

# Community and public participation: Risk Communication and Improving Decision Making in Flood and Coastal Defence

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## Background

Scott Wilson Kirkpatrick, Risk Policy Analysts and Dr Peter Jones (University College London) were commissioned by the Department of Environment Food and Rural Affairs (DEFRA) and the Environment Agency to undertake research on the effectiveness of current risk communication and public participation procedures and practices within the flood and coastal defence decisions making in England and Wales. The research would then form the basis for recommendations on how to effectively raise awareness and understanding and thus seek to reduce conflicts when implementing flood and coastal defence policies, plans and projects.

There were two interesting issues associated with the research goal, which influenced the approach taken to the research. Firstly, the inclusion of both risk communication and public participation in the research recognised that both terms are closely related. In fact the research began with the idea that good risk awareness was a prerequisite for effective participation. Secondly, that the term participation rather than consultation was used implying a more ambitious agenda of earlier and more effective stakeholder contributions to the decision making process.

Fundamental to the project was a clear definition of risk for use in DEFRA and Environment Agency communication. Discussion with stakeholders and a review of relevant literature and publications revealed that some commonly used definitions of risk, particularly the use of return periods, led to some confusion. In the case of Environment Agency literature and communications relating to the Indicative Floodplain maps, it is left to the individual member of the public to interpret risk information. As a result people often concentrate on the frequency of the event rather than the potential harm it could cause.

Findings of the research demonstrated that to communicate risk effectively both components of risk - chance (perhaps expressed as a likelihood or probability) and impact (potential harm caused) - must be clearly communicated and understood by the target audience. Following consultation with the project steering committee<sup>1</sup> it was agreed that the following definition of risk, to reflect usage in flood and erosion communication, would be used to underpin this work:

**“Risk is the likelihood (or probability) of a specified adverse consequence occurring.”**

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<sup>1</sup> Steering Committee included Both DEFRA and Environment Agency Staff

## Method

The research brief identified two distinct phases to the research. Phase one focussed on risk communication and phase two on public participation. As referred to earlier the links between risk communication and public participation were fully recognised by the study team and a decision was made to move forward some of the research on public participation in to phase one, as the research techniques being used offered mutually beneficial opportunities to combine them.

A case study approach to the research was adopted. In the first instance a literature review was carried out on risk perception, risk communication, flood and coastal defence planning and public participation. A roundtable of national stakeholders was then convened. The round table allowed the findings of the literature review and ideas for the selection for case studies to be discussed openly. Attendees included central and local government representatives alongside, Environment Agency officers, local flood action group members and representatives from environmental NGOs and professional bodies.

Twelve case studies were undertaken and split in to four detailed case studies allowing for an in depth investigation of the issues, and 8 less detailed ones allowing the study to cover a larger number of key variables.

The detailed case studies used semi-structured interviews with key stakeholders and focus groups with both flood victims and those at flood risk in the future. The less detailed case studies were based upon a postal questionnaire survey, sent to 100 addresses at each case study location (Table 1). The addresses were chosen using a systematic stratified sampling of the addresses on the database so that households at different levels of risk would receive the questionnaire. The postal questionnaire survey attained a 25% return rate.

Table 1: Case Study Locations

Four detailed case studies (focus group and interviews)	Uckfield (fluvial less frequently flooded, project based, Southern England)	Bewdley (Fluvial, frequently flooded, project based, Western England)
	Holderness (Fastest eroding coast line in UK, Integrated Coastal Zone Management)	Arun to Adur (Coastal and fluvial, Strategy, Southern England)
Eight less detailed case studies (postal questionnaires)	Wigan (coastal, project based, northern England)	Boston (Fluvial, significant land use planning issues, Midlands)
	Alconbury (Fluvial Eastern England)	Taunton (Fluvial South West)
	Rea Valley (Fluvial, Urban Midlands)	Nottingham (Fluvial, Midlands)
	Yalding (Fluvial, Southern England)	Worcester (Fluvial, Western England)

In order to ensure there was consistency between the questions asked during the Interviews focus groups and postal questionnaire as well as ensuring consistency between phase one and phase two of the project a set of evaluative criteria was developed and applied to the development of the research. The categories used to form the criteria are contained in Box One below:

### Box One – Evaluative Criteria

- Flood and coastal defence management (hard and soft engineering)
- Risk
- Public risk awareness
- Context and conflict
- Public trust and confidence
- Flood policy and planning
- Public participation process
- Public participation methodologies

The four in depth case studies were designed to provide detailed information on risk perception and the success of different communication techniques employed. Focus groups were undertaken to establish public perception of flood and erosion risk; their experience of communication and consultation (both positive and negative) and an opportunity to probe opinions in more detail. The postal questionnaire survey was then used to check on how representative some of the views were around the country as well as how dependent they were according to the range of variables outlined in table one.

The interviews with flood and erosion professionals allowed contrasts to be drawn between the perceptions of the experts and those of the general public.

Finally, a second national round table was held where the stakeholders from the first roundtable were invited back, to comment on the findings and help refine the recommendations arising from the research.

## Results

The results from the literature review, focus groups, interviews, and postal questionnaire were triangulated to identify emerging themes. This approach allowed the accuracy of the information to be cross checked and helped ensure that conclusions were robust. This review established the following key areas for consideration:-

- The public cannot be treated as one target group as in reality they are made up of many different groups with different perceptions. Three issues were apparent from the research, which may help account for the observed differences. Firstly, there may be a lack of appreciation of the real consequences of a given event especially amongst those who have not suffered from an event. Secondly, differences within the public could not be solely attributed to a difference in understanding but more with a difference in perception or reaction to that risk. Finally, there is some evidence to suggest people try and deny the significance of the risk for personal and financial reasons.
- The most effective means of risk communication will vary with circumstance and audience. The standard means of communicating risk is through return periods, which was found to lead to confusion amongst the general public and some officials. Findings from the research suggest a range of communication messages and techniques should be employed.
- If the public are made aware of the risk then it can be more proactively and effectively managed. There was a general perception amongst the experts and those members of the public that flood more frequently was that provided with the right information harm (not so much likelihood) arising from an event can be reduced by individual action. This reflected much of the literature which states that risk perception can affect an individual's likelihood of experiencing harm
- A majority of the public (66% of the postal questionnaire) believed that the risk of flooding or erosion was increasing. This was mainly attributed to human interventions in the catchment/coastline, such as the loss of the flood plain to development or the failure to maintain drains. In contrast most of the "professionals" did not believe that the risk environment had significantly altered.
- Direct / personal experience of flooding affects perception of risk. Generally speaking those that experienced flooding more frequently were more able to accept and respond to the risk. This indicated that there is more opportunity to help facilitate communities to respond to flood and erosion risk.
- The presence of local rumours regarding the cause of a flood undermined the efforts of the professionals in communicating risk and address the issues effectively. Once these rumours had begun they were notoriously difficult to address as they effect issues of trust between the public and the professionals.
- There is great potential to capitalise on the potential of community networks and champions to a) gather information concerning the behaviour of water, flood risks and appropriate responses; b) assist in the development and utilisation of appropriate risk communication strategies and c) assist in the development and operation of appropriate flood response strategies.

- The research showed that more effective public participation could help build trust and understanding between the public and the professionals. Furthermore, the research showed that there is significant expertise in local communities which can either be used to the benefit of everyone or if ignored can be used to frustrate the planning process of professionals.

Appendix One contains a full list of the recommendations arising from the research as well as a typology of those at flood and erosion risk for the purposes of tailoring the Environment Agencies Risk communication strategy

### *Flood Communications Programme – Using the Results of the Study*

The Environment Agency's National Flood Warning Centre has a ten year programme to increase public awareness of and preparedness for flood risk. This public awareness work forms part of the Agency's Flood Warning Investment Strategy, which aims to reduce overall flood damage by extending and improving the flood warning service and improving public response to flood warnings.

The results of the Scott Wilson study will further inform both the flood communications programme and flood warning service development work undertaken by the Agency. Three of the recommendations of the report are already being acted upon. These recommendations include:

- Understanding the public
- Raising public awareness and encouraging self help initiatives
- Increasing public participation

The reasons for the Environment Agencies quick response to these recommendations in particular are two fold:

- The recommendations reflect some initiatives which are already beginning to be implemented by the Environment Agency
- The linkages between them are such that to communicate risk and raise awareness successfully a detailed understanding of the target audience is necessary. And as discussed above the public's understanding of risk is a pre-requisite for effective public participation.

#### Understanding the 'At Risk' Population

One of the key recommendations arising from the research, is that the 'flood risk public cannot be treated as one target group as in reality they are made up of many different groups with different perceptions' and that 'the most effective means of risk communication will vary with circumstance and audience' (See Table Two in Appendix One.)

The Agency has addressed this issue in planning flood communications and will incorporate the results of the Scott Wilson work into future campaign planning. The annual public awareness campaign, launched in 1999, currently distinguishes between those who are 'engaged' with flooding as an issue and those who are 'complacent' for a variety of reasons. It has now been recognised that the divisions within the flood risk population are more complex and the outputs of the Scott Wilson work will begin to inform future targeting of advertising, direct mail, communications and public relations events.

To increase the Agency's understanding of varying responses of different groups within the population, further research has been commissioned to identify those groups that are particularly vulnerable to flooding (in terms of ability to understand and respond to flood warning communications). The first phase of this work will produce a 'vulnerability index' to highlight those groups most vulnerable and phase two will investigate appropriate methods for communicating flood warning information to these groups.

In terms of recognition of different groups in developing the flood warning service the Agency has commissioned research to profile and establish 'end user' needs to inform the development of a Multi

Media Warning Dissemination Service (MMWDS). This research has examined the demographic profile of the 'at flood risk' population and undertaken a large scale market research survey to establish their preferred methods for communication of flood warning information. Differences according to population characteristics will be used to inform the development of both communications and the actual service at a local level.

#### Awareness Raising

Another two recommendations that are currently being acted upon are in regards to raising awareness of the risk and facilitating self help in reducing the risk of flooding. The research suggests that 'if people are made aware of the risk then together with the resources advice and expertise of the professionals it can be more effectively managed by the public. Recent research suggests the Environment Agencies annual campaign is meeting some success as it is estimated that flood awareness among the at risk population stands at 72% (BMRB, EA Campaign Evaluation 2002).

The study also recommends that 'initiatives to raise flood risk awareness are best coupled with self-help initiatives'. Once again recent public awareness campaigns have worked at a local level to demonstrate actions that people can take to prepare for flooding. It is intended to develop this further as increasing numbers of flood protection products are accredited through the Kite Mark scheme.

#### Community and Public Participation

Another key theme from the Scott Wilson work was recognition of the importance of public / community involvement in flood risk communication and flood management. The results of the research indicated an opportunity to 'capitalise on the potential of community networks and champions to a) gather information concerning the behaviour of water, flood risks and appropriate responses and b) assist in the development and operation of appropriate flood response strategies.'

The Agency has recognised the importance of working with local community groups and has stated in its 'Making it Happen' targets that it will work with and encourage local community self-help groups to work to reduce flood risk.

During the summer of 2001 the Agency was approached by the Bewdley Residents Committee, a local group providing support for those affected by flooding requesting support to role the local 'flood group' initiative out on a national level. This group was active in the community in organising volunteers to assist with moving furniture, assisting in the recovery process, working together to voice common concerns and facilitating feedback on the proposed flood defence scheme. It was agreed that the Agency would be willing to support such an initiative through a Research and Development programme. The initiative (the National Flood Forum) was set up to work on and develop the following project principles:

- National Flood Forum to support and work towards Environment Agency Flood Awareness goals
- To maintain close contact with the Agency and use all Environment Agency communication media and resource as much as possible
- Encourage the development of Flood Action Community Groups
- Develop approach for Forum joint working with established groups in liaison with the Agency national, regional and area teams
- Ensure that effective two-way communication links are maintained between the Forum's constituent members and the Environment Agency

Throughout their first year of operation the National Flood Forum have helped to establish links with Agency Area Flood Defence teams and local flood community groups. This has proved successful in the Agency working in partnership with the local community to:

- a) identify possible causes of flooding (e.g. a local group in the Sussex area conducted an audit of blockages in the river that could have contributed to the flooding that affected their properties) and

- b) to develop flood response plans (where local community members take responsibility to act as flood wardens and cascade flood warning information throughout their community).
- c) the National Flood Forum have provided a valuable input in terms of representing the public view on various strategic and national issues regarding Flood Management (e.g. the debate within the insurance industry, the publication of indicative floodplain maps, the role of the Flood Protection Association etc).

## Conclusion

In conclusion, the research carried out by Scott Wilson has provided a valuable contribution to the ongoing refinement of risk communication in flood and coastal management. In order to reach a greater percentage of the population at risk an increasingly sophisticated approach to communication is required. This approach needs to recognise the difference within the general public and target messages and techniques to meet the needs of those different groups. Furthermore, successful risk communication opens up new ways of working with the community including:

- building trust with community;
- encouraging self help;
- utilising community expertise, and
- more effective public participation in decision making.

The Environment Agency has begun to adopt these recommendations of the research and intends to continue to improve the way it communicates with the public.

## Appendix One: Recommendations

**Recommendation One:-** There is a need to develop a typology of risk communication to assist the Environment Agency (and others) to effectively deliver a flood ‘message’. The typology will also help in developing policy in flood and coastal management. The typology is reproduced below.

Table Two – Typology of Flood and Erosion Risk Communication and Participation

Category	Barriers to Communication	Recommendations
Experienced Regular Flooders And those that have other flood and coastal experience	No significant barrier to communication. They may have become resigned to, or aware of, the limitations of Government action. These people are a very useful source of local and sectoral expertise.	Involve these people in participative processes. Provide mechanisms by which they can gather their own information and make their own decisions. e.g. Floodline
Inexperienced Irregular flooders	Generally mistrustful of officials and very angry at the lack of action. Believe that concrete action will eventually be taken. May believe that the risk of flooding is increasing due to human intervention. May also subscribe to local rumours as to the cause of the flood; especially when	More face to face two way contact between officials and the public. Need a clear explanation of the decision making process. Need to convince people that the risk of harm can be reduced. Need to address local rumours directly. Need to convince them that if the likelihood of flooding can't be reduced then the risks can be ameliorated through reducing

	a perceived lack of action provides space for these rumours to grow. Have useful local knowledge.	harm. The reduction in harm is something the public can do reasonably effectively on their own. It is vital that the authorities provide effective and coordinated assistance during and after a flood event for this strategy to work. In addition, one needs to identify trusted local community leaders and train them in risk communication. Involve them more in planning of defences in the area.
Lack of Understanding Those that have not been flooded, have received information and do not understand the risk	This is not merely an issue of raising awareness. It probably requires face to face meetings and a variety of techniques and media. There also needs to be a clearer explanation of risk. This may be helped by a different definition but will require additional changes to the communication process.	Concentrating the message on potential for harm as well as likelihood. Identify key members of the community who are trusted. Provide basic training on risk communication and assist them in disseminating the information. Efforts should be made to draw attention to comparable risks that people face more often in daily life. Explore the use of aerial photography and digital terrain models. A selection of terms for communication the risk of flood and erosion should be used delivered via local flood action groups, the local press, and/or leaflets
Information Deficit Those that have not been flooded and have not received the information	The deficiencies of the Environment Agency's Flood Warning Public Communication Database (FWPCD) and people who are constantly moving in and out of the area.	The FWPCD risk database needs to be maintained regularly, and information needs to be updated and use made of the local media. Local community contact/flood warden needs to identify movers and help induct newcomers.
Not at Risk Those that will not be flooded	Deficiencies of the FWPCD	General awareness work in order to raise understanding nationally to enable this group of people to assist neighbours/ make informed choices when moving house. Articles in the press and the radio and television news which do not just concentrate on those that have flooded, but also pointing out that many areas that are at risk have not flooded in recent years.
Communication Deficit Those that are difficult to reach. This may also include	These people are very difficult to reach, they do not read direct mail or use local media. This is	Information needs to be personalized. Once again including issues of harm in the risk message may help raise

<p>those whose physical or mental impairments require more resources to ensure that the message reaches them</p>	<p>primarily, at least initially, an awareness raising exercise.</p>	<p>awareness. Use of local flood action group or a nominated Warden to actively talk to people An exhibition in the immediate area where people are not aware run by local people may be useful.</p>
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Informed but Unconcerned Those that aware of the risk but are unconcerned	These people have come to the informed conclusion that the benefits of their location outweigh the risks of flooding and do not wish to be communicated with.	Continue to inform that help is available and the risk of an event occurring, particularly if this changes.
Third Parties A wide range of trades and professions are involved with properties in the floodplain. Also, many agencies are involved with dealing with flood events	Lack of awareness of relevant issues. For example, there is now a need for a formal risk assessment for developments in the floodplain (PPG25). Similarly, electrical sockets should not be placed at ground level and, as many have discovered, road vehicles cannot operate in flooded streets. May be useful to distinguish between locally owned businesses and ones that are managed on behalf of a national company.	Wider circulation should be given to practical guidance documents such as the DTLR's 'Preparing for Floods' (aka the Orange Guide) There is a need for improved emergency planning for flood events. This is likely to require a multi-agency approach (as well as additional funding from Government). Start a dialogue with national chains such as Boots, Blockbuster Video, supermarkets etc so that they can disseminate information to their employees.

**Recommendation Two:-** The above typology should be used to develop a communication strategy which meets the needs of the different groups identified by the typology. The current communication strategies employed by the Environment Agency need to be re-evaluated to reflect the typology developed above. Currently a number of media and messages are already used. However, this needs to be broadened so that those who are more difficult to reach and those that have difficulty understanding the messages are reached. This should apply equally to both awareness raising generally and warnings of impending flood/erosion events.

**Recommendation Three:-** When communicating risk, a balance needs to be struck between, on one hand, promoting increases in the preparedness of the public and their potential for self and mutual assistance, and on the other hand, avoiding potentially increasing anxiety and promoting feelings of disempowerment and apathy.

One means of achieving this balance is to combine risk communication initiatives with efforts to promote the potential for self and mutual assistance, through, for instance, the greater use of self help guides, particularly amongst those who have not had experience of significant flood events. This may help avoid the tendency for feelings of helplessness to promote apathy and blame seeking.

**Recommendation Four:-** in order to help maintain public confidence in official ability to accurately communicate risk greater coordination is needed between organisations responsible for flood and coastal management. For example, there is some indication that the public perceive that the AVM is inaccurate this may need verifying possibly through independent monitoring.

**Recommendation Five:-** In assessing current levels of risk it is important to draw a distinction between estimated return periods (or equivalent) of past events and the frequency of flooding (or rate of erosion) experienced in practice. Wide circulation of the local historical flooding records may help make this distinction. Other measures for communicating historical flood events are to use markings on lamp posts, bridges and churches. However, such signs need to be developed in close cooperation with the community and perhaps individualised to help build community ownership and reduce the chance of them being removed due to the prospect of blight. The resolution of insurance issues should help avoid people removing historical signs of flood.

**Recommendation Six:-** The following are examples of best practice in risk communication which could be used to communicate risk more effectively:

- 1 in Birmingham and Hillfrance flood action groups have been involved in helping to publish and distribute local newsletters;
- 2 in Bewdley local flood wardens have provided an important link between the officials and the community. They can also provide some continuity where there is high staff turnover;
- 3 in Birmingham a local flood liaison officer has been employed by the Council to provide an important link between the Council and the flood victims;
- 4 in Bewdley the local EA officer took people to see some reservoirs which had been the subject of a local rumour. This helped convince the community that they were not the cause of the flooding or FAGs taking on an information advisory role, and
- 5 flood defence committees need to be made more accessible and open.

**Recommendation Seven:-** Rumours concerning factors which are believed to be exacerbating flood risk must be taken seriously by the relevant authorities and efforts made to (a) recognise their validity and investigate them, and (b) address them as far as is practicably or politically feasible or explain that they are not really significant. Ignoring such rumours alienates the public and provides fertile ground for their growth and spread, whilst addressing them enables false rumours to be explained and put to one side. This, in turn, provides for efforts to be focused on other 'rumours', which are worthy of investigation and/or further efforts to explain and put to one side. The propagation of false rumours can hinder efforts to develop public participation and address the 'real' issues.

**Recommendation Eight:-** In dealing with flood (and erosion) risk, there needs to be a greater distinction between the components of risk - likelihood (or probability) and the resultant harm. In order to achieve this a standardised set of terminologies employing year on year % chance, odds, return period, or probability of flooding as compared with similar more well known risks, all of which are well known to the Environment Agency, should be developed. Furthermore, these terminologies should be accompanied with a short and concise explanation that the harm from an individual flood event can vary due to the depth and duration of the flood and the self help measures undertaken.

This full range of terminologies should always be reproduced together on any official publication regarding the risks associated with flood and coastal defence. This will help reduce the reliance on return periods, which was not well received during the study, as the favoured form of risk communication at present.

Although, there may be merit in using qualitative terms (such as high, medium and low), there needs to be further debate as to how such terms should be derived from numerical terms. In relation to the 'harm' component of risk, there needs to be a clearer emphasis that this is most likely to be influenced by self-help measures.

**Recommendation Nine:-** In relation to 'difficult' issues, which the experts feel are not easily communicated, one means by which the communication could be facilitated is through the use of 'easy to understand' leaflets or briefing notes which explain to the lay-person such concepts as the national flood and coastal defence policy, the importance of sediment transport and the use of economics in decision making. This will help manage expectations and aid more public participation in planning. These leaflets need to emphasise the human impacts of flooding and need to be circulated to a targeted section of the public using the typology above. Furthermore, if the local community is involved in their development and distribution it may increase the chance of readership.

**Recommendation Ten:-** The IFMs could be improved and suggestions from the research include: more local detail; depths of floodwater; possible flow direction and local variations in topography. They could take account of current flood management schemes and should be easily updateable. The practicality of layering maps so that more detailed scales can become available should be investigated. Maps could also become part of the property related searches undertaken by solicitors but not estate agents. The maps should also include a clear explanation of the risk as described in recommendation Five.

**Recommendation Eleven:-** Greater use of comparisons to other risks people face in daily life to communicate risk. No comparison is perfect so it cannot be relied upon in isolation. It needs to be complimented by the other techniques as described in recommendation five. A possible example is the use of data on the likelihood of house fires.

**Recommendation Twelve:-** There is great potential to capitalise on the potential of community expertise, networks and champions to (a) gather information concerning the behaviour of water, flood risks and appropriate responses, (b) assist in the development and utilisation of appropriate risk communication strategies, and (c) assist in the development and operationalisation of appropriate flood response strategies and actions (including post-flood measures). The Environment Agency and Local Authorities could play a facilitating role in providing information and some resources to help communities take some responsibility for their own risk communication and flood preparation. Recommendation six shows some good practice examples of officials and the community working together

**Recommendation Thirteen:-** Information put forward by local people should be assessed and, where appropriate, employed in decision-making processes. There are few things more guaranteed to alienate locals than discounting and ignoring the information they offer, even if it does contradict 'expert' opinion. Furthermore, such information may prove to be of value in modelling and assessment exercises.

**Recommendation Fourteen:-** Feedback should be seen as an essential part of the consultation process. It is just as important to explain why an option has not been pursued as to why the preferred one has been chosen. Moreover, there is a need to demonstrate to the public that officials do appreciate the wider issues.

**Recommendation Fifteen:-** The role and workings of some existing flood and coastal defence institutions could be given much more publicity - and, indeed, may provide a suitable forum for stakeholder concerns to be expressed and considered.

**Recommendation Sixteen:-** Token public participation can be more damaging than no participation; it is important to (a) provide the public with accessible and comprehensible information on the case issues, particularly concerning wider-geographical scale, longer-term and strategic budget issues; (b) demonstrate that all options and their consequences are openly detailed to the public; (c) elicit their views and priorities in a thorough and appropriate manner; (d) demonstrate that the public's views and priorities are fully considered in decision-making processes; and (e) subsequently explain the basis on which decisions have been made. The appropriateness of different approaches to achieving these aims in different contexts and at different levels will be explored in phase 2 of this study