Joint Defra/EA Flood and Coastal Erosion Risk Management R&D Programme

Community and public participation: risk communication and improving decision-making in flood and coastal defence

R&D Technical Report FD2007/TR

Community and Public Participation: Risk Communication and Improving Decision-Making in Flood and Coastal Defence

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Statement of use

This technical report contains the results of the first phase of a study reviewing the effectiveness of consultation and communication procedures and practices used in flood and coastal defence in England and Wales. The study puts forward recommendations and a plan for additional work which has not been commissioned within the joint Defra / EA programme, however the Environment Agency is undertaking work on consultation and communication to support a wide range of activities. This report is primarily intended to inform Defra and Environment Agency flood and coastal erosion risk management staff, the findings represent the view of the contractor and are not necessarily endorsed by either Defra or the Environment Agency.

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Executive Summary

Scott Wilson, with assistance from Risk & Policy Analysts Ltd (RPA) and others, has undertaken a Research & Development project, on behalf of the Department of Environment Food and Rural Affairs (Defra) and the Environment Agency, entitled: Community and Public Participation: Risk Communication and Improving Decision Making in Flood and Coastal Defence.

The aim of this study was set out in the brief and is as follows:

"To review the effectiveness of consultation and communication procedures and practices used in flood and coastal defence in England and Wales and, from this, to put forward suggestions for best practice methodologies to enable the public and stakeholder groups to better appreciate flood and coastal defence issues. From this, appropriate recommendations may be put forward on how to effectively raise awareness and understanding and thus seek to reduce conflicts when implementing flood and coastal defence policies, projects and plans."

The research was split into two phases. The first has produced recommendations on improving risk communication. The second phase is to build on this work by developing guidance on public participation and conflict resolution in flood and coastal defence decision-making. This report provides details of the research undertaken during phase one only and reports its findings. The specific objectives pertaining to this phase of work are reproduced below:

- to understand better the public attitudes towards flood and erosion risk, so that policy can be developed accordingly;
- to evaluate risk communication techniques against a range of user needs and data availability and, from this, to identify best practice techniques for use in raising the level of understanding and awareness by those who live and work in high risk areas, low risk or populations potentially at risk from flooding;
- to identify effective practices to improve the understanding of flood and coastal defence terminology; and
- to develop techniques for improving awareness, knowledge and expectations on sensitive flood and coastal defence policy issues.

The conclusions and recommendations section is structured in a manner that ensures that all four of these "stage one" objectives are addressed in full by this report

This first phase of the project investigated 12 case studies, of either fluvial flooding or coastal flooding and erosion, throughout England. Four of the case studies were undertaken in detail including interviews with officials and focus groups with members of the community. The remaining eight were undertaken using a postal questionnaire survey only. This approach to the case studies allowed both an in depth analysis of the complexity of the issues, as well as some breadth to the information gathered to ensure that all variables were covered. See the table below for details:

Four detailed case studies (focus group and interviews)	Uckfield Holderness	Bewdley Arun to Adur
Eight less detailed case studies (postal questionnaires)	Wigan Alconbury Rea Valley Yalding	Boston Taunton Nottingham Worcester

The results of the case study were augmented with a literature review (which formed a separate report) and two national round tables, of invited national experts and flood action group members. This combination of methods, including those used within the case studies, ensured that sufficient data was collected. The analysis was undertaken by "triangulating" the different data to identify emerging themes.

The results of this project are summarised below:

- It is risk perception not risk understanding which is the major barrier to communication;
- The public can not be treated as one target group as in reality they are made up of many different groups with different perceptions;
- The Government's definition of risk was not well received - a range of methods of expressing probability should be used;
- The principle behind the Indicative Flood Plain Maps (IFM) was thought to be correct. However, the lack of detail and perceived inaccuracy undermined their value;
- Evidence from the case studies suggests that the public believe that the risk of flooding is increasing. The reasons that are cited are mainly man made;
- The risk message is diluted due to the presence of local rumours, mistrust of officials and scepticism of their competence;
- The public found that there was an inconsistency between the warnings they received from Floodline and the Automated Voice Messaging System (AVM). This reflected a wider perception that there was a lack of coordination both within and between key bodies with responsibility in flood and coastal defence;
- The way the public perceives risk is influenced by the factors that worry them. This research suggests that different members of the public are worried by a variety of factors;
- More effective public participation in schemes and plans can help build trust and understanding within the community which in turn helps communicate risk more effectively, and
- There is often significant expertise in the local community that is not fully utilised.

To understand better, public attitudes towards flood and erosion risk (so that policy can be developed accordingly), the recommendations of the report are reproduced below, categorised under the following four objectives:

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.

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. flood line
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 a perceived lack of action provides space for these rumours to grow. Have useful local knowledge.	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 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 communicating 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 NFWC risk database and people who are constantly moving in and out of the area.	The NFWC 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 NFWC risk data.	General awareness work in order to raise understanding nationally to enable this group of people to assist neighbours and 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.	These people are very difficult to reach, they do not read direct mail or use local media. This is primarily, at least initially, an awareness raising exercise.	Information needs to be personalized. Once again including issues of harm in the risk message may help raise awareness. Use of local flood action group or a nominated Warden to actively talk to people An exhibition in the immediate area run by local people may be useful for those who lack awareness.
Informed but Unconcerned Those that are 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.	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. It 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, Blockbusters, supermarket chains etc so that they can disseminate information to their employees.

To evaluate risk communication techniques against a range of user needs and data availability and, from this, to identify best practice techniques for use in raising the level of understanding and awareness in those who live and work in high and low risk areas or among populations potentially at risk from flooding.

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.

Recommendation Three:-
When communicating risk, a balance needs to be struck between, on the 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 use of self help guides, particularly amongst those who have not had experience of significant flood events. This may help to avoid a tendency toward feelings of helplessness, apathy and blame seeking.

Recommendation Four:- Greater coordination and cooperation is needed between organisations responsible for flood and coastal management. For example, Independent monitoring needs to be carried out on the performance of the AVM so that the questions over its accuracy can be settled objectively and appropriate action taken. Queries and other dealings with the public need to be checked through a principle point of contact.

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 lampposts, 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.

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

- **in Birmingham and Hillfrance, flood action groups have been involved in helping to publish and distribute local newsletters;**
- **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;**
- **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;**
- **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**
- **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 be 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.

To identify effective practices to improve the understanding of flood and coastal defence terminology.

Recommendation Eight:-
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 Nine:-
The IFMs need to be improved to include more local detail, depths of floodwater and possible flow direction as well as local variations in topography. They need to take account of current flood management schemes and be easily updateable. The practicality of layering maps so that more detailed scales can become available should be investigated. Maps should 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.

To develop techniques for improving awareness, knowledge and expectations on sensitive flood and coastal defence policy issues.

Recommendation Ten:-
Use 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 a house fire.

Recommendation Eleven:-
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 operationalisation of appropriate flood response strategies and actions (including post-flood measures).

Recommendation Twelve:-
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 Thirteen:-
Use should be made of local community groups and expertise. 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 four shows some good practice examples of officials and the community working together.

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 the Regional and Local Flood Defence Committees need to 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.

Recommendation Seventeen:-
An important but often overlooked aspect of improving relations amongst stakeholders and relevant authorities is that employees of the latter themselves need to be able to develop their knowledge, confidence and security. High staff turnover, disempowerment, conflicts with line managers and a culture of blame avoidance, coupled with conflicts between RAs and between sections within an RA will critically undermine officers and the confidence that the public have in them, both as individuals and as organisations.

Recommendation Eighteen:-
Greater coordination needs to occur between the top-down approach to nature protection (from European Legislation) and the more bottom-up approach to protecting people (local flood defence committees). A catchment based approach to planning, possibly facilitated through the water framework directive requirements (accepting that these are aimed at improving water quality but that the required catchment approach could have spin-off benefits for flood risk management) together with involving representatives of different communities, offers a potential way forward.

Finally, a work plan for phase two of the research has been proposed. The revised work plan takes into account the findings of phase one and acknowledges a closer relationship between the two phases than originally envisaged by the brief. This second phase of work, if approved, will draw upon some of the research into public participation undertaken during phase one, and revisit some of the original case studies, to enable detailed guidance on risk communication, public participation and dispute resolution to be developed.

Contents

1 Introduction

1.1 Overview of Study

Scott Wilson, with assistance from Risk & Policy Analysts Ltd (RPA) and others, has undertaken a Research & Development project, on behalf of the Department of Environment Food and Rural Affairs (Defra) and the Environment Agency, entitled: Community and Public Participation: Risk Communication and Improving Decision Making in Flood and Coastal Defence.

The stated objective of this project brief is:

"To review the effectiveness of consultation and communication procedures and practices used in flood and coastal defence in England and Wales and, from this, put forward suggestions for best practice methodologies to enable the general public and stakeholder groups to better appreciate flood and coastal defence issues. From this, appropriate recommendations may be put forward on how to effectively raise awareness and understanding (of risk) and thus seek to reduce conflicts when implementing flood and coastal defence policies, projects and plans."

In order to meet this objective, the project has been undertaken in two stages. Stage 1 has provided a general understanding of the current communication processes in relation to both flood risk and flood and coastal defence issues.

Stage 2 is intended to take forward the findings of Stage 1 by exploring means by which public participation could reduce conflicts in developing and implementing flood and coastal defence policies, projects and plans.

The purpose of the stage one report is to understand how the perceptions of risk may influence decisions on how best to communicate it. Risk is a notoriously difficult concept to convey.

1.2 Risk

The use of the word risk within the field of flood and coastal defence is commonplace. The EA has recently published Indicative Floodplain Maps and its Floodline information pack, which refer to 'areas at risk of flooding' and 'areas of particular risk'. Defra's Project Appraisal Guidance Series refers to risk based methods for appraisal and specifically covers risk in PAG 4 - Approaches to Risk[1].

The EA does not provide a definition of risk on the floodplain maps nor in its Floodline information pack and it is left to the individual member of the public to decide how to interpret the information. Of course, we are all used to dealing with risk every day when crossing the road or lighting a gas fire. In these instances, there

1 MAFF (now Defra) (2000): Flood and Coastal Defence Project Appraisal Guidance - Approaches to Risk (PAG 4), London, MAFF (Defra).

is a chance that we will be injured or killed by being involved in an accident or explosion.

PAG 4 indicates that risk depends on a combination of both the likelihood and consequences of an event. This is not novel and reflects definitions used across the risk field. By way of example, the Royal Society came to the view[2] that risk could be defined as:

"a combination of the probability, or frequency, of occurrence of a defined hazard and the magnitude of the consequences of the occurrence";

and, the British Standard Institution uses a similar definition[3]:

"the combination of the likelihood and consequence of a specified hazardous event occurring."

These views of risk are reflected in a major parallel study being undertaken as part of the EA/Defra Risk & Uncertainty Theme, which is examining, inter alia, the principle of risk. As stated in the most recent draft[4]:

"Risk, therefore, has two components - the chance (or probability) of an event occurring and the impact (or consequence) associated with that event."

For this study, we shall use the following definition, which reflects the usage of risk in both flooding (and erosion) and other fields:

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

This definition will form the cornerstone of our understanding of the risks associated with flooding and erosion. It should be noted that 'likelihood' relates to chances per year (i.e. expected frequency) whereas probability is the chance of occurrence within a specified time frame or per event.

Expressions of such risks will then be of the form:

- the risk of a flooding event in this location (the specified adverse consequence) is one chance in 100 per year (the likelihood);
- the risk of an individual being drowned in a flood similar to that experienced in 1998 (the specified adverse consequence) is 1 in 1,000 (the likelihood - or, more correctly in this case, the probability);
- the risk of the cliff receding 10m in the next 5 years (the specified adverse consequence) is one chance in 20 (the probability), and
- the risk of my house being flooded to a depth of 0.5m (the specified adverse consequence) is once every 200 years (the likelihood).

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[2] Royal Society (1992*):* ***Risk: Analysis, Perception and Management***, London, Royal Society.

[3] British Standard Institution (1996): BS 8800:1996 ***Occupational Health and Safety Management Systems***, London, BSi.

[4] HR Wallingford (2002): Risk, Performance and Uncertainty in Flood and Coastal Defence - A Review, SR587 2nd Draft dated January 2002.

As illustrated by the above examples, in order to 'measure' risk, it is clearly necessary to adopt a means to indicate the likelihood (expected frequency) or probability of the consequence occurring. Furthermore, it would be desirable if such a means could be applied consistently. PAG4 notes that river and coastal engineers are familiar with the concept of 'return periods' as a measure of likelihood that a given parameter, such as river level, will be exceeded (for example, level X has a return period of 50 years). However, the concept of 'return period' is not one that is easily understood by laypeople. It is worth noting that, in the recently published planning guidance on flood risk (PPG25[5]), the use of return periods has been replaced by percentages of the form: 'annual probability of flooding is 1.0%'. Furthermore, in a recent report by the Institution of Civil Engineers[6] it is stated that:

"... flood engineers must also improve their attempts to communicate with the public and scrap references to return periods for floods and start talking about 'odds' of a major flood happening."

Although this comment is to be welcomed (and this project will directly address this concern), will the use of 'odds' be better understood in communicating the likelihood of an event happening?

To give an example: a flood event with a return period of 100 years (i.e. one that has a 1 chance in 100 per year or a 1% annual probability) has:

a 10% (i.e. 1 in 10) chance of happening within the next 10 years;
b 33% (1 in 3) chance of happening in the next 40 years; and
c 50% (50:50) chance of happening in the next 70 years.

A layperson that has just been flooded by a 100-year event may consider that it will not happen again for 100 years and therefore 'feel safe'. On the other hand, a person who has lived in their house for three years and within that time has experienced a similar flood (a 100 year event) may consider that they will experience the same flood every three years.

Similar examples can be used for cliff erosion. Whilst a cliff may have an average recession rate of 2m per year, this recession may be associated with occasional major collapses (say, on average, 20m every 10 years). Such statistics enable generation of risk expressions relating chances of particular outcomes - for example, there may be a 10% chance that the cliff will erode by more than 40m in the next 10 years.

The impact of flooding is also difficult to communicate to those who have not had first hand experience. Consequently, the EA's Floodline pack includes comments from 'victims' such as:
... the flooding was so bad it ruined everything. I don't know if I can bring myself to go back there. It doesn't feel like home any more.

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[5] DTLR (2001): **Planning Policy Guidance Note 25: Development and Flood Risk,** London, DTLR dated July 2001 and available from DTLR website.

[6] ICE (2001): **Living with Rivers**, London, Institution of Civil Engineers, report dated November 2001 and available from www.ice.org.uk

Floodwater can be fast moving and deep, leading in extreme cases to drowning. It can cause homes to be uninhabitable for many months and sometimes years, due to time required for drying out, repairing structural damage and replacing contents. Floodwater is often contaminated with sewage with associated health concerns and water can damage precious and irreplaceable personal belongings (photographs, videos, etc) as well as causing great concern (stress).

To communicate risk effectively requires a means to convey the nature of the two components - chance (perhaps expressed as a likelihood or probability) and impact - in terms that are readily understood.

It is clear from this definition that risk is made up of two components: the likelihood it will happen and the severity of the impact once it does happen.

2 Methodology

2.1 The Case Studies

As originally set out in the Consultants' tender submission, each and every area at risk of flooding (or erosion) may be characterised by a range of site-specific factors. Examples include:

- nature of area at risk: for example - urban, rural, industrial, commercial, agricultural, areas of environmental importance, etc;
- stakeholders: potential stakeholders include those at risk (residents, farmers, landowners, companies, etc.), their representatives (councillors, MPs, flood action groups, etc.) and responsible authorities (Environment Agency, English Nature, etc.);
- nature of risk: flooding (fluvial and/or coastal) or erosion;
- level of risk: ranging from very low (i.e. event has a very low chance of occurrence) to very high (i.e. high chance of flooding), and
- potential for risk reduction: in other words, is a scheme likely to be justifiable on cost-benefit grounds?

For the purposes of Stage 1, it was agreed that 12 case studies should be undertaken to represent a range of the above factors. These were undertaken at two levels:

- four detailed case studies were investigated through a series of semi-structured interviews with key stakeholders together with focus groups; and
- eight case studies were investigated through the use of questionnaires.

The case study locations are shown in table 1.1 below:

Table 1.1: Case study locations

Four detailed case studies (focus group and interviews)	Uckfield	Bewdley
	Holderness	Arun to Adur
Eight less detailed case studies (postal questionnaires)	Wigan	Boston
	Alconbury	Taunton
	Rea Valley	Nottingham
	Yalding	Worcester

2.2 Approach to Case Studies

A two-pronged approach to the case studies was undertaken. The first set of case studies were designed to provide detailed information on risk perception and the efficacy of different communication techniques employed by officials. This necessitated a set of in-depth methodologies. Therefore, focus groups and semi-structured interviews were employed. This allowed avenues of questioning to be pursued as they opened up during the case studies.

The second set of case studies was designed to be less detailed and to gather a wider breadth of information. Internal team discussions revealed a large number of potential variables, which could affect the case study results. It was felt that four detailed case studies would not allow all these variables to be covered, so a further eight were proposed. However, due to the limitations of time and resources, these would be undertaken in less detail employing a postal questionnaire survey. This approach allowed the researchers to engage a greater number of people in the study but did not allow more detailed areas of questioning to be pursued if some interesting results emerged as the study progressed. In order to ameliorate this potential disadvantage, it was decided to undertake the detailed case studies first, which allowed any emerging areas of interest to be further pursued through the postal questionnaires.

2.3 Case Study Selection

Through the literature review, round table and discussions with the Steering Panel, a list of 12 possible locations across England was drawn up based on the knowledge of the team. Of these 12, 8 were selected as locations for the less-detailed case studies and 4 were selected as the locations for more detailed case studies.

Members of the Steering Panel were asked to provide Environment Agency contacts in these locations so that the suitability of these case studies could be checked with local experts. Scott Wilson notified all relevant Environment Agency area managers to ensure they were aware of the project, and to identify any possible concerns regarding the work. Where concerns were raised, meetings with key stakeholders were held to ensure that these were addressed.

For each of the study areas, background information was collated to provide a 'factual' backdrop to the subsequent discussions with a range of key stakeholders and associated community groups.

2.3.1 Evaluative Criteria

It was proposed in the bid and the scoping report that a series of evaluative criteria would be developed to help identify case studies, and provide a consistent basis for the development of interview and focus group protocols, as well as the questionnaire survey. The first draft set was developed in the scoping report (March 2002). The evaluative criteria were developed from: the study objectives as outlined in the brief,

discussions with the study team (in particular the expert panel of academics) and the initial kick-off meeting with the steering panel.

The evaluative criteria that were used to develop the interview and focus group protocols, as well as the questionnaire were as follows:-

Flood and coastal defence management (hard and soft engineering)

- Status of existing protection.
- Types of measures employed (soft or hard engineering based solutions).
- Status of planned new protection.
- Decisions on not to provide new/additional protection.
- Actions taken by local community.
- Adequacy of flood warning.

Risk

- Current return period for flooding or erosion rate.
- The nature of previous flood events (scale of damage, financial loss, extent of evacuation, degree of insurance cover).
- Is the risk increasing in the medium/long term

Public risk awareness

- Degree of awareness amongst the community of whether they are at risk.
- What are the perceived risks?
- What are the causes of the risks (manufactured or external)?
- Degree to which information has been imparted (covering breadth and depth as well as secondary impacts and less quantifiable issues).
- Public perception of risk compared to the expert assessment.
- Actions taken by the local community (flood action group).
- Language used in communicating risk to the public.
- Methods used to communicate risk.

Context and conflict

- History of tension amongst the public and relevant authorities.
- History of tension amongst relevant authorities.
- Satisfaction over the communication process.
- Satisfaction over the development, appraisal and selection of options.

Public trust and confidence

- Trust and confidence among the public in what the experts say.
- Degree of stress and tension (worry) within the community.
- Performance of relevant bodies in pre- and post-event management and rehabilitation.
- Public acting on their own initiative.
- Sense of unfairness in the decisions that have been taken.

- Views on present institutional arrangements.
- Is more information required?

Flood policy and planning

- The presence of a strategic initiative in the area, for example catchment management plans (CMP), coastal habitat management plans CHaMP or Shoreline management plans SMP
- Is a scheme being undertaken in isolation?
- Is there a coordinated and integrated planning and participation strategy for the area?
- How do funding limitations effect the provision of flood and coastal defence measures?
- How do policies and decisions take account of uncertainty over risk (e.g. climate change)?
- How do decisions take account of issues related to fairness (conservation issues, economic valuation, and differences in house prices)?
- Were soft and hard engineering options investigated fully?

Public participation process

- What were the strengths and weaknesses in the communication/participation process?
- Community involvement in participatory processes relating to flood and coastal defence.
- What type of process related to what type of plan/scheme (purpose of the exercise)?
- Degree to which the process is continuous, interactive, open and inclusive, providing feedback to participants.
- How effective was the process and what impact did your involvement have on the decision?
- How transparent was the decision-making process?

Public participation methodologies

- The type of methodologies used - passive or active, face-to-face.
- Was a range of methodologies used?
- What improvements could be made?

2.3.2 Semi-structured Interview Methodology

In each area, following a site visit, discussions were held with representatives of those at risk, with the responsible authorities and other interested parties. Further details of the case studies and the interviewees can be found in Chapter 3. An interview protocol was developed and forwarded to all those charged with carrying out interviews to ensure consistency between case studies.

2.3.3 Focus Group Methodology

Focus groups were held in 4 case study locations across the country. The focus groups included people from 3 different categories - those who are at risk of flooding and who know it, those who are at risk of flooding but do not know it and those who are not at risk of flooding. The purpose of including these 3 groups was to gain a broad idea of how effectively risk is currently communicated.

The focus groups consisted of 6 - 8 attendees, to encourage discussions and ensure there was a mix of opinions. Each of the 4 case study locations had 3 focus groups to ensure replicability. These focus groups were held over a number of dates, incorporating daytime and evening groups to ensure there were plenty of opportunities for a diversity of stakeholders to attend.

In order to identify suitable attendees Scott Wilson contacted the local authority (LA) and the local Environment Agency office, which provided contact details for people who had previously been flooded or who had shown an active interest in flood and coastal defence issues. Letters were sent to these people inviting them to attend the focus groups and requesting details of further potential attendees that fall into the 3 categories as outlined above. Local Authorities and attendees recommended suitable venues to hold the focus groups within the community.

A series of questions were devised for use in the focus groups. These questions were based on the evaluative criteria and covered the following issues:

- how the Environment Agency has communicated risk;
- how this communication could be improved, and
- how the public is involved in decision-making processes.

These questions were asked during the focus groups, and helped guide the focus group discussions. Scott Wilson staff or associated consultants facilitated the focus groups, with a typist to record proceedings and a Dictaphone to provide a fuller record of the deliberations.

2.3.4 Questionnaire Methodology

Questionnaire Design

Objectives based on the evaluative criteria were established to help define the purpose of the questionnaire. The questionnaire was then drafted around these objectives as well as using the interview protocol and the evaluative criteria. Care was taken to ensure that the language used was simple and easy to understand. The questionnaire was then issued to the Steering Panel for comment. Once all comments had been received, they were reviewed and, where necessary, incorporated into the questionnaire. The final draft was then issued again to the Steering Panel for final comment. It was also issued to a number of relevant stakeholders for piloting, for example Gill Holland from the National Flood Forum and Simon McCarthy, a research student specialising in flooding. All the comments received were incorporated into the final questionnaire.

Questionnaire Dissemination

The questionnaire was sent to 100 people at each of the 8 case study locations. The addresses of the 100 participants for each location were provided by the Environment Agency's National Flood Warning Centre. The addresses were provided in a database format, giving the names of every household that had been flooded in the case study county, and categorising each address according to its flood risk. A sample of addresses was obtained for the postcode area within each case study. In some cases there were thousands of potential addresses. In order to obtain only 100 addresses, including some at all levels of risk, a systematic sample was taken. As an incentive to encourage the public to return the questionnaire, each response was entered in a prize draw to win £50 and donate £50 to a registered charity of their choice.

A total of 203 completed questionnaires were returned and the results were entered into a database for analysis. Analysis was undertaken using SPSS software, which enables cross tabulations and statistical analyses.

At the outset, it is important to emphasise that it was not the intention of this work to assign opinions to named individuals but rather to explore the range of views amongst different stakeholders in different circumstances. As such, no individuals have been named and every effort has been made to ensure there are no links between particular views and identifiable individuals.

Round Tables

Two round tables were held with key stakeholders. A list of participants is contained in Annex 6. The purpose of the first round table was to scope the issues in preparation for the case study research. The main outcome of this round table was the evaluative criteria that were augmented by the findings of the literature review.

The second round table was held after initial conclusions had been drawn from the case study research. This allowed the checking of emerging recommendations with some of the key stakeholders. This was a very valuable process as it helped elicit some interesting points, which were included in the discussion and conclusions in Chapter 7.

3 Conclusions and Recommendations

3.1 To better understand peoples attitudes towards flood and erosion risk so that policy can be developed accordingly

Greater affluence and improved standards of living have resulted in an apparent aspiration for a society free of involuntary risks, underpinned by a belief that the state has a duty to insulate people from harm (HSE, 1999). The research has shown that the public cannot be treated as one audience. At the very least there appears to be a clear split between the attitudes of those that flood and those that don't. This can be seen in the disagreement between the respondents to the questionnaire and the second round table attendees over the worst impact of flooding. In order to facilitate a more sophisticated analysis of attitudes, this study has categorised the at-risk public.

Table 7.1 Categories of Public at Risk

Experienced Regular Flooders and those that have other flood and coastal experience.	Resigned to, or aware of the limitations of, Government action.
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. Susceptible to local rumours.
Lack of Understanding Those that have not been flooded, have received information and do not understand the risk.	Do not believe they will be personally affected by flooding
Information Deficit Those that have not been flooded and have not received the information.	The deficiencies of the NFWC risk database and people who are constantly moving in and out of the area.
Not at Risk Those that will not be flooded.	Deficiencies of the NFWC risk data.
Communication Deficit Those that are difficult to reach.	Are not aware of flooding as an issue.
Informed but Unconcerned Those that aware of the risk but are unconcerned.	Willing to take the risk.
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.	Not fully aware of the impact of new policies on their business operations.

The other major finding of the study is the gap in perception between the experts/decision makers and the public. The public focus their concerns on what they believe is a changing risk environment and apportion blame on the experts and decision makers (i.e. reflexivity). The experts believe the public have a short-term view and that the risk is largely constant (non reflexive).

Within this context of disagreement between the public and experts, space is created for local rumours to spread. These provide a hook on which the public's scepticism can be hung and in turn further exacerbate the lack of trust. They are also a strong indication/signal of the problems faced by those who want to communicate risk.

Different approaches to communicating risk need to be developed through rigorous trailing with different public groups (perhaps through the 2nd phase of this project). Appropriate combinations of such approaches can then be employed.

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 7.2 Typology of Risk Communication

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. flood line
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 a perceived lack of action provides space for these rumours to grow. Have useful local knowledge.	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 harm. The reduction in harm is something the public can do reasonably

Category	Barriers to Communication	Recommendations
		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 communicating the risk of flood and erosion should be used and 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 NFWC risk database and people who are constantly moving in and out of the area.	The NFWC 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 NFWC risk data	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

Category	Barriers to Communication	Recommendations
		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	These people are very difficult to reach, they do not read direct mail or use local media. This is primarily, at least initially, an awareness raising exercise.	Information needs to be personalized. Once again including issues of harm in the risk message may help raise 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.
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.

The detailed practical realisation of this typology in the planning of risk communication and public participation will require further work. However, this typology should be used to develop a communication strategy which employs a number of different messages, distributed through a several different media and is complemented by a range of more participative methods of communication such as focus groups, citizen panels and house hold visits.

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.

3.2 To evaluate risk communication techniques against a range of user needs and data availability and, from this, identify best practice techniques.

This study has found instances of poor practise, largely resulting from the lack of coordination and cooperation between and within organisations responsible for flood and coastal management. Symptomatic of this was flood victim's opinions of significant flaws within the AVM system that the Environment Agency seem largely unaware of. It is surprising that when flooding can have such serious consequences for harm to life and property, there are still doubts about the effectiveness of the warning systems.

However, this study has also found instances of best practice, which have two common denominators:

- using more participatory techniques which rely on effective two way communication with adequate feedback and a right of reply, and
- facilitating the local community to take the initiative in communicating the issues and capitalising on the existing capacity of the community to do so.

The Environment Agency (in particular) has made efforts to express risk in various ways (return periods, odds and % chance). Stakeholders did not see this as a significant communication barrier. However, where the expression of risk of flooding by the authorities does not match the experience of those that have been flooded, then there is a possibility that the public (in particular) will not be receptive to the views of the authorities.

Furthermore, there was a general consensus that scheme promoters had made considerable efforts to inform and to encourage debate with stakeholders (including the public) during the course of a scheme development. However, where issues were 'difficult', these were not always fully explained (to the public in particular).

Currently much communication on risk is characterised as one way, overly technical, unsympathetic to the concerns of the public, and proffered by unaccountable and closed expert committees (HSE, 1998). This study has confirmed that despite improvements, much of the public still perceive these criticisms as characteristic of risk communication and consultation in flood and coastal management.

The typology of risk communication shows that the needs of the stakeholders range from requiring no additional information to requiring detailed active participation techniques. Such detailed active participation techniques include face-to-face meetings, which can be used to explain complex issues, define the limits of the process and provide feedback.

In order for the public to participate in the consultation and decision-making process effectively, they need to be fully aware of the nature of the risks. However, in order to communicate risk effectively one needs to employ public participation techniques such as focus groups, round tables, workshops and meetings. This situation demands an iterative approach to communication and participation through adopting different public participation methods.

To communicate effectively with an audience the literature states that particular attention should be paid to creating trust and confidence and building capacity for people to take responsibility through:

- ensuring good and understandable information pertaining to the risk is available;
- engaging and demonstrating empathy with the audience;
- displaying openness and responsiveness to audience emotions, fears and concerns;
- demonstrating credibility, competence and commitment, and
- articulating the benefits of the proposed and/or alternative options for the audience.

These principles clearly point the way for the two-way dialogue associated with participation rather than the one-way flow of information implied by the word communication. While decisions are based upon technical and scientific knowledge their successful implementation is dependent on social, economic and political considerations.

Recommendation Three:-
When communicating risk, a balance needs to be struck between, on the one hand, promoting increases in the preparedness of the public and their potential for self and mutual assistance, and on the other, 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 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, apathy and blame seeking.

Recommendation Four:-
Greater coordination and cooperation is needed between organisations responsible for flood and coastal management. For example, independent monitoring needs to be carried out on the performance of the AVM so that the questions over its accuracy can be settled objectively and appropriate action taken. Queries and other dealings with the public need to be checked through a principle point of contact.

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.

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

- **In Birmingham and Hillfrance flood action groups have been involved in helping to publish and distribute local newsletters**
- **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.**
- **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**
- **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.**
- **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 rather than put them to one side. The propagation of false rumours can hinder efforts to develop public participation and address the 'real' issues.

3.3 To identify effective practices to improve the understanding of flood and coastal defence terminology.

The public cannot be considered as one amorphous whole and consequently a range of risk communication techniques should be used. On top of this it must be remembered that return periods have generated a lot of confusion and may even exacerbate the perception amongst sections of the public that the experts cannot be trusted to be correct. If return periods are to be used they should be one of many techniques and certainly not the first one that is presented to the public.

Furthermore, it is not helpful to separate out the understanding of flood and coastal defence terminology from recommendations for improving knowledge awareness and expectations. Enhancing the understanding of flood and coastal defence needs to address not only the message (terminology) but also the medium used to communicate and the characteristics of the target population.

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.

It is important to emphasise why observed flood events appear to confound the stated risks and the factors which make the prediction of such risks so difficult.

It is important to make risk communication meaningful to people, e.g. explain in terms of the likelihood of their properties being flooded and the likely consequences.

It is important to emphasise that the human impacts of flooding are the most important: those who have experienced flooding testify that human impacts, such as family disruption and feelings of vulnerability, are more enduring and important than material impacts, such as damage to property, blight and insurance problems. Misconception that flood impacts are largely restricted to the latter can cause underestimation of potential magnitude of outcome of floods.

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 need to be improved to include more local detail, depths of floodwater and possible flow direction as well as local variations in topography. They need to take account of current flood management schemes and be easily updateable. The practicality of layering maps so that more detailed scales can become available should be investigated. Maps should 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:-
Use 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 a house fire.

3.4 To develop techniques for improving awareness, knowledge and expectations on sensitive flood and coastal defence issues

In order to improve awareness, knowledge and expectations, the public's perceptions must be addressed directly. The public perceives risk as something that is increasing and is the result of bad management or human judgement. This should be used as a starting point to any communication strategy. In Uckfield, local residents demanded action from the government, as blame for flooding was placed squarely in the hands of the planning authorities, rather than the fact that they had bought a house near a river.

Similarly, regardless of whether a rumour is likely to be true or not, the Environment Agency must be seen to be dealing with the public's concerns. If these rumours are dealt with effectively at an early stage, it is likely that resources will be saved at a later stage in trying to overcome what may become a significant barrier to public understanding.

When a strategic issue is seen by the public to have a direct bearing on their circumstances, they are willing to engage at more strategic levels. A good example is coastal erosion, where the public tend to appeal to the long-term societal concerns as well as the individual ones in trying to persuade the authorities to provide coastal protection.

Recommendation Twelve:-
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 operationalisation of appropriate flood response strategies and actions (including post-flood measures).

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:-
Use should be made of local community groups and expertise. 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 four shows some good practice examples of officials and the community working together.

Recommendation Fifteen:-
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 Sixteen:-
The role and workings of the Regional and local Flood Defence Committees need to be given much more publicity - and, indeed, may provide a suitable forum for stakeholder concerns to be expressed and considered.

Recommendation Seventeen:-
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 publics 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.

Recommendation Eighteen:-
An important but often overlooked aspect of improving relations amongst stakeholders and relevant authorities, is that employees of the latter themselves need to be able to develop their knowledge, confidence and security. High staff turnover, disempowerment, conflicts with line managers and a culture of blame avoidance, coupled with conflicts between RAs and between sections within an RA will critically undermine officers and the confidence that the public have in them, both as individuals and as organisations.

Recommendation Nineteen:-.
Greater coordination needs to occur between the top-down approach to nature protection (from European Legislation) and the more bottom-up approach to protecting people (local flood defence committees). A catchment based approach to planning, possibly facilitated through the water framework directive requirements (accepting that these are aimed at improving water quality but that the required catchment approach could have spin-off benefits for flood risk management) together with involving representatives of different communities, offers a potential way forward.

4 Work Plan for Stage Two

In the project specification and approach (Section Two of the Tender Brief), it states:

"Stage 2 – Participation in Decision Making. Using the results of Stage 1, present a series of techniques whereby different interest groups, communities and stakeholders can be effectively involved in decision making on flood and coastal defence issues. In addition, pertinent extracts from relevant case studies should be used to provide an overview of methods to reduce conflict on specific flood and coastal defence issues (to be determined by the Tenderer after Stage 1")

The specific objectives of stage 2 are:

- "Using results from stage 1, develop best practice techniques and models (Guidance document) to engage stakeholders on flood and coastal defence policymaking and scheme implementation"
- To develop outline techniques (based on some overview case study research) to minimise conflict between different interest groups involved in flood and coastal defence, so that policy and scheme implementation is smooth and efficient. To outline the most suitable way forward for this work."

During the tendering process the similarities between stages 1 and 2 were highlighted before the interview panel. During the steering group meetings the view that both communication and participation fall upon the same scale and that good communication and understanding of risk is a prerequisite for good public participation was discussed. In light of these discussions the case study research was used to gather information on public participation as well as risk communication.

This connection between communication and participation was also highlighted in the brief. Para 4.4.4 states:

"Participation methods need to be put forward to assess whether better understanding and greater awareness of flood and coastal defence issues enable stakeholders to be more effective in the decision-making process"

In view of the findings of stage 1, the close linkages between the two stages and the fact that some information pertaining to stage 2 has already been collected and reported the following revised work plan for stage 2 is recommended.

4.1 The Purpose

Drawing on information gathered in the case study research, combined with some further interviews with key practitioners, the recommendations from stage one will be expanded to develop guidance for risk communication, public participation and dispute resolution. This guidance will be designed to sit alongside and compliment the Catchment Flood Management Plan (CFMP) Guidance, the PAG series and the forthcoming procedural guidance for Shoreline Management Plans (SMP). However,

it will consolidate existing guidance, which tends to be aimed at specific processes at one particular stage in the policy and planning hierarchy, in to one document, so that it is applicable to all levels of decision making, and helpful to a range of tools such as for example Environmental Impact Assessment, Social Impact Assessment and Multi Criteria Analysis.

4.2 The Amended Objectives

- Using results from stage 1, develop best practice techniques and models (Guidance document) to enable the relevant authorities to communicate risk effectively and engage stakeholders on flood and coastal defence policymaking and scheme implementation".
- To develop outline techniques (using some additional case study research based upon stage 1) to minimise conflict between different interest groups involved in flood and coastal defence, so that policy and scheme implementation is smooth and efficient. To outline the most suitable way forward for this work.

4.3 The Audience

The guidance will be targeted at:

- Flood Defence Managers
- Coastal groups
- Local and Regional Flood Defence Committees
- Local Authorities
- Defra Officials
- Environment Agency Officers

4.4 The Methodology

- Review secondary sources of Information - the following secondary sources of information will be used including: the literature on public participation, dispute resolution as well as the existing review of the risk communication literature to identify best practice; Environment Agency Guidance on communication plans for EIA, and Guidance on CFMP and SMPs.
- Develop the next iteration of the evaluative criteria from Stage Two - the existing evaluative criteria will be to developed and refined through an internal team workshop and consultation with the steering panel. This further development of the criteria will begin to highlight best practice principles of risk communication and public participation.
- Use the criteria to go back to the stage one case study information - this will enable a new set of questions to be asked of the existing data
- Undertake interviews with key practitioners - semi-structured interviews will be undertaken where the recommendations from the stage 1 report will be presented to the Environment Agency, local authority staff, statutory consultees as well as regional and local flood defence committee staff. One region in the country will be

chosen and a vertical slice through the policy and planning hierarchy will be undertaken. This will enable guidance to be developed, which is pertinent to all levels in the decision-making hierarchy. The interviews will present the recommendations to the practitioners and ask them to identify the strengths, weaknesses, opportunities and threats associated with implementing the recommendations from stage 1.

- Return to three of the case studies to undertake some more detailed information gathering. This will enable more detailed information to be gathered, which will be useful for operationalising the existing recommendations. The successful Integrated Coastal Zone Management Consultation process at Holderness, the scheme level participation at Bewdley, and the cooperation between the Flood Action Group and the Local Authority in Birmingham, offer the opportunity to undertake some more detailed SWOT analysis of the risk communication and public participation recommendations. These will also allow the guidance to be illustrated with detailed examples.
- Develop draft guidance.
- Hold third round table.
- Finalise guidance.

4.5 Differentiation between this Proposal with Current and Forthcoming Guidance

- Builds upon the idea that risk communication, public participation and dispute resolution are all on one scale of participation. It will consolidate existing guidance on these subjects and provide a one-stop shop for practitioners.
- Applies the information gathered in stage one to the development of practical and useable guidance, thus avoiding the research undertaken so for from sitting on the shelf.
- It will meet all the objectives originally set out in the tender brief
- It will enable guidance to be developed in close cooperation with those that will have to use it and those that will be part of the process (i.e. the public). It will draw on general interviews with key stakeholder as well as some more detailed case study research.
- It will maximise the use of the data already collected.

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