and development stages will provide for a more reliable and effective partnership in the event of an incident. The RRAC pioneered the use of the 'risk forum', a facilitated discussion event described in *Tackling Public Risk: A practical guide for policy makers*. Many other valid approaches to involving a wide range of stakeholders exist, but for those at national and local level who are unfamiliar with this way of working, the RRAC’s guide may provide a useful starting point.

At a national level, the NFF, consumer groups and other similar bodies may take the role of the public risk actor in engagement on flood risk management, while at a local level community groups, including those which make up the NFF, have an important role to play in cooperation with the formal Local Resilience Forums (LRFs), and in formal and informal partnerships with local authorities. To have most effect in developing and implementing local-level flood risk management policy, we believe there is need – perhaps most readily met through the LRFs – to offer enhanced pro-active engagement with local communities and other agencies and risk actors. The ideal should be to jointly develop policy, helping to build more sustainable solutions in which the people of the communities themselves are more likely to accept a higher degree of responsibility and to develop and maintain greater community resilience.

**RRAC Recommendation 3:**

The public, through the National Flood Forum and otherwise, should be engaged to the greatest extent possible in ongoing policy development and planning for flood risk response. Government should take the lead at a national level, while Local Resilience Forums and local authorities take the lead at a community level, ensuring that an appropriate balance of local knowledge and wider expertise is used to develop sensible local flood risk management measures.

The RRAC’s work found that other issues key to improving community resilience were the need to recognise and support ‘activists’ in all organisations, not just in the voluntary sector but also for example in local government, in business and in funding organisations. The ability to bring together people from different sectors with different skillsets around a common cause was seen as particularly beneficial, with much increased capacity achieved through the diversity of experience and contacts. Meanwhile better understanding was needed by funding organisations of the way community activists and groups work. This should ideally be backed by more flexible models of funding for community projects, which could take into account the reality of the individuals wanting to take action in their communities, rather than being structured primarily around the compliance needs of the funder.
4. Public Risk Communication
4. Public Risk Communication

The RRAC developed a broad network of academic partnerships through the course of its work. Specifically in order to develop risk communication guidance, the RRAC collaborated with the Government Office of Science and the ESRC to set up a short-term attachment to the RRAC support team by Dr Frederic Bouder of the Centre for Risk Management at King’s College London. Dr Bouder, assisted by several renowned international risk experts, led development with the RRAC of *A Practical Guide to Public Risk Communication: The five essentials of good practice*. His work also included case studies examining the issues of nanotechnologies, obesity and flooding.

Poor communication by government regarding a public risk can increase public distrust of the government, create a disproportionate public scare and lead to an unhelpful influence or starting point for later policy. There are well-known examples from recent years such as the BSE or the MMR vaccine. The many instances of good practice in risk communication across government and elsewhere tend to be less well known, since the communication has helped to handle the risk issue in an appropriate way, raising awareness and/or calming fears with the best available information and advice, without invoking a disproportionate major scare. Risk communication in issues such as the Blue Tongue Virus in livestock and the 2008-9 government information campaign regarding Swine Flu might be seen as more successful examples.

Ideally public risk communication should be pro-active, carefully planned and based on ongoing high-quality dialogue with key stakeholders and the public. But government will also need to respond quickly to unanticipated public risk events and risk communication in these circumstances will necessarily be reactive. The RRAC’s short guide focuses on the five areas which should be considered in all risk communication circumstances.

When time is short and a response from government is urgent, these five elements can be used as a reference to good practice, and questions in the guide can be used to quickly ensure the basics of good practice are covered and obvious mistakes avoided. When there is time to develop a full strategy, the guide provides the basis to develop a simple public risk communication strategy. For particularly important and sensitive areas of policy, the guide can be used a starting point for discussion, with more comprehensive advice available from a range of existing publications referenced in the guide. The RRAC’s guide is intended to be appropriate for all types of public risk, and Dr Bouder’s example case study analyses, on the basis of the ‘five essentials’, deliberately focussed on three very different areas of public risk. The discussion here draws extensively on Dr Bouder’s analysis relating to flooding.

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18 The complete set of academic research papers commissioned by the RRAC are available on the RRAC’s website at [http://www.bis.gov.uk/rrac](http://www.bis.gov.uk/rrac).
19 Bouder 2009.
The five essentials of good practice in public risk communication:

1. **Assembling the evidence**
   Demonstrate you have a credible basis for your position

2. **Acknowledgement of public perspectives**
   Understand how those affected understand the risk

3. **Analysis of options**
   Consider a broad range of options and the associated trade-offs

4. **Authority in charge**
   Define the nature of your involvement with the risk

5. **Interacting with your audience**
   Identify the audiences and the appropriate methods for communicating with them.

RRAC 2009: A Practical Guide to Public Risk Communication

### Assembling the evidence

With respect to flooding, Bouder points out that although there has been a significant amount of data available to government from the *Foresight Future Flooding* report of 2004 and the subsequent NationalFlooding Risk Assessments (NaFRA), the data collected has been patchy and the risk assessments will have suffered as a result. There is good reason to hope that the UK’s new Atlantis initiative bringing together major agencies may improve the quality and consistency of information, and that flood risk modelling using the RASP (Risk Assessment System Planning) process will yield more accurate results. Modelling processes have traditionally been based on coastal and river flooding across the UK. As we have noted, the difficulties of estimating flood risk are highlighted when one notes that the 2007 floods across the UK were to a large extent caused not by coastal or river (fluvial) flooding but by a build-up of surface water due to sustained intense localised rainfall (pluvial flooding), exacerbated by a scarcity of free-draining urban land.

While the recent update to the Foresight study confirms that coastal flooding remains the greatest source of flood risk facing the UK in the 21st century, it is expected that climate change-related variations in weather patterns will also increase the likelihood of extreme weather, including episodes of intense rainfall in less predictable locations. The National Flood Forum believes it “likely that the majority of properties flooded in the next 20 years will not have been flooded before and will be affected by a pluvial, rather than fluvial, event.” We therefore strongly endorse Pitt’s recommendations for rapid development of the UK’s capacity for modelling surface water flood risk – and all other sources of flood risk – and acknowledge the

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significant progress already being made on this issue. We believe that to improve public understanding, an important development will be to combine all the best available relevant flood risk data for each location into a single map, including honest and appropriate caveats where necessary. The Environment Agency’s website has made an excellent start in this direction. While recognising the extraordinary complexity of the data and models which would underlie such a map, it will be of particular importance to maintain ease of access and ease of understanding for a non-technical user.

**RRAC Recommendation 4:**

The Environment Agency should seek at the earliest opportunity to integrate the best available information on all forms of flood risk, including surface water flooding, into a single map which remains easily accessible and easily understood by the general public.

**Acknowledgement of public perspectives**

Considering the scale of the 2007 floods as the biggest civil emergency in British history, the level of public outcry at the time, and since, was relatively modest. This is in line with the general observation that natural catastrophes, seen as ‘acts of god’, tend to provoke relatively less public concern than man-made or technological dangers, both as a risk under consideration and in the event that the risk materialises. Linked with this there are several reasons why the public tend to underestimate and/or deny the level of risk, and therefore under-prepare for risks such as flooding. Those who have experienced severe flooding tend to apply an undeserved ‘law of averages’, assuming for example that the event was so dramatic that it will be unlikely to recur the following year. Those who suffer less serious flooding relatively frequently might be expected to be more likely to adjust their behaviour to integrate flood risk measures, but if their experience has not been severe, they may take less action, through a false sense of security. And many people who have no recent or direct experience of flooding have a tendency to exclude themselves from the pattern of risk.

As we have suggested above, flood risk communication to the public therefore needs to be ongoing and regularly refreshed, seeking to attract attention and change behaviour without causing undue alarm. It must be based on honest and accurate information, but need not be sombre or regulatory in tone.

Though self-evident to professional communicators, it should be borne in mind that the effectiveness of a communication campaign could be significantly enhanced if accompanied by effective engagement and dialogue on flood risk management with appropriate members of the relevant communities, who can in turn act as community champions. Engagement such as this, as we have recommended above, is likely to engender greater levels of response, and awareness sustained for significantly longer periods than could be achieved, for example, through a poster campaign and leaflet drop alone.
Analysis of options

As we noted before in relation to community resilience, the underlying objective of policy to tackle flooding risk has changed from flood prevention to flood resilience. In the wake of the Pitt Review, this move from ‘flood defence’ to ‘flood risk management’ is even more pronounced.\textsuperscript{22} It carries with it an implicit recognition that total prevention of flooding events is not a sensible objective,\textsuperscript{23} and therefore allows for better consideration of the trade-offs associated with alternative mitigating actions. The level of investment needed in order to maintain a reasonable policy of full flood prevention would be unsustainable. Even if not prohibitive, investment costs could soon reach levels out of proportion to the risk itself. By no longer seeking to establish a ‘zero tolerance’ of flooding, the emphasis shifts to the application of a model of relative risk and benefit.

We have found that the intolerance of failure is a common but unhelpful trend in public, media, and political responses to public risk.\textsuperscript{24} A frequent rallying cry is that “we must never let it happen again”, particularly for example in relation to risks to children or to public health. But the public, media, and other risk actors are inconsistent, and tend not to see the trade-offs and unintended consequences of trying to implement a zero tolerance policy. Burgess gives an apposite example: “A comparison here would be with the annual complaints that Britain should not be so easily paralysed on the rare occasions that it snows. Whilst an undeniable truth in one sense, it fails to consider whether it is worth the UK devoting significant resources for an occasional problem. What would be the alternative? It might be wondered whether there would be an eventual expose and ‘public outrage’ at how local councils had wasted money on snow ploughs that stood idle for 364 days a year!”\textsuperscript{25}

We would argue that a better principle, in flooding risk management as in other public risk issues, would be to address the risk in a proportionate way. A more systematic application of cost-benefit analysis would be beneficial to development of balanced decision-making for development in flood-prone areas. We would expect this to endorse policies in place to support investment in the course of urban development in Sustainable Urban Drainage Systems (SUDs), and long-term planning to put key strategic facilities in less risk-prone locations, rather than placing a blanket ban on development on a flood plain. Other sensible measures, now explicitly recommended to Floodline Warnings Direct subscribers and enshrined in relevant Building Regulations, are designed to increase property resilience - e.g. construction using solid water-resistant flooring and lime-based plaster at and below ground floor level on flood plains.

However, there is an important element in the adoption of flood risk management measures which appears to have received insufficient attention. UK residents in the 20\textsuperscript{th} century became accustomed to the idea of flood protection through raised and reinforced river and sea walls.

\textsuperscript{22} Bouder 2009, p28.
\textsuperscript{23} More explicitly, the 2004 Foresight Future Flooding report calculated that possible rises in sea level by 2080 could mean that even with ongoing standard levels of investment in coastal flooding defences, flood risk levels in some areas would increase from a 1% chance of flooding in each year to a 20% chance of flooding. Cited in Pitt 2008, p27.
\textsuperscript{25} Burgess 2009, p55.
and developments such as the Thames Barrier, expected at that time to prevent flooding. There appears to have been little effective dialogue with the public on what might be understood as a significant subsequent change in policy. Therefore continuing high public expectations of Government responses to flooding risk may now be unrealistic and at odds with the risk management measures in place. Indeed, as Bouder points out, this appears to be borne out in the tone of much criticism of the Government in the wake of the 2007 floods. For example, the then Liberal Democrat leader Sir Menzies Campbell commented that “there are quite a few questions as to how it was that flood-prevention measures were not in place or were not more effective.” The Independent’s leading article the same day said the Government had a “stark choice” to invest vastly more in flood defences or ensure that its proposals for 200,000 homes to be built in the South-east of England were changed to avoid flood plains.

The move towards a risk-based approach needs to be accompanied by better communication of the underlying economic and other factors which affect decision-making. As we have argued, there are also valid social and practical reasons for responsibility to be pushed back from the government towards the communities affected by flooding, not least the importance of local knowledge in developing appropriate solutions. But it needs to be seen that this is done in an open and collaborative way, with full engagement of and support to the communities concerned. Otherwise it can appear simply to have been instituted for government expediency as an excuse not to intervene, or worse be seen simply as government failure, despite an intelligent basis for such action. Government must proactively address the possible clash between expectations for more flood defence infrastructure and the new risk-based approach. An open and informed mature public debate on flooding risk and response needs to be held, including through the mainstream media, with honest and upfront explanation of the nature of the shift, i.e. the acceptance of some “failure” to prevent flooding. This will take a high degree of political leadership, and should be led by ministers who understand and are able to defend this position, with support from similarly informed scientists and senior stakeholders.

**RRAC Recommendation 5:**

Government should without delay develop and begin application of an engagement and communication strategy at national and local level, to explain the rationale for a risk management approach to flood response, to deflate unrealistic public expectations of flood prevention, and to increase public understanding of the decisions and trade-offs inherent in flood risk management planning. The strategy should be based on full honesty and transparency, be pro-active and encourage greater public involvement, while maintaining a measured and balanced approach.

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26 Times Online, 23 July 2007: Thousands cut off in Britain’s worst floods. (Accessed 9 Nov 2009.)
http://www.timesonline.co.uk/tol/news/uk/article2123487.ece?token=null&offset=12&page=2

http://www.independent.co.uk/opinion/leading-articles/leading-article-the-blame-game-and-a-plan-for-the-future-458327.html
One politically problematic issue of the risk management approach is the difficulty of maintaining equity between different communities.\footnote{28} Some have argued that at one level people voluntarily accept the risk of flooding by choosing to live on a floodplain\footnote{29}, but we do not believe that this fairly represents the reality of life for many communities. A common criticism of local or national government regarding inconsistent provision of services is that there is a ‘postcode lottery’. We cannot change the basic fact that different areas across the UK have a greater or lesser risk of suffering flooding. But, as the excellent recent report by the Auditor General for Wales confirms, many differences between the flood protection and resilience measures afforded to one community over another can be caused by inconsistent awareness and evaluation of the risks by different local authorities and other stakeholders, and by the lack of an agreed method of establishing priorities across boundaries of responsibility.\footnote{30}

It will not be easy to establish a consistent, socially and politically acceptable national approach to the prioritisation of certain flood resilience measures over others. Broader cost/benefit and risk/benefit analysis will be important, but these too need to be carried out in a consistent way. UK flood risk management does not currently use death probabilities to calculate the level of risk. While politically sensitive, the adoption of such a measure, as used in other areas of regulation like health and safety and in other countries such as the Netherlands, could be of value to long-term planning. But some would also seek to balance a pure risk-based approach with elements of flood prevention where feasible. Furthermore, there are valid arguments regarding the difficulty of quantifying elements of the analysis. And we would certainly argue for increased involvement in policy formation, to the extent possible, by the public and other stakeholders. We believe that there is scope for useful further research to better understand public risk, and to develop and support decision-making in proportionate responses to public risk. Cooperation with the Health and Safety Executive and with other government organisations responding to public risks could prove valuable, and useful academic partnerships might include the new Cranfield University Centre of Excellence in Understanding and Managing Natural and Environmental Risk, the RRAC’s research partners and other risk specialists.

**RRAC Recommendation 6:**

Government should support research to further develop the Risk and Regulation Advisory Council’s ideas on public risk and responsibility, including appropriate responses to risk. A collaborative programme should be encouraged which might include the analysts and academics involved in the RRAC’s work, Cranfield University’s Centre of Excellence in Understanding and Managing Natural and Environmental Risk, the Health and Safety Executive and other Government departments.

\footnote{28} Bouder 2009, p28. \footnote{29} Burgess 2009, p61. \footnote{30} Wales Audit Office 2009, pp13,47.
Authority in charge

The Environment Agency has taken on the central role of providing flood risk information to the public, and its easily found and easily understood web pages with their flood risk maps are a very important contribution to the communication of flooding risk to the public in England and Wales.\textsuperscript{31} The flood risk map, Floodline and Floodline Warnings Direct service are all valuable and important elements. Linkages with other official websites (e.g. DEFRA and DirectGov) seem to have been well thought out, and the overall impression is of a single authoritative source of information and advice. This is valuable as the RRAC has identified that a proliferation of different advice and information about a risk increases uncertainty and the possibility of a distorted view being formed. Too much information and data can make risks seem more complex than they are, and can discourage people from managing the risk for themselves, putting greater pressure on government to deal with it.\textsuperscript{32}

The Environment Agency’s online flood risk map is currently based purely on areas found to be at risk of flooding from rivers and the sea, and indicates this clearly. But only in FAQs do we find an explicit statement that the map does not include other forms of flooding “such as from highway drains, sewers, overland flow or rising groundwater”\textsuperscript{33}, so the extent of likely omissions of flood risk may not be clear to all visitors to the site, and a clearer caveat more visible to all flood risk map users might be appropriate.

As explained under Sources of Flooding on the site, surface water flooding “is difficult to predict and pinpoint, much more so than river or coastal flooding.”\textsuperscript{34} Nevertheless, as argued above, we believe it is important that the best available information on all sources of flooding is combined on one map. Given that surface water flooding was the principal type of flooding experienced in many of the areas affected by the UK’s 2007 floods, we are encouraged that the Environment Agency states the National Flood Risk Assessment system (NaFRA) has been developed with the potential to include forms of flooding other than river and coastal flooding in the future.\textsuperscript{35} We look forward to early progress on this, as we have recommended above.

The issue of trust is vital to effective risk communication. Trusted sources of information and advice for most people include friends and family, doctors, scientists, NGOs and emergency services staff. Few will place such trust in Government, either at national or at local level. Growing mistrust of those associated with technocratic policy is evident in non-flooding cases such as the opposition to the MMR vaccine, and can, as this case demonstrates, have damaging effects through distorting perceptions of risk.\textsuperscript{36} The public’s assumption of political motives in risk messages can lead to an undeserved dismissal of valid content. Ultimately, Government may have little or no influence on an individual’s reaction to a risk, if the

\textsuperscript{34} http://www.environment-agency.gov.uk/homeandleisure/floods/31652.aspx on 4 Nov 2009.
\textsuperscript{36} Wood Holmes Group 2009. pp11-12.
individual's interaction with other risk actors is shaped by their trust network, value system and worldview.\textsuperscript{37}

For a single flooding website to be most effective, it is vital that the communicator is trusted by the public to provide unbiased information. Being perceived as a separate body from central government will tend to increase public confidence in the data provider, and the Environment Agency as the relevant agency at a national level appears to be the appropriate authority for communication in this regard.\textsuperscript{38} There are likely to be times when an individual spokesperson will need to be used in the media or elsewhere to reinforce communication of flood risk and flood warnings. To maximise public confidence, a top level EA officer with clear scientific or technical expertise might be appropriate to fulfil this role, rather than a Minister or senior official without technical knowledge. The new centre at Cranfield University mentioned above, established this year with support from DEFRA and three research councils, might be a good alternative to provide a credible scientific spokesperson. At a local level it will be equally important for local authorities or resilience forums to select spokespeople that enjoy the trust of their community.

While a very substantial majority of the British public now have access to the internet, it is important to try to prevent the emergence of a 'digital divide' in the access to flood risk information, and due consideration must be given to ongoing publicity (e.g. on radio and TV) for the Floodline telephone service, as well as promoting access to information through direct public engagement at a local level.

Not only the public but all risk actors will use the data made available by the EA website for their own purposes. Insurers are one of the key users of government data on flooding risk, and a key influence themselves on public responses to risk. The transparent and ready availability of the same data to the public as to the insurers is therefore welcome, as both perceived collusion and open dissent in risk messaging can be damaging.\textsuperscript{39}

Local authorities, given a much enhanced role by Pitt in responding to flooding, are also a key user of flooding risk information, and are likely to be involved in conveying the information at a local level. The capacity and enthusiasm of different local authorities to take on this role is likely to vary considerably, and care will need to be taken to ensure a consistency of message with the EA information. Bouder suggests a degree of co-ownership of software and tools between central and local government, to enhance risk-based planning and communication.\textsuperscript{40}

\textsuperscript{37} Wood Holmes Group 2009, p17.
\textsuperscript{38} The websites and other arrangements of SEPA in Scotland and the Northern Ireland Rivers Agency appear to fulfil a similar role to those of the Environment Agency, although we have not examined them in detail, and it should be noted that the context of separate mapping and administrative arrangements due to devolution may be considered unhelpful.
\textsuperscript{39} Bouder 2009, p29.
\textsuperscript{40} Bouder 2009, p32.
Interacting with your audience

The public should be the principal audience for flooding risk communication, as it is principally the public whose awareness and behaviour we wish to change. The Pitt Review made recommendations which we would support, that the expert community of government (especially DEFRA and EA) should work together with local authorities, insurers and others to handle the risk of flooding. As well as a public information campaign, Pitt recommended raising awareness with local responders, and including flood risk information in compulsory Home Information Packs for home buyers. While all of these recommendations are helpful, we must remember the importance of reaching levels of sustained awareness and of mainstreaming flood preparation behaviours. Not just homeowners and potential homeowners, but also tenants and all residents at risk of flooding should be made aware, so more frequent or pervasive gentle reminders may be worthwhile, perhaps “piggy-backing” on other government communications, e.g. as a short envelope-front message.

We have recommended above a high-priority communication strategy to close the gap between unrealistically high public expectations of flood prevention and the reality of risk-based new approaches now being adopted.\textsuperscript{41} We have argued that this should be based on transparency, honesty and public engagement. Some government officials have expressed concern that actively communicating flood risk to the public might be viewed poorly by the recipients. For example they suggest it might have a negative effect on house prices in identified flood risk areas, despite the lack of certainty inherent in any flood risk model.\textsuperscript{42} We maintain that any attempt to artificially limit the information available to all is likely to result in a distortion which could be more damaging than the situation which one sought to avoid. For example, in the absence of a single authoritative source of flood risk information, rumours might have an equally detrimental effect – or there could be an unwarranted positive effect – on house prices.

Some would argue rightly that there are limits to the benefits of transparency in public risk, such as for example in the case of the Avandia diabetes drug in the United States, where full publication of complex drug-testing data led to greater public confusion, allowing riskmongers with scientific credibility to spin the story to their own ends.\textsuperscript{43} The public, however, are able to handle complex levels of uncertainty, if provided with appropriate clear explanation, and if the data is framed in a way likely to give the most accurate understanding of the risk. In the case of flooding in the UK, it will be important for the Environment Agency to be prepared to counter distortions of the data, including for example those presented by risk actors or riskmongers acting in their own interests. The RRAC’s Risk Landscape may provide a useful tool to help in consideration of this issue.

\textsuperscript{41} For example, the New Approaches Programme within the environmental strategy for Wales. Wales Audit Office 2009, p14.
\textsuperscript{42} Bouder 2009, p30.
\textsuperscript{43} Lofstedt et al 2009, p11-12, 17-18.
5. Improving Public Understanding of Risk
5. Improving Public Understanding of Risk

As discussed above, good quality communication from Government regarding public risk is vital. But in order to achieve appropriate levels of awareness and mature public debate as befits an important policy issue, individuals - and society as a whole - need to be able to make sense of all the messages they receive about risk, and to respond intelligently and not purely emotionally.

In order to prevent regulatory storms and other disproportionate responses to risk, we need better public understanding of the nature of risk situations, a mature public debate – including through the media – based on trusted and transparent publicly available information, and political leadership willing and able to stand up to public and media campaigns on appropriate occasions. Not all of these can be expected on each occasion, but the RRAC’s work has sought to increase the possibilities. The RRAC’s main report includes advice to ministers and senior officials faced with difficult public risk situations. The RRAC’s work on tree safety cited above demonstrated that it is possible for risk issues and proportionate responses to them to be the subject of mature debate in the mainstream British media. As part of our work to improve the public’s own understanding of the wide range of risks that face them, the RRAC worked with David Spiegelhalter, Winton Professor of the Public Understanding of Risk at Cambridge University, to develop A Worrier’s Guide to Public Risk, an easy-to-read tool to assist the public in developing a more considered view of the risks that they face in daily life.

As noted earlier, the way that the public – and the media - respond to different types of risk differs according to the nature of the risk and each individual’s perceived proximity to that risk. The Worrier’s Guide developed by the RRAC aims to improve public understanding of risks by demonstrating statistical truths through some simple examples, but the principal effect, as shown by the title we have adopted, might be to reduce anxiety in those who have been exposed to the risk amplification of the media and other risk actors. Flooding, as we have noted, has not in general been subject to wide scale risk amplification. Nor can we describe the public and media response to flooding and flood risk as a regulatory storm. We should not however, assume that no regulatory storm is possible, and a failure to promptly and adequately address the gap observed above between public expectations of flood prevention and the flood risk management policy now in force could increase the likelihood of a regulatory storm around this issue in the future.

In respect of flooding risk it would be worth the Government considering the development of an easily understood pamphlet, similar to the RRAC Worrier’s Guide but using only flood-related examples, based on appropriate and statistically robust data. The involvement of Professor Spiegelhalter, or other specialists in risk understanding from Cranfield University or elsewhere would be appropriate. Given that the RRAC’s period of operation is now ending, it would be

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44 Cranfield University Centre of Excellence in Understanding and Managing Natural and Environmental Risk.
A Worrier’s Guide to Risk

Stories about risk can be worrying or even frightening. David Spiegelhalter’s ideas can help you understand more and worry less.

Life’s uncertain – we don’t always know what will happen.

1. **Uncertainty can be fine.** Would you want to know exactly how and when you were going to die? Not many would.

2. **Stuff happens.** The overall pattern of events can often be predicted surprisingly well but not the detail. We can make a good guess at the number of car fatalities next year, but not who will be involved.

3. **Rare events are more common than you think.** There are so many possible rare events we know some will happen but not which ones – someone usually wins the lottery.

Evidence can mislead us – we often can’t see the full picture.

4. **Jumping to conclusions.** The media reports crimes that make a good story – don’t assume the amount and type of crime reported reflects true crime rates.

5. **Runs of good/bad luck happen.** Reduced accidents at an accident black spot may not be the speed camera but just a change from a run of bad luck.

6. **One thing may look like another.** It doesn’t mean they are the same. Only a small fraction of the women who screen positive for breast cancer actually have the disease – the others are that much larger group of healthy women who just happen to have similar test results.

7. **The past is past.** Things change, and as the banks always say and the credit crunch has proven, ‘past performance is not necessarily a guide to future performance’.

What about me – should I worry?

8. **Am I bothered?** How does the danger relate to my circumstances? Seasonal flu is a serious risk to the elderly and chronically ill but not to healthy young adults.

9. **Can I do anything about it?**
   - **No?** So don’t worry about things you can’t change. The asteroid that will destroy the earth may be on its way.
   - **Yes, but …** there’s more to life than maybe living a few extra days, weeks or months. “I would rather have the occasional bacon sarnie than be 110 and dribbling into my All-Bran”

10. **They would say that, wouldn’t they?** Check who is making the claim. What is their interest in influencing me – personal, financial, commercial, religious, political, headlines etc?

11. **What am I not being told?** He may well have got better after he took this wonder treatment, but am I being told about the people who didn’t get better?

12. **Size matters.** A big increase in a very small risk may not be important – twice almost-nothing is still almost-nothing.

The key point is to get the ‘balance’ right for your life.
important to carefully select the appropriate “authority” to publish such a document, based on the principles in the RRAC’s *A Practical Guide to Public Risk Communication*.

Given the characteristics of flooding risk that we have noted, it is possible that a ‘householder’s guide to flooding risk’ may serve to increase awareness of a higher than expected level of risk, rather than playing it down, particularly for example in periods and communities which have seen little recent experience of serious flooding. But the overall emphasis must remain on reflecting as accurately as possible the current scientific consensus on the underlying level of risk, giving an evidence-based representation, not a ‘spin’.

**RRAC Recommendation 7:**

Government should give active consideration to the development and distribution of a short ‘householder’s guide to flooding risk’, in a broadly similar style to the RRAC’s *A Worrier’s Guider to Risk*, to give residents an undistorted and easily understood picture of their level of risk from flooding, in line with the best up-to-date assessment of the risk.

The many risks communities and individuals face have an important bearing on life in modern society, and yet, as the RRAC’s work has confirmed, many people have a poor level of understanding of risk and of particular risks. To remedy this situation and to start to develop from an early age some resistance to the potential distortions of messages from different risk actors, we fully support the work being done by Cambridge University to improve UK ‘risk literacy’ through the education system, incorporating elements of risk into regular mathematics learning. An extension of this programme could incorporate flooding and other community risks into mathematics, geography, and other parts of the curriculum. The statistical and mathematical elements of risk could be supplemented as appropriate with teaching of flooding response activities such as those which from part of ‘flooding risk’ education programmes implemented in countries such as the USA, France, the Netherlands and Bangladesh.

**RRAC Recommendation 8:**

Government should build on and extend existing projects to raise public levels of risk literacy through the education system, incorporating appropriate statistically robust examples related to flooding and other community risks.

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45 For example the *Risk and Probability Show* within the Millennium Mathematics Project. http://www.mmp.maths.org/risk
6. Conclusion and Summary of Recommendations
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Recommendation 59 of the Pitt Review asked the RRAC to explore how the public can improve their understanding of “community risks including flooding”. Flooding risk, in common with some other natural risks, is more easily tolerated by the public than for example risks of crime or from industrial or technological dangers. There are other particular characteristics of flooding risk and the public’s responses to it which suggest distortions in public perception and response rather different from those relating to, for example, knife crime, cancer risks or road safety.

But the RRAC’s work has found trends which are common to many areas of public risk, and a landscape of influences on perceptions and responses to risk which are applicable to flooding risk as much as any other public risk. We strongly believe that the approach set out in our main report and guides will help to reduce distortions in risk perception and to improve the ability to achieve proportionate responses to risk, correcting both insufficient and exaggerated reactions by the public and by other risk actors. On the basis of our work in response to the Pitt Review and the wider programme of which it formed a part, we have here made suggestions which we believe will contribute to improving the public’s broad understanding of the many risks which affect them, and more specifically their understanding of flooding risk.

Summary of RRAC Recommendations

1. The Government should fully endorse the approach to policymaking for public risk set out in the report of the Risk and Regulation Advisory Council, *Response with responsibility: policy-making for public risk in the 21st century*. Comprehensive use should be made of the guides developed by the RRAC, or appropriate similar tools and techniques, to help policymakers and others to better understand, communicate about and develop policy for public and community risk.

2. The Government should ensure that appropriate flood risk communication plans are developed and implemented on an ongoing basis subject to regular reviews, with the aim of encouraging sensible planning for flood risk management by individuals and communities.

3. The public, through the National Flood Forum and otherwise, should be engaged to the greatest extent possible in ongoing policy development and planning for flood risk response. Government should take the lead at a national level, while Local Resilience Forums and local authorities take the lead at a community level, ensuring that an appropriate balance of local knowledge and wider expertise is used to develop sensible local flood risk management measures.
4. The Environment Agency should seek at the earliest opportunity to integrate the best available information on all forms of flood risk, including surface water flooding, into a single map which remains easily accessible and easily understood by the general public.

5. Government should without delay develop and begin application of an engagement and communication strategy at national and local level, to explain the rationale for a risk management approach to flood response, to deflate unrealistic public expectations of flood prevention, and to increase public understanding of the decisions and trade-offs inherent in flood risk management planning. The strategy should be based on full honesty and transparency, be pro-active and encourage greater public involvement, while maintaining a measured and balanced approach.

6. Government should support research to further develop the Risk and Regulation Advisory Council’s ideas on public risk and responsibility, including appropriate responses to risk. A collaborative programme should be encouraged which might include analysts and academics involved in the RRAC’s work, Cranfield University’s Centre of Excellence in Understanding and Managing Natural and Environmental Risk, the Health and Safety Executive and other Government departments.

7. Government should give active consideration to the development and distribution of a short ‘householder’s guide to flooding risk’, in a broadly similar style to the RRAC’s *A Worrier’s Guider to Risk*, to give residents an undistorted and easily understood picture of their level of risk from flooding, in line with the best up-to-date assessment of the risk.

8. Government should build on and extend existing projects to raise risk literacy through the education system, incorporating appropriate statistically robust examples related to flooding and other community risks.
Bibliography

Many statements and references in the text are drawn from the RRAC’s own publications, as listed on the next page. Other sources, including RRAC-sponsored academic research, are listed here:


Further Reading - RRAC Publications

All of the RRAC’s publications were published in 2009 and are available from the RRAC’s page on the website of the Department for Business, Innovation and Skills:
http://www.bis.gov.uk/rrac.

**Response with responsibility: Policy-making for public risk in the 21st century**

This is the main report of the Risk and Regulation Advisory Council. It summarises the Council’s findings, introduces the Council’s approach and tools for dealing with public risk, offers advice for Ministers in charge of responding to a risk and sets out the Council’s recommendations.

**The Risk Landscape: Interactions that shape response to public risk**

The risk landscape is a map that shows how different groups influence perceptions of, and responses to, public risk. The Risk and Regulation Advisory Council have produced a report explaining the risk landscape, as well as an interactive version.

**A Practical Guide to Public Risk Communication: the five essentials of good practice**

This guide sets out the Risk and Regulation Advisory Council’s essentials of public risk communication: assembling the evidence; acknowledging public perspectives; analysis of options; establishing the authority needed to communicate effectively; and interacting with your audience.

**A Worrier’s Guide to Risk**

The Worrier’s Guide to Risk is intended to help everyone make more sense of the seemingly unending series of news stories on risk.

**Tackling Public Risk: A practical guide for policy makers**

This report captures and explains the experience, knowledge and good practice developed by the Risk and Regulation Advisory Council. The guide explains how policy makers can apply the Council’s approach to their own public risk issues.

**Building Resilient Communities: From idea to sustainable action**

The Risk and Regulation Advisory Council and the Talent and Enterprise Task Force worked together on a project aimed at improving the resilience of communities.

**Research Papers commissioned by the RRAC**

The full series of research papers commissioned by the RRAC are also available on the same webpage: http://www.bis.gov.uk/rrac.